

II. PARTIES

4. Plaintiff Bench Walk Lighting LLC is a limited liability company organized and existing under the laws of Delaware. Its principal place of business is 485 Lexington Avenue, 29th Floor, New York, NY 10017.

5. Defendant controls a corporate group or common business enterprise consisting of a number of related subsidiaries that operate under the name “Lextar” to make, use, import, sell, and/or offer to sell light-emitting diode (“LED”) products and to conduct related activities within the United States.

6. Lextar Electronics Corp. is a foreign corporation organized and existing under the laws of Taiwan with a principal place of business located at No. 3, Gongye E. 3rd Road, Hsinchu Science Park, Hsinchu 30075, Taiwan. Lextar manufactures LED products and sells, imports, and/or offers them for sale in the United States.

III. JURISDICTION AND VENUE

7. This is an action for patent infringement which arises under the patent laws of the United States, in particular, 35 U.S.C. §§ 271, 281, 283, 284, and 285.

8. This Court has exclusive jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

9. Venue is proper in this district pursuant to 28 U.S.C. §§ 1391(b), (c), and 1400(b) because Defendant is a foreign entity and has transacted business in this judicial district and has committed acts within this judicial district giving rise to this action, directly and/or through subsidiaries; and/or Defendant has committed and/or induced acts of patent infringement in this judicial district directly and/or through subsidiaries.

10. Defendant is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Delaware Long Arm Statute, 10 *Del. C.* § 3104, due at least to Defendant's substantial business in this forum, directly or through subsidiaries, including: (i) at least a portion of the infringements alleged herein; and (ii) regularly doing or soliciting business, engaging in other persistent courses of conduct, and/or deriving substantial revenue from goods and services provided to individuals in this judicial district.

11. Defendant, directly and/or through subsidiaries or intermediaries (including distributors, retailers, and others), has committed and continues to commit acts of infringement in this District by, among other things, making, using, importing, offering for sale, and/or selling products and/or services that infringe the patents-in-suit. Thus, Defendant has purposefully availed itself of the benefits of doing business in the State of Delaware and the exercise of jurisdiction over Defendant would not offend traditional notions of fair play and substantial justice.

IV. FACTUAL BACKGROUND

12. BWL is the owner of the entire right, title, and interest of a portfolio of patents covering technologies used in LED products, including the patents-in-suit. The patent portfolio consists of 92 issued and pending patents from 70 patent families. The patent portfolio contains both U.S. and international issued and pending patents. Many of the patents in this portfolio were originally assigned to Agilent Technologies, Inc. and/or the successors of its LED business. Some patents of the portfolio were originally assigned to Avago Technologies Limited.

V. COUNTS OF PATENT INFRINGEMENT

13. Plaintiff alleges that Defendant has infringed and continues to infringe the following United States patents (collectively the "Asserted Patents"):

U.S. patent 6,806,658 (the '658 Patent) (Exhibit A)
U.S. patent 7,115,428 (the '428 Patent) (Exhibit B)
U.S. patent 7,239,080 (the '080 Patent) (Exhibit C)
U.S. patent 7,470,936 (the '936 Patent) (Exhibit D)
U.S. patent 7,488,990 (the '990 Patent) (Exhibit E)
U.S. patent 7,519,287 (the '287 Patent) (Exhibit F)
U.S. patent 7,847,300 (the '300 Patent) (Exhibit G)
U.S. patent 9,209,373 (the '373 Patent) (Exhibit H)
U.S. patent 9,887,338 (the '338 Patent) (Exhibit I)

COUNT ONE
INFRINGEMENT OF U.S. PATENT 6,806,658

14. Plaintiff incorporates by reference the allegations in all preceding paragraphs as if fully set forth herein.

15. The '658 Patent, entitled "METHOD FOR MAKING AN LED," was filed on March 7, 2003 and issued on October 19, 2004.

16. Plaintiff is the assignee and owner of all right, title, and interest to the '658 Patent, including the right to recover for past infringements, and has the legal right to enforce the patent, sue for infringement, and seek equitable relief and damages.

Technical Description

17. The '658 Patent addresses technical problems in the prior art of LED devices, including that a prior art manufacturing method "has a poor yield due to uneven phosphor dispersion in the reflecting cup," and that the "liquid casting epoxy tends to shrink during the heat curing process." (col. 1, ll. 31-41).

18. The '658 Patent provides a technical solution to the prior art problems by utilizing "a UV cured epoxy that sets in a very short period of time together with a thixotropic agent that retards the sedimentation of the phosphor particles." (col. 2, ll. 2-4).

Direct Infringement

19. Defendant, without authorization or license from Plaintiff, has been and is directly infringing the '658 Patent, either literally or equivalently, as infringement is defined by 35 U.S.C. § 271, including through making, using (including for testing purposes), selling, and offering for sale methods and articles made by methods infringing one or more claims of the '658 Patent. Defendant, individually and operating as part of a common business enterprise, develops, designs, manufactures, and distributes LED products that infringe one or more claims of the '658 Patent. Defendant is thus liable for direct infringement pursuant to 35 U.S.C. § 271. Exemplary infringing instrumentalities include Defendant's White LEDs, including the PC33H05 White SMD LED and all other substantially similar products (collectively the "'658 Accused Products").

20. BWL names this exemplary infringing instrumentality to serve as notice of Defendant's infringing acts, however BWL reserves the right to include additional infringing products into the definition of '658 Accused Products that are either known to BWL or revealed during discovery.

21. Defendant is liable for direct infringement pursuant to 35 U.S.C. § 271 for the development, design, manufacture, sale, or distribution of Defendant's PC33H05 White SMD LED.

22. Defendant's PC33H05 White SMD LED is a non-limiting example of an LED that meets all limitations of claims 3 and 4 of the '658 Patent, either literally or equivalently.

23. Defendant's PC33H05 White SMD LED comprises an LED, fabricated by mounting on a substrate, that emits light of a first wavelength:



24. Defendant's PC33H05 White SMD LED comprises a powder of phosphor.

25. Defendant's PC33H05 White SMD LED comprises a powdered phosphor converting light of a first wavelength to light of a second wavelength.

26. Defendant's PC33H05 White SMD LED comprises a powdered phosphor suspended in a photo-curable medium that sets upon exposure to light of a curing wavelength. Photo (UV) curing is a dominant technique for encapsulant curing and provides significant benefits versus heat curing. *See "UV-curable Encapsulants for LED"*, Oriental Journal of Chemistry, 2012, Vol. 28, No. (3): pg. 1135-1140; *"Thermally resistant UV-curable epoxy-siloxane hybrid materials for light emitting diode (LED) encapsulation"*, J. Mater. Chem., 2012, 22, pg. 8874-8880; *"Considerations for Encapsulant Material Selection for Phosphor-Converted LEDs,"* Application Note #16 Intematix Corp., December 2011.

CURING

There are two common methods of encapsulant cure – temperature and ultraviolet exposure. The prime consideration with temperature cure systems is the robustness of the package components, as most phosphor is able to withstand, without permanently degrading, processing temperatures of 200°C (400°F), which is above normal cure temperatures. UV cure systems are generally compatible with phosphors, but consideration must be given to the ability of the phosphor to absorb some of the UV energy and convert it into visible light energy, resulting in the need for longer exposure/cure times, or higher exposure intensities.

27. Defendant's PC33H05 White SMD LED comprises a phosphor layer wherein said photo-curable medium sets in a time less than that required for a change in concentration of said phosphor in said phosphor layer over said LED of more than 0.5 percent. Minimizing the change

in concentration of the phosphor in a phosphor layer over an LED to less than 0.5 percent via expedient photo-curing is a dominant technique for encapsulant curing and provides significant benefits. See “UV-curable Encapsulants for LED”, Oriental Journal of Chemistry, 2012, Vol. 28, No. (3): pg. 1135-1140; “*Thermally resistant UV-curable epoxy–siloxane hybrid materials for light emitting diode (LED) encapsulation*”, J. Mater. Chem., 2012, 22, pg. 8874-8880; “*Considerations for Encapsulant Material Selection for Phosphor-Converted LEDs,*” Application Note #16 Intematix Corp., December 2011.

Post-Complaint Willful Infringement

28. Defendant has had actual knowledge of its infringement of the '658 Patent at least as of service of Plaintiff's Complaint.

29. Defendant's risk of infringement of the patents-in-suit was either known or was so obvious that it should have been known to Defendant.

30. Notwithstanding this knowledge, Defendant has knowingly continued to infringe the '658 Patent. Defendant has thus had actual notice of infringement of the '658 Patent and acted despite an objectively high likelihood that its actions constituted infringement of Plaintiff's valid patent rights, either literally or equivalently.

31. This objective risk was either known or so obvious that it should have been known to Defendant. Accordingly, Plaintiff seeks enhanced damages pursuant to 35 U.S.C. §§ 284 and 285.

Post-Complaint Indirect Infringement

32. Defendant has induced and is knowingly and continually inducing its customers and/or end users to directly infringe the '658 Patent, with the specific intent to encourage such infringement, and knowing that the induced acts constitute patent infringement, either literally or equivalently.

33. Defendant has knowingly and continually contributed to direct infringement by its customers by having imported, sold, and/or offered for sale, and knowingly importing, selling, and/or offering to sell within the United States the '658 Accused Products which are not suitable for substantial non-infringing use and which are especially made or especially adapted for use by its customers in an infringement of the asserted patent.

34. Defendant's indirect infringement includes, for example, providing data sheets, technical guides, demonstrations, software and hardware specifications, installation guides, and other forms of support that induce its customers and/or end users to directly infringe the '658 Patent. Defendant's indirect infringement additionally includes marketing its products for import by its customers into the United States. The '658 Accused Products are designed in such a way that when they are used for their intended purpose, the user infringes the '658 Patent, either literally or equivalently. Defendant knows and intends that customers who purchase the '658 Accused Products will use those products for their intended purpose. For example, Defendant's United States website instructs customers to use the '658 Accused Products in numerous infringing applications.¹ In addition, Defendant specifically intends that its customers, such as United States distributors, retailers, and consumer product companies, will import, use, and sell infringing products in the United States to serve and develop the United States market for Defendant's infringing products.

35. As a result of Defendant's infringement, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement which, by law, can be no less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

¹ <https://www.lextar.com>.

COUNT TWO
INFRINGEMENT OF U.S. PATENT 7,115,428

36. Plaintiff incorporates by reference the allegations in all preceding paragraphs as if fully set forth herein.

37. The '428 Patent, entitled "METHOD FOR FABRICATING LIGHT-EMITTING DEVICES UTILIZING A PHOTO-CURABLE EPOXY," was filed on March 7, 2005 and issued on October 3, 2006.

38. Plaintiff is the assignee and owner of all rights, title, and interest to the '428 Patent, including the right to recover for past infringements, and has the legal right to enforce the patent, sue for infringement, and seek equitable relief and damages.

Technical Description

39. The '428 Patent addresses technical problems in the prior art of LED devices, including that a prior art manufacturing method "has a poor yield due to uneven phosphor dispersion in the reflecting cup." (col. 1, ll. 37-38).

40. The '428 Patent further addresses a technical problem in the prior art of LED devices, where "the viscous epoxy-phosphor layer will slump during this time interval [between depositing it and curing it in an oven], and hence, the amount of material over the various chips will vary depending on the point in time that each device was covered." (col. 2, ll. 44-48).

41. The '428 Patent further addresses a technical problem in the prior art of LED devices, where "the amount of epoxy-phosphor mixture needed per device is relatively large, since the areas to the side of LED 140 must also be filled with the mixture." (col. 2, ll. 60-62).

42. The '428 Patent provides a technical solution to the prior art problems by utilizing "a mixture of photocurable epoxy and phosphor particles" such that "the dispensed mixture is

then irradiated with light to cure the epoxy in a time period that is less than the time period in which the phosphor particles settle.” (col. 1, ll. 52-57).

43. The ’428 Patent provides a further technical solution to the prior art problems by “including a reflective cup or some other structure that acts as a mold to define the thickness of the epoxy layer.” (col. 2, ll. 49-50).

Direct Infringement

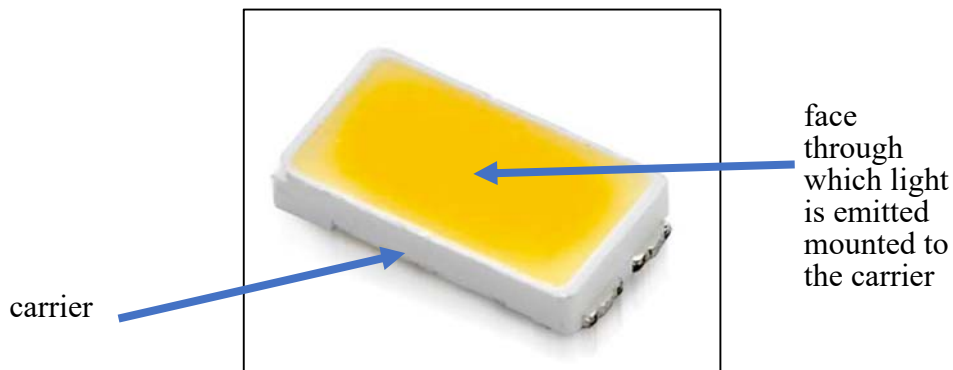
44. Defendant, without authorization or license from Plaintiff, has been and is directly infringing the ’428 Patent, either literally or equivalently, as infringement is defined by 35 U.S.C. § 271, including through making, using (including for testing purposes), selling and offering for sale methods and articles made by methods infringing one or more claims of the ’428 Patent. Defendant, individually and operating as part of a common business enterprise with its subsidiaries, develops, designs, manufactures, and distributes LED products that infringe one or more claims of the ’428 Patent. Defendant is thus liable for direct infringement pursuant to 35 U.S.C. § 271. Exemplary infringing instrumentalities include Defendant’s White LED products, including the PC56H LED and all substantially similar products (collectively the “’428 Accused Products”).

45. BWL names this exemplary infringing instrumentality to serve as notice of Defendant’s infringing acts, however BWL reserves the right to include additional infringing products into the definition of ’428 Accused Products that are either known to BWL or revealed during discovery.

46. Defendant is liable for direct infringement pursuant to 35 U.S.C. § 271 for the development, design, manufacture, sale, or distribution of Defendant’s PC56H LED.

47. Defendant’s PC56H LED is a non-limiting example of a light source that meets all limitations of claim 1 of the ’428 Patent, either literally or equivalently.

48. Defendant's PC56H LED is manufactured using a method for fabricating a light emitting device comprising mounting a die comprising a semiconductor light emitting device on a carrier, said die having a face through which light is emitted.



49. The method further comprises dispensing a bead of a mixture of photo curable epoxy and phosphor particles on said face in a pattern that covers said face.

50. The method further comprises irradiating said dispensed mixture in a time period that is less than the time period in which said phosphor particles settle wherein said time period is less than 1 second. Curing the phosphor mixture via irradiation to minimize the time period in which phosphor particles settle is a dominant technique and provides significant benefits. *See* "UV-curable Encapsulants for LED", *Oriental Journal of Chemistry*, 2012, Vol. 28, No. (3): pg. 1135-1140; "Thermally resistant UV-curable epoxy-siloxane hybrid materials for light emitting diode (LED) encapsulation", *J. Mater. Chem.*, 2012, 22, pg. 8874-8880; "Considerations for Encapsulant Material Selection for Phosphor-Converted LEDs," Application Note #16 Intematix Corp., December 2011.

Post-Complaint Willful Infringement

51. Defendant has had actual knowledge of its infringement of the '428 Patent at least as of service of Plaintiff's Complaint.

52. Defendant's risk of infringement of the patents-in-suit was either known or was so obvious that it should have been known to Defendant.

53. Notwithstanding this knowledge, Defendant has knowingly or with reckless disregard continued to willfully infringe the '428 Patent. Defendant has thus had actual notice of infringement of the '428 Patent and acted despite an objectively high likelihood that its actions constituted infringement of Plaintiff's valid patent rights, either literally or equivalently.

54. This objective risk was either known or so obvious that it should have been known to Defendant. Accordingly, Plaintiff seeks enhanced damages pursuant to 35 U.S.C. §§ 284 and 285.

Post-Complaint Indirect Infringement

55. Defendant has induced and is knowingly and continually inducing its customers and/or end users to directly infringe the '428 Patent, with the specific intent to encourage such infringement, and knowing that the induced acts constitute patent infringement, either literally or equivalently.

56. Defendant has knowingly and continually contributed to direct infringement by its customers by having imported, sold, and/or offered for sale, and knowingly importing, selling, and/or offering to sell within the United States the '428 Accused Products which are not suitable for substantial non-infringing use and which are especially made or especially adapted for use by its customers in an infringement of the asserted patent.

57. Defendant's continued indirect infringement includes, for example, providing data sheets, technical guides, demonstrations, software and hardware specifications, installation guides, and other forms of support that induce its customers and/or end users to directly infringe the '428 Patent. Defendant's continued indirect infringement additionally includes marketing its products for import by its customers into the United States. The '428 Accused Products are

designed in such a way that when they are used for their intended purpose, the user infringes the '428 Patent, either literally or equivalently. Defendant knows and intends that customers who purchase the '428 Accused Products will use those products for their intended purpose. For example, Defendant's United States website instructs customers to use the '428 Accused Products in numerous infringing applications.² In addition, Defendant specifically intends that its customers, such as United States distributors, retailers, and consumer product companies, will import, use, and sell infringing products in the United States to serve and develop the United States market for Defendant's infringing products.

58. As a result of Defendant's infringement, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement which, by law, can be no less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT THREE
INFRINGEMENT OF U.S. PATENT 7,239,080

59. Plaintiff incorporates by reference the allegations in all preceding paragraphs as if fully set forth herein.

60. The '080 Patent, entitled "LED DISPLAY WITH OVERLAY," was filed on March 11, 2004 and issued on July 3, 2007.

61. Plaintiff is the assignee and owner of all rights, title, and interest to the '080 Patent, including the right to recover for past infringements, and has the legal right to enforce the patent, sue for infringement, and seek equitable relief and damages.

² <https://www.lextar.com>.

Technical Description

62. The '080 Patent addresses technical problems in the prior art of LED devices, including that “known multi-LED devices have difficulty maintaining color consistency.” (col. 1, ll. 18-19).

63. Specifically, the '080 Patent illustrates a prior art problem in Fig. 2, in which there is an arrangement of multiple LED cavities, where “each of the cavities may not have the same dimensions. Therefore, the quantity of the phosphor particles and their dispersion within each cavity may be different and cause color variation among the cavities.” (col. 2, ll. 30-33).

64. The '080 Patent provides a technical solution to these problems, by teaching the use of an encapsulant and a fluorescent material overlay. The overlay can cover a single LED cavity or multiple LED cavities.

65. Regarding the overlay, the '080 Patent teaches that it has technical advantages over the prior art problems:

By having a substantially consistent thickness, the proportion of the LED radiation that is converted to the fluorescent material radiation is kept generally constant, and, for each LED 300 and associated cavity 340, the amount of the LED radiation absorbed by the fluorescent material overlay 360 will be substantially the same, even if the sizes of the cavities 340 are different. (col. 3, l. 65 – col. 4, l. 4).

66. The '080 Patent further teaches numerous variations of the composition and construction of the fluorescent particles in the overlay, providing numerous advantages over the prior art problem, including options such that “only a portion of the overlay includes fluorescent material,” that “the amount of fluorescent material in the fluorescent material overlay 360 may be substantially independent from the volume of the cavity 340,” or that “the encapsulant does not affect the resulting color of the LED display.” (col. 3, ll. 8-27).

Direct Infringement

67. Defendant, without authorization or license from Plaintiff, has been and is directly infringing the '080 Patent, either literally or equivalently, as infringement is defined by 35 U.S.C. § 271, including through making, using (including for testing purposes), selling, and offering for sale methods and articles infringing one or more claims of the '080 Patent. Defendant, individually and operating as a common business enterprise, develops, designs, manufactures, and distributes LED products that infringe one or more claims of the '080 Patent. Defendant is thus liable for direct infringement pursuant to 35 U.S.C. § 271. Exemplary infringing instrumentalities include the Defendant's PC56H LED and all other substantially similar products (collectively the "'080 Accused Products").

68. BWL names this exemplary infringing instrumentality to serve as notice of Defendant's infringing acts, however BWL reserves the right to include additional infringing products into the definition of '080 Accused Products that are either known to BWL or revealed during discovery.

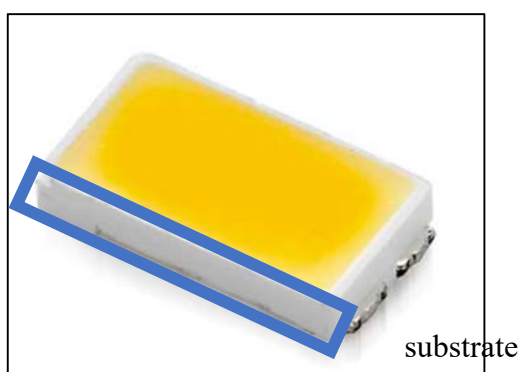
69. Defendant is liable for direct infringement pursuant to 35 U.S.C. § 271 for the development, design, manufacture, sale, or distribution of Defendant's PC56H LED.

70. Defendant's PC56H LED is a non-limiting example of a light source that meets all limitations of claim 1 of the '080 Patent, either literally or equivalently.

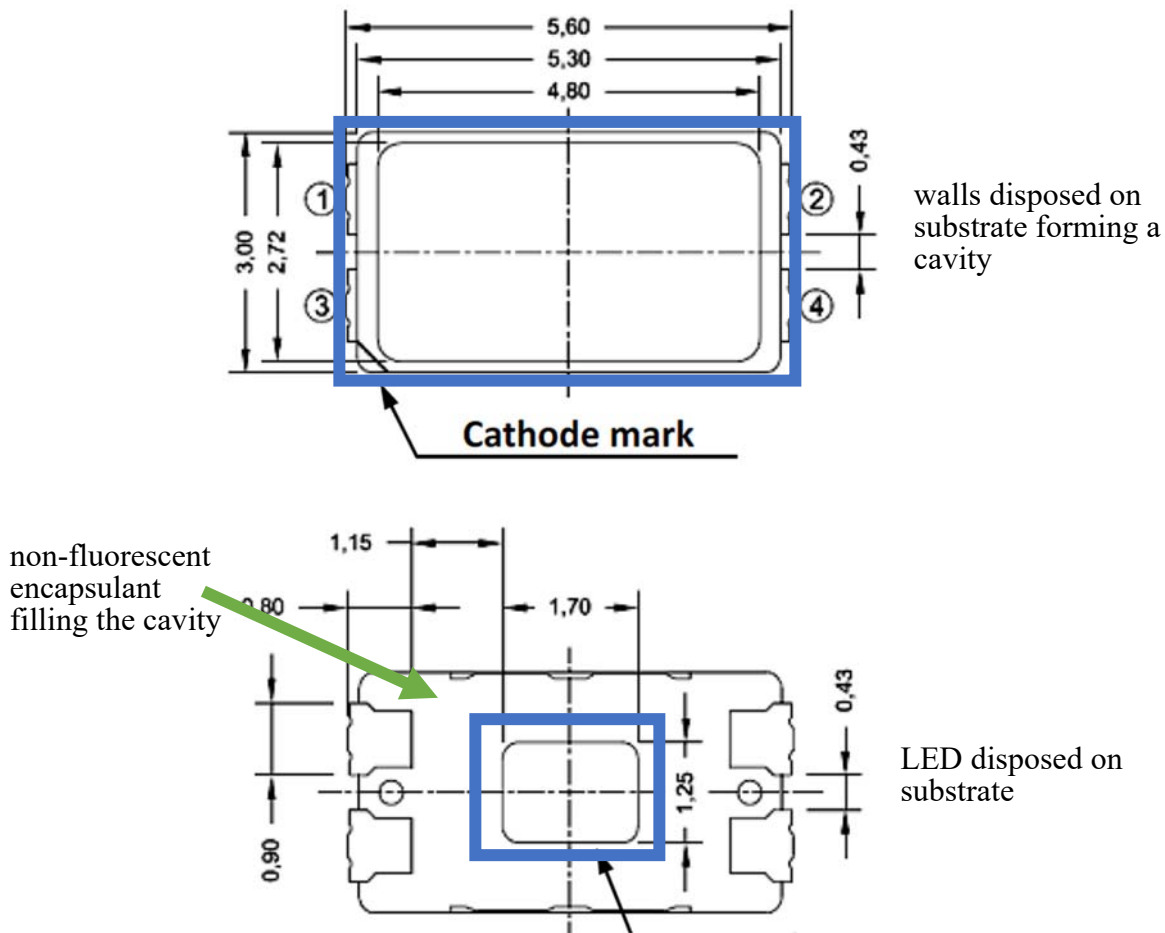
71. Defendant's PC56H LED is a light emitting diode (LED) display device.



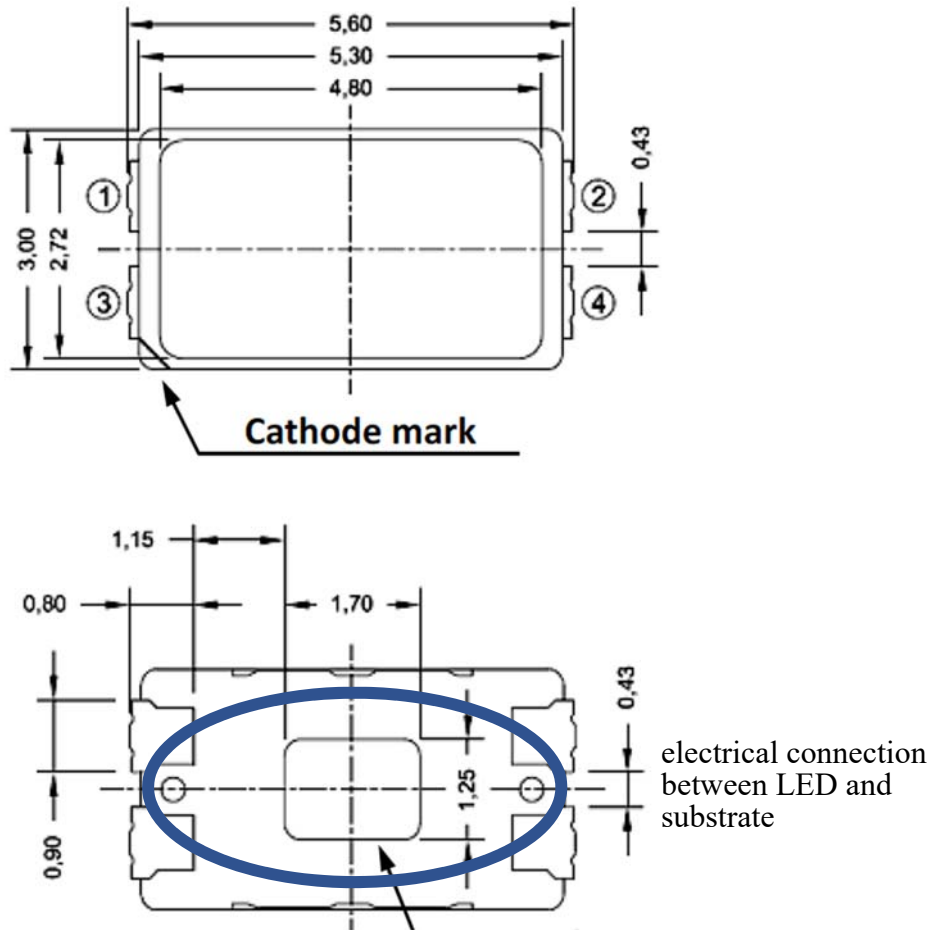
72. Defendant's PC56H LED comprises a substrate.



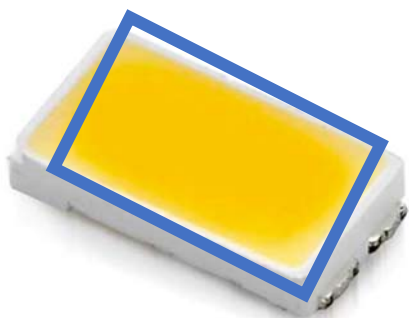
73. Defendant's PC56H LED comprises a plurality of walls disposed on the substrate, the plurality of walls forming a cavity, the cavity being filled with an encapsulant, the encapsulant not including fluorescent material, and an LED disposed on a first portion of the substrate within the cavity.



74. Defendant's PC56H LED comprises an electrical connection between the LED and a second portion of the substrate.



75. Defendant's PC56H LED comprises a fluorescent material overlay at a top end of the cavity, wherein the fluorescent material overlay has a thickness that substantially fully converts all light emitted from the LED to fluorescent radiation.



fluorescent overlay over the cavity with a thickness that fully covers light emitted from the LED to fluorescent radiation

Post-Complaint Willful Infringement

76. Defendant has had actual knowledge of its infringement of the '080 Patent at least as of service of Plaintiff's Complaint.

77. Defendant's risk of infringement of the patents-in-suit was either known or was so obvious that it should have been known to Defendant.

78. Notwithstanding this knowledge, Defendant has knowingly or with reckless disregard willfully infringed the '080 Patent. Defendant has thus had actual notice of infringement of the '080 Patent and acted despite an objectively high likelihood that its actions constituted infringement of Plaintiff's valid patent rights, either literally or equivalently.

79. This objective risk was either known or so obvious that it should have been known to Defendant. Accordingly, Plaintiff seeks enhanced damages pursuant to 35 U.S.C. §§ 284 and 285.

Post-Complaint Indirect Infringement

80. Defendant has induced and is knowingly inducing its customers and/or end users to directly infringe the '080 Patent, with the specific intent to encourage such infringement, and knowing that the induced acts constitute patent infringement, either literally or equivalently.

81. Defendant has knowingly contributed to direct infringement by its customers by having imported, sold, and/or offered for sale, and knowingly importing, selling, and/or offering to sell within the United States the '080 Accused Products, which are not suitable for substantial non-infringing use and which are especially made or especially adapted for use by its customers in an infringement of the asserted patent.

82. Defendant's indirect infringement includes, for example, providing data sheets, technical guides, demonstrations, software and hardware specifications, installation guides, and other forms of support that induce its customers and/or end users to directly infringe the '080

Patent. Defendant's indirect infringement additionally includes marketing its products for import by its customers into the United States. The '080 Accused Products are designed in such a way that when they are used for their intended purpose, the user infringes the '080 Patent, either literally or equivalently. Defendant knows and intends that customers who purchase the '080 Accused Products will use those products for their intended purpose. For example, Defendant's United States website instructs customers to use the '080 Accused Products in numerous infringing applications.³ In addition, Defendant specifically intends that its customers, such as United States distributors, retailers, and consumer product companies, will import, use, and sell infringing products in the United States to serve and develop the United States market for Defendant's infringing products.

83. As a result of Defendant's infringement, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement which, by law, can be no less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT FOUR
INFRINGEMENT OF U.S. PATENT 7,470,936

84. Plaintiff incorporates by reference the allegations in all preceding paragraphs as if fully set forth herein.

85. The '936 Patent, entitled "LIGHT EMITTING DIODE WITH A STEP SECTION BETWEEN THE BASE AND THE LENS OF THE DIODE," was filed on March 9, 2007 and issued on December 30, 2008.

³ <https://www.lextar.com>.

86. Plaintiff is the assignee and owner of all rights, title, and interest to the '936 Patent, including the right to recover for past infringements, and has the legal right to enforce the patent, sue for infringement, and seek equitable relief and damages.

Technical Description

87. The '936 Patent addresses technical problems in the prior art of LED devices, resulting from a prior art process where “black resin material is generally provided in the gaps among the LEDs 100 in order to prevent reduction in contrast due to reflection of light from the base 40.” (col. 1, ll. 24-27).

88. The '936 Patent teaches an LED that solves prior art problems, “such as reduced contrast and a narrower viewing angle.” (col. 1, ll. 49-50).

89. Specifically, the '936 Patent addresses the prior art problem that:

In general, when resin material is injected into the gaps among a plurality of arranged LEDs, it is difficult to check that a desired amount of resin material (or the amount that provides an appropriate height) has been injected. In particular, if the resin material comes into contact with the convex lens (light emitting surface) when the resin material is injected, the surface tension of the resin material shapes the surface of the resin material into a meniscus at the portion where the resin material is in contact with the lens, as shown in FIG. 6. Then, the resin material 110 may cover the lens SO, which is the light emitting surface, in such a way that the height of the resin material is higher than the desired height. In this case, light emitted from the lens will be absorbed by the resin material, resulting in reduced contrast and a narrower viewing angle. (col. 1, ll. 36-50).

90. The '936 Patent provides several technical solutions to this problem, and “allows resin material to be easily filled when the resin material is used to cover a base of an LED with a lens having a hemispherical light emitting surface.” (col. 1, ll. 58-61).

91. Specifically, the '936 Patent provides a technical solution to address these prior art problems by using a “step section which is provided around the outside of the lens having a hemispherical light emitting surface and which projects from the base prevents the resin material from being in direct contact with the lens. The height of the step section defines the amount of

the resin material enough for reliably covering the lead section and the base of the LEDs.”
(col. 2, ll. 38-44).

92. The '936 Patent further provides a technical solution to address these prior art problems by including a cutout in the step section where “the cutout provided in the step section allows the operator to easily check that the amount of the resin material being injected is approaching a predetermined level. In this way, an appropriate amount of resin material can easily be injected, so that there is provided an LED that solves problems, such as reduced contrast and a narrower viewing angle.” (col. 2, ll. 44-50).

93. The '936 Patent provides a technical solution to these problems where “a plurality of the LEDs described above can be used to provide an LED display device with increased contrast and a wider viewing angle usable as an outdoor display.”

Direct Infringement

94. Defendant, without authorization or license from Plaintiff, has been and is directly infringing the '936 Patent, either literally or equivalently, as infringement is defined by 35 U.S.C. § 271, including through making, using (including for testing purposes), selling, and offering for sale methods and articles infringing one or more claims of the '936 Patent. Defendant, individually and operating as part of a common business enterprise, develops, designs, manufactures, and distributes LED products that infringe one or more claims of the '936 Patent. Defendant is thus liable for direct infringement pursuant to 35 U.S.C. § 271. Exemplary infringing instrumentalities include the PU88S01 UV Emitter and all substantially similar products (collectively the “'936 Accused Products”).

95. Defendant's PU88S01 UV Emitter is a non-limiting example of a light source that meets all limitations of claim 1 of the '936 Patent, either literally or equivalently.

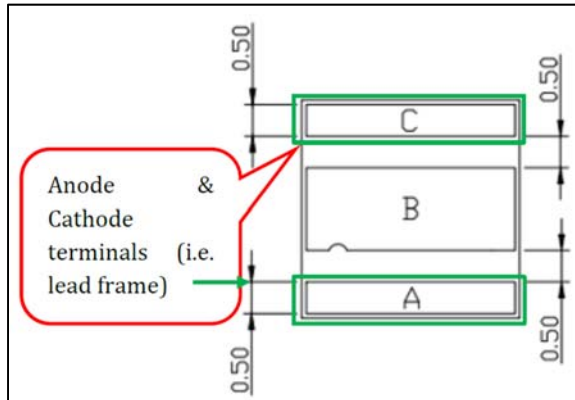
96. BWL names this exemplary infringing instrumentality to serve as notice of Defendant's infringing acts, however BWL reserves the right to include additional infringing products into the definition of '936 Accused Products that are either known to BWL or revealed during discovery.

97. Defendant is liable for direct infringement pursuant to 35 U.S.C. § 271 for the development, design, manufacture, sale, or distribution of Defendant's PU88S01 UV Emitter.

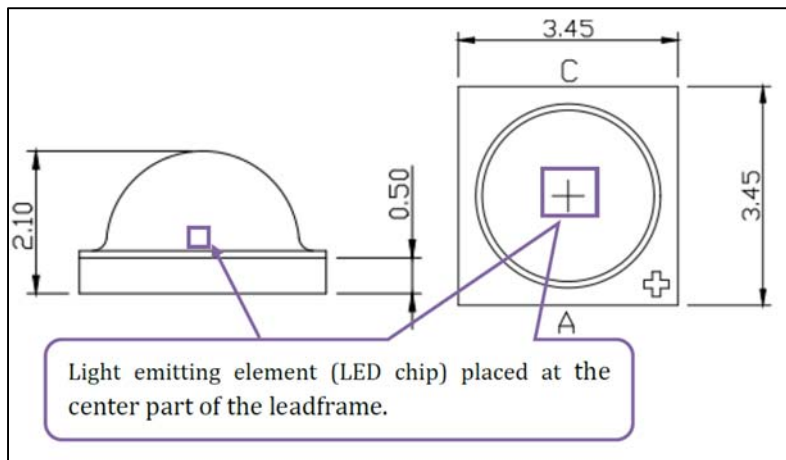
98. Defendant's PU88S01 UV Emitter is a light emitting diode.



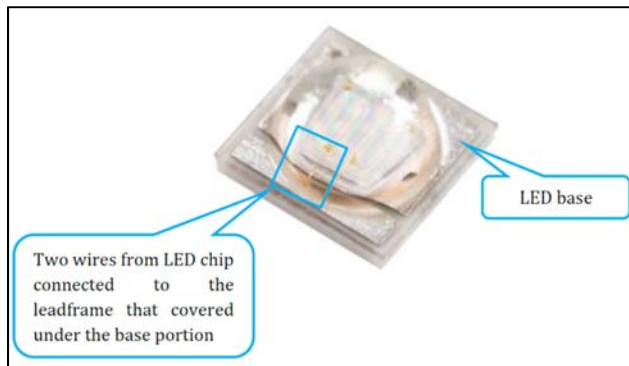
99. Defendant's PU88S01 UV Emitter comprises a leadframe.



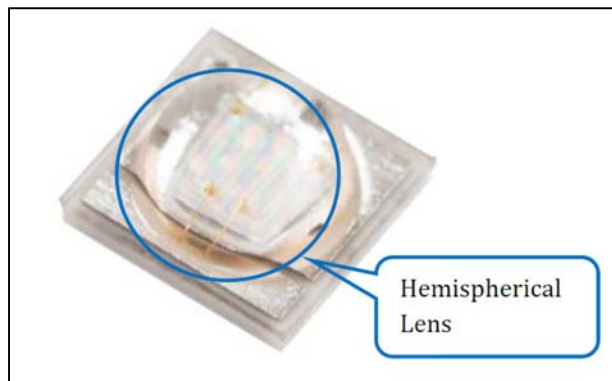
100. Defendant's PU88S01 UV Emitter comprises a light emitting element positioned on the leadframe.



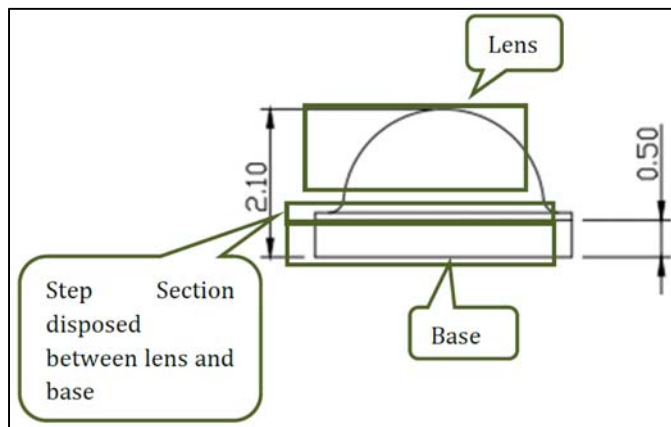
101. Defendant's PU88S01 UV Emitter comprises a base configured to cover the leadframe such that portions of the leadframe extend from the base.



102. Defendant's PU88S01 UV Emitter comprises a lens disposed on the base, the lens having a hemispherical light emitting surface.



103. Defendant's PU88S01 UV Emitter comprises a step section disposed between the base and the lens, the step section having a diameter larger than that of the lens and smaller than a length or a width of the base.



Post-Complaint Willful Infringement

104. Defendant has had actual knowledge of its infringement of the '936 Patent at least as of service of Plaintiff's Complaint.

105. Defendant's risk of infringement of the patents-in-suit was either known or was so obvious that it should have been known to Defendant.

106. Notwithstanding this knowledge, Defendant has knowingly or with reckless disregard willfully infringed the '936 Patent. Defendant has thus had actual notice of infringement of the '936 Patent and acted despite an objectively high likelihood that its actions constituted infringement of Plaintiff's valid patent rights, either literally or equivalently.

107. This objective risk was either known or so obvious that it should have been known to Defendant. Accordingly, Plaintiff seeks enhanced damages pursuant to 35 U.S.C. §§ 284 and 285.

Post-Complaint Indirect Infringement

108. Defendant has induced and is knowingly inducing its customers and/or end users to directly infringe the '936 Patent, with the specific intent to encourage such infringement, and knowing that the induced acts constitute patent infringement, either literally or equivalently.

109. Defendant has knowingly contributed to direct infringement by its customers by having imported, sold, and/or offered for sale, and knowingly importing, selling, and/or offering to sell within the United States the '936 Accused Products which are not suitable for substantial non-infringing use and which are especially made or especially adapted for use by their customers in an infringement of the asserted patent.

110. Defendant's indirect infringement includes, for example, providing data sheets, technical guides, demonstrations, software and hardware specifications, installation guides, and other forms of support that induce its customers and/or end users to directly infringe the '936 Patent. Defendant's indirect infringement additionally includes marketing its products for import by its customers into the United States. The '936 Accused Products are designed in such a way that when they are used for their intended purpose, the user infringes the '936 Patent, either literally or equivalently. Defendant knows and intends that customers who purchase the '936 Accused Products will use those products for their intended purpose. For example, Defendant's United States website instructs customers to use the '936 Accused Products in numerous infringing applications.⁴ In addition, Defendant specifically intends that its customers, such as United States distributors, retailers, and consumer product companies, will import, use, and sell infringing products in the United States to serve and develop the United States market for Defendant's infringing products.

⁴ <https://www.lextar.com>.

111. As a result of Defendant's infringement, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement which, by law, can be no less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT FIVE
INFRINGEMENT OF U.S. PATENT 7,488,990

112. Plaintiff incorporates by reference the allegations in all preceding paragraphs as if fully set forth herein.

113. The '990 Patent, entitled "USING MULTIPLE TYPES OF PHOSPHOR IN COMBINATION WITH A LIGHT EMITTING DEVICE," was filed on April 2, 2004 and issued on February 10, 2009.

114. Plaintiff is the assignee and owner of all rights, title, and interest to the '990 Patent, including the right to recover for past infringements, and has the legal right to enforce the patent, sue for infringement, and seek equitable relief and damages.

Technical Description

115. The '990 Patent addresses technical problems in the prior art of LED devices relating to limitations regarding "colors that can be achieved by such a combination of blue light with a single-color phosphor. For example, yellowish green and greenish-white colors cannot be produced by a known combination of a blue LED light and a single-color phosphor." (col. 1, ll. 25-29).

116. The '990 Patent addresses these technical problems in the prior art of LED devices by teaching the use of "multiple types of phosphor in combination with a light emitting device." (col. 1, ll. 8-10).

117. The technical solution of the '990 Patent results in advantages over the prior art, including that: "by adjusting the mixture and ratio of green phosphor and yellow phosphor, a wide variety of colors in this color spectrum can be obtained." (col. 2, ll. 23-25).

Direct Infringement

118. Defendant, without authorization or license from Plaintiff, has been and is directly infringing the '990 Patent, either literally or equivalently, as infringement is defined by 35 U.S.C. § 271, including through making, using (including for testing purposes), selling and offering for sale methods and articles infringing one or more claims of the '990 Patent. Defendant, individually and operating as part of a common business enterprise, develops, designs, manufactures, and distributes LED products that infringe one or more claims of the '990 Patent. Defendant is thus liable for direct infringement pursuant to 35 U.S.C. § 271. Exemplary infringing instrumentalities include the COB Solar White LED and all other substantially similar products (collectively the "'990 Accused Products").

119. BWL names this exemplary infringing instrumentality to serve as notice of Defendant's infringing acts, however BWL reserves the right to include additional infringing products into the definition of '990 Accused Products that are either known to BWL or revealed during discovery.

120. Defendant's COB Solar White LED is a non-limiting example of a light source that meets all limitations of claim 12 of the '990 Patent, either literally or equivalently.

121. Defendant is liable for direct infringement pursuant to 35 U.S.C. § 271 for the development, design, manufacture, sale, or distribution of Defendant's COB Solar White LED.

122. Defendant's COB Solar White LED comprises a light generating device.

123. Defendant's Color on Demand technology comprises a blue light emitting device that emits blue light with peak wavelength within a range from 460 nanometers (nm) to 480 nm.

124. Defendant's COB Solar White LED comprises an epoxy placed over the light emitting device.

125. Defendant's COB Solar White LED comprises an epoxy including a first type of phosphor and a second type of phosphor.

126. Defendant's COB Solar White LED comprises an epoxy wherein the first type of phosphor, when excited, emits green light; and, wherein the second type of phosphor, when excited, emits yellow light. To obtain White LEDs, manufacturers use a multi-phosphor conversion model. *See* <https://www.nature.com/articles/lisa20136>

Post-Complaint Willful Infringement

127. Defendant has had actual knowledge of its infringement of the '990 Patent at least as of service of Plaintiff's Complaint.

128. Defendant's risk of infringement of the patents-in-suit was either known or was so obvious that it should have been known to Defendant.

129. Notwithstanding this knowledge, Defendant has knowingly or with reckless disregard willfully infringed the '990 Patent. Defendant has thus had actual notice of infringement of the '990 Patent and acted despite an objectively high likelihood that its actions constituted infringement of Plaintiff's valid patent rights, either literally or equivalently.

130. This objective risk was either known or so obvious that it should have been known to Defendant. Accordingly, Plaintiff seeks enhanced damages pursuant to 35 U.S.C. §§ 284 and 285.

Post-Complaint Indirect Infringement

131. Defendant has induced and is knowingly inducing its customers and/or end users to directly infringe the '990 Patent, with the specific intent to encourage such infringement, and knowing that the induced acts constitute patent infringement, either literally or equivalently.

132. Defendant has knowingly contributed to direct infringement by its customers by having imported, sold, and/or offered for sale, and knowingly importing, selling, and/or offering to sell within the United States the '990 Accused Products, which are not suitable for substantial non-infringing use and which are especially made or especially adapted for use by its customers in an infringement of the asserted patent.

133. Defendant's indirect infringement includes, for example, providing data sheets, technical guides, demonstrations, software and hardware specifications, installation guides, and other forms of support that induce its customers and/or end users to directly infringe the '990 Patent. Defendant's indirect infringement additionally includes marketing its products for import by its customers into the United States. The '990 Accused Products are designed in such a way that when they are used for their intended purpose, the user infringes the '990 Patent, either literally or equivalently. Defendant knows and intends that customers who purchase the '990 Accused Products will use those products for their intended purpose. For example, Defendant's United States website instructs customers to use the '990 Accused Products in numerous infringing applications.⁵ In addition, Defendant specifically intends that its customers, such as United States distributors, retailers, and consumer product companies, will import, use, and sell infringing products in the United States to serve and develop the United States market for Defendant's infringing products.

134. As a result of Defendant's infringement, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement which, by law, can be no less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

⁵ <https://www.lextar.com>.

COUNT SIX
INFRINGEMENT OF U.S. PATENT 7,519,287

135. Plaintiff incorporates by reference the allegations in all preceding paragraphs as if fully set forth herein.

136. The '287 Patent, entitled "ELECTRONIC FLASH, IMAGING DEVICE AND METHOD FOR PRODUCING A FLASH OF LIGHT HAVING A RECTANGULAR RADIATION PATTERN," was filed on August 19, 2005 and issued on April 14, 2009.

137. Plaintiff is the assignee and owner of all rights, title, and interest to the '287 Patent, including the right to recover for past infringements, and has the legal right to enforce the patent, sue for infringement, and seek equitable relief and damages.

Technical Description

138. The '287 Patent addresses technical problems in the prior art of LED devices, wherein "a significant portion of the emitted light from the conventional LED flashes is not used when capturing an image of a scene of interest." (col. 1, ll. 37-39).

139. Specifically, the '287 Patent addresses technical problems in the prior art, illustrated in Fig. 1 of the '287 Patent, that "the radiation pattern 10 of flashes of light produced by the LED flashes is round or oval. However, the imaging field of view 12 of a camera is rectangular. Since the imaging field of view 12 needs to be within the radiation field 10, a significant portion of the emitted light from the conventional LED flashes is not used when capturing an image of a scene of interest." (col. 1, ll. 32-38).

140. Accordingly, the '287 Patent teaches a technical solution to these prior art problems, including "an LED flash and method for producing a flash of light that allows the flash of light to be used efficiently by an imaging device, such as a digital camera." (col. 1, ll. 42-45).

141. Specifically, the teachings of the '287 Patent include an LED design wherein “an electronic flash, imaging device and method for producing flashes of light uses a diffractive optical element to produce a flash of light having a rectangular radiation pattern.” (col. 1, ll. 49-51). Since “the image sensor is configured to electronically capture an image of a scene of interest using the flash of light having the rectangular radiation pattern,” (col. 2, ll. 12-15), the portion of the emitted light from the LED flash is improved.

Direct Infringement

142. Defendant, without authorization or license from Plaintiff, has been and is directly infringing claims 16 and 17 of the '287 Patent, either literally or equivalently, as infringement is defined by 35 U.S.C. § 271, including through making, using (including for testing purposes), selling and offering for sale methods and articles infringing one or more claims of the '287 Patent. Defendant, individually and, operating as a common business enterprise, develops, designs, manufactures, and distributes LED products that infringe one or more claims of the '287 Patent. Defendant is thus liable for direct infringement pursuant to 35 U.S.C. § 271. Exemplary infringing instrumentalities include the Flash 2016 PCT series LED and other substantially similar products (collectively the “'287 Accused Products”).

143. BWL names this exemplary infringing instrumentality to serve as notice of Defendant's infringing acts, however BWL reserves the right to include additional infringing products into the definition of '287 Accused Products that are either known to BWL or revealed during discovery.

144. Defendant is liable for direct infringement pursuant to 35 U.S.C. § 271 for the development, design, manufacture, sale, or distribution of Defendant's Flash 2016 PCT series LED.

145. Defendant’s Flash 2016 PCT series LED is a non-limiting example of a light source that meets all limitations of claim 16 of the ’287 Patent, either literally or equivalently.

146. Defendant’s Flash 2016 PCT series LED comprises a light source, said light source being configured to emit light.

147. Defendant’s Flash 2016 PCT series LED comprises a diffractive optical element optically coupled to said light source, said diffractive optical element being configured to diffract said light emitted from said light source such that the radiation pattern of said light emitted from said diffractive optical element is rectangular to produce a flash of light having a rectangular radiation pattern. Specifically, the Lextar Flash 2016 PCT series LED is available with a lens or

2016 PCT Series							
<ul style="list-style-type: none"> • High brightness in small SMD package (L x W x H) : 2.2 x 1.6 x 0.55 mm • Environmental friendly ; RoHS compliance • CIE 1931 • Qualified according to JEDEC moisture sensitivity Level 3 							
			Luminous Flux (lm)		Forward Voltage (V)		
Model Name	CCT (K)	CRI	Min	Max	Min	Max	Condition (mA)
PT20W16.2	4500-5500	>90	39	60	2.70	3.90	150
PT20W16.0	4500-5500	>80	45	80	2.70	3.90	150
PT20W15.0	5000-6000	NCRJ	90	160	2.70	3.90	350

2016 Series							
<ul style="list-style-type: none"> • High brightness in small SMD package (L x W x H): 2.04 x 1.64 x 0.75 mm • Environmental friendly ; RoHS compliance • CIE 1931 • Multi layer ceramic-metal package technology • Qualified according to JEDEC moisture sensitivity Level 1 • ESD protection : 8KV(HBM) 							
			Luminous Flux (lm)		Forward Voltage (V)		
Model Name	CCT (K)	CRI	Min	Max	Min	Max	Condition (mA)
PT20W06.0	5000-6000	NCRJ	60	130	2.70	3.60	350
PT20W01.0	5000-6500	NCRJ	210	350	2.70	3.60	1000
PT20W12.0	5000-6000	NCRJ	250	300	2.70	3.60	1000

lenses, which are analogous to a diffractive optical element optically coupled to Lextar LED

chips to diffract emitted light. Further, a cover window may function as a diffractive optical element. In all cases, the resulting diffracted light has a rectangular illumination pattern.

148. Defendant's Flash 2016 PCT series LED comprises an integrated lens that focuses the light to narrow the viewing angle prior to the light being diffracted by the diffractive optical element.

Post-Complaint Willful Infringement

149. Defendant has had actual knowledge of its infringement of the '287 Patent at least as of service of Plaintiff's Complaint.

150. Defendant's risk of infringement of the patents-in-suit was either known or was so obvious that it should have been known to Defendant.

151. Notwithstanding this knowledge, Defendant has knowingly or with reckless disregard willfully infringed the '287 Patent. Defendant has thus had actual notice of infringement of the '287 Patent and acted despite an objectively high likelihood that its actions constituted infringement of Plaintiff's valid patent rights, either literally or equivalently.

152. This objective risk was either known or so obvious that it should have been known to Defendant. Accordingly, Plaintiff seeks enhanced damages pursuant to 35 U.S.C. §§ 284 and 285.

Post-Complaint Indirect Infringement

153. Defendant has induced and is knowingly inducing its customers and/or end users to directly infringe the '287 Patent, with the specific intent to encourage such infringement, and knowing that the induced acts constitute patent infringement, either literally or equivalently.

154. Defendant has knowingly contributed to direct infringement by its customers by having imported, sold, and/or offered for sale, and knowingly importing, selling, and/or offering to sell within the United States the '287 Accused Products which are not suitable for substantial

non-infringing use and which are especially made or especially adapted for use by its customers in an infringement of the asserted patent.

155. Defendant's indirect infringement includes, for example, providing data sheets, technical guides, demonstrations, software and hardware specifications, installation guides, and other forms of support that induce its customers and/or end users to directly infringe the '287 Patent. Defendant's indirect infringement additionally includes marketing its products for import by its customers into the United States. The '287 Accused Products are designed in such a way that when they are used for their intended purpose, the user infringes the '287 Patent, either literally or equivalently. Defendant knows and intends that customers who purchase the '287 Accused Products will use those products for their intended and infringing purpose. Customers who use Defendant's products in the manner marketed and/or instructed by Defendant directly infringe the patented methods. For example, Defendant's United States website instructs customers to use the '287 Accused Products in numerous infringing applications.⁶ In addition, Defendant specifically intends that its customers, such as United States distributors, retailers, and consumer product companies, will import, use, and sell infringing products in the United States to serve and develop the United States market for Defendant's infringing products.

156. As a result of Defendant's infringement, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement which, by law, can be no less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

⁶ <https://www.lextar.com>.

COUNT SEVEN
INFRINGEMENT OF U.S. PATENT 7,847,300

157. Plaintiff incorporates by reference the allegations in all preceding paragraphs as if fully set forth herein.

158. The '300 Patent, entitled "LIGHT-EMITTING DIODE PACKAGE," was filed on March 28, 2008 and issued on December 7, 2010.

159. Plaintiff is the assignee and owner of all rights, title, and interest to the '300 Patent, including the right to recover for past infringements, and has the legal right to enforce the patent, sue for infringement, and seek equitable relief and damages.

Technical Description

160. The '300 Patent addresses technical problems in the prior art of LED devices, caused by inaccurate assembly methodology combined with a relatively costly machining process.

161. Specifically, the '300 Patent addresses technical problems in the prior art, including:

A recent LED package tends to be manufactured in the type of a surface mount device (SMD) that permits the LED package to be very small in size to keep pace with slim and compact designed devices on which to be mounted. A SMD type of LED package includes a housing configuring its appearance, at least one electrode pad, and at least one electrode lead extended from the electrode pad to be exposed outside the housing and bent in a direction of the housing. Such bending of the electrode lead may leave a clearance between the electrode pad and a portion of the housing where the electrode pad meets. (col. 1, ll. 30-40).

162. Accordingly, the '300 Patent teaches a technical solution to these prior art problems which "provides a light-emitting diode package with a high reliability and an excellent light efficiency." (col. 1, ll. 46-47).

163. Specifically, the teachings of the '300 Patent include an LED design wherein "[a]s described above, making second portion 116 thicker than other portions of housing wall

112 may increase the area of the top surface of lead electrode 140 which abuts the bottom surface of the front portion of housing 110, and this may prevent the occurrence of a clearance therebetween.” (col. 2, ll. 58-63).

Direct Infringement

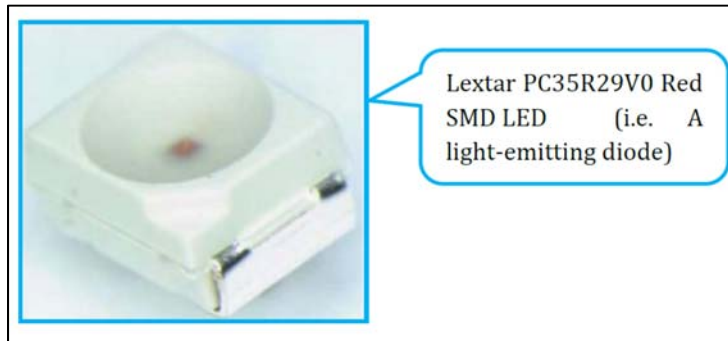
164. Defendant, without authorization or license from Plaintiff, has been and is directly infringing the '300 Patent, either literally or equivalently, as infringement is defined by 35 U.S.C. § 271, including through making, using (including for testing purposes), selling, and offering for sale methods and articles infringing one or more claims of the '300 Patent. Defendant, individually and operating as part of a common business enterprise, develops, designs, manufactures, and distributes LED products that infringe one or more claims of the '300 Patent. Defendant is thus liable for direct infringement pursuant to 35 U.S.C. § 271. Exemplary infringing instrumentalities include the PC35R29 V0 - Red SMD LED and all other substantially similar products (collectively the “'300 Accused Products”).

165. BWL names this exemplary infringing instrumentality to serve as notice of Defendant's infringing acts, however BWL reserves the right to include additional infringing products into the definition of '300 Accused Products that are either known to BWL or revealed during discovery.

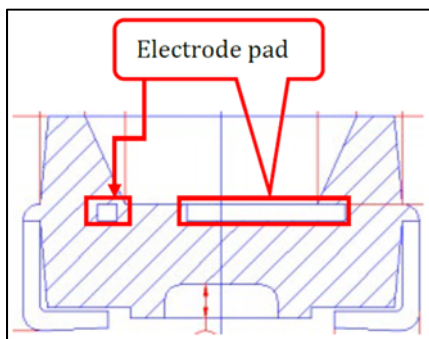
166. Defendant is liable for direct infringement pursuant to 35 U.S.C. § 271 for the development, design, manufacture, sale, or distribution of Defendant's PC35R29 V0 - Red SMD LED.

167. Defendant's PC35R29 V0 - Red SMD LED is a non-limiting example of a light source that meets all limitations of claim 10 of the '300 Patent, either literally or equivalently.

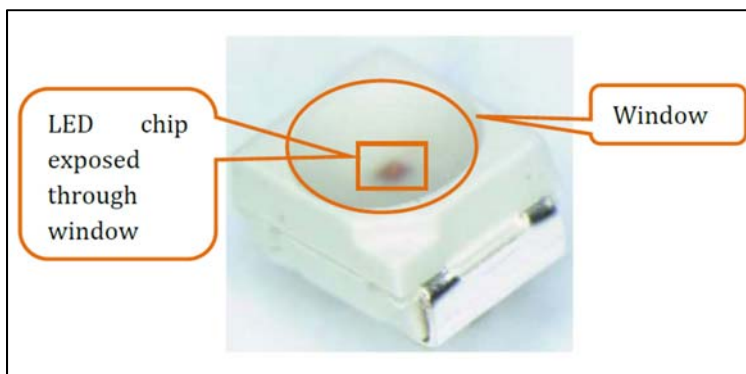
168. Defendant's PC35R29 V0 - Red SMD LED is a light-emitting diode package.



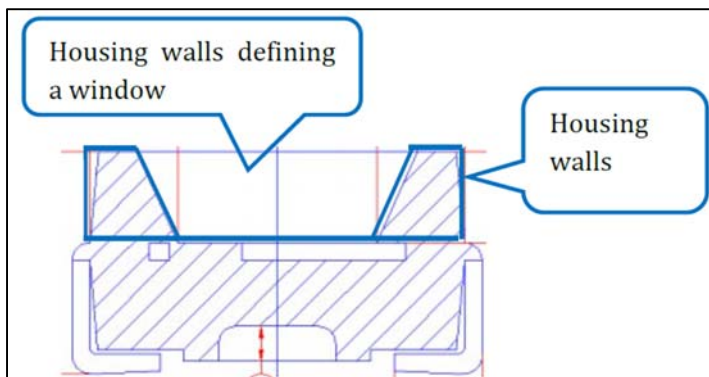
169. Defendant's PC35R29 V0 - RED SMD LED comprises an electrode pad on which a chip is placed.



170. Defendant's PC35R29 V0 - RED SMD LED comprises a housing having a window through which the chip is exposed.

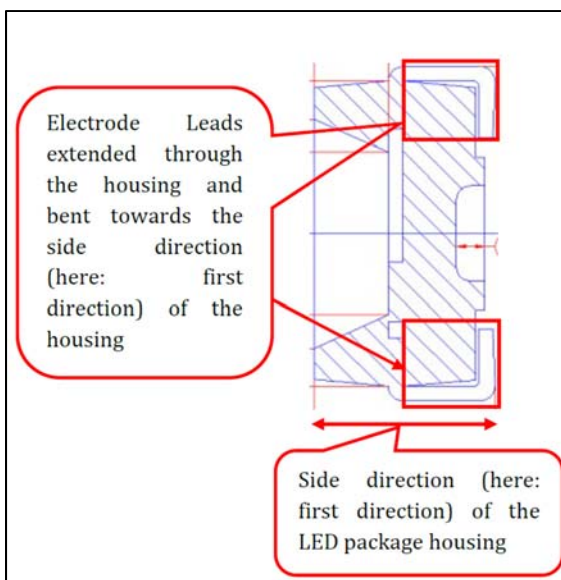
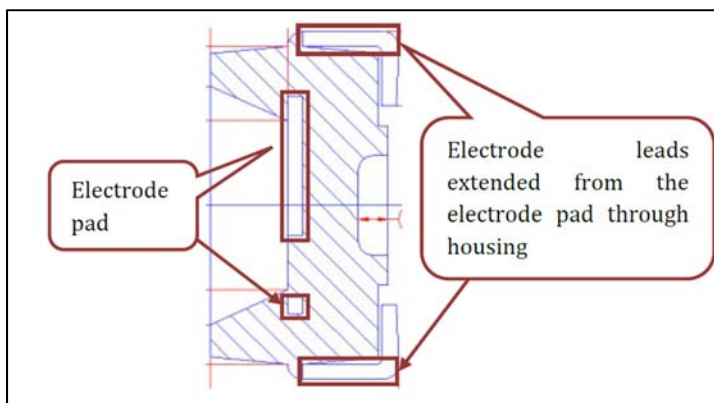


171. Defendant's PC35R29 V0 - RED SMD LED comprises a housing wall defining the window.

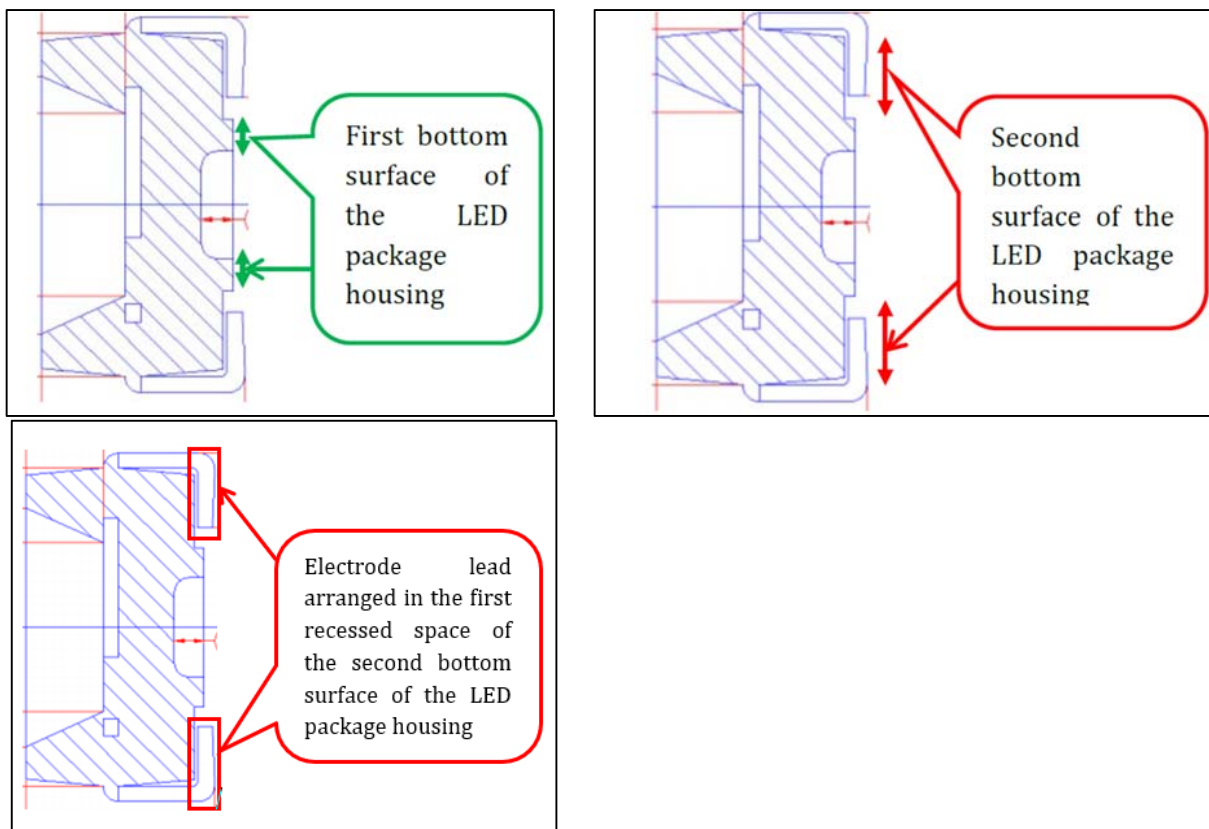


172. Defendant's PC35R29 V0 - RED SMD LED comprises an electrode lead extended from the electrode pad through the housing to be exposed in a first direction of the

housing, wherein the electrode lead is bent to an outside surface of the housing at through the housing.



173. Defendant's PC35R29 V0 - RED SMD LED comprises a bottom surface of the housing with a first bottom surface and a second bottom surface having a first recessed space in a top direction of the housing so that the electrode lead is arranged in the first recessed space.



Post-Complaint Willful Infringement

174. Defendant has had actual knowledge of its infringement of the '300 Patent at least as of service of Plaintiff's Complaint.

175. Defendant's risk of infringement of the patents-in-suit was either known or was so obvious that it should have been known to Defendant.

176. Notwithstanding this knowledge, Defendant has knowingly or with reckless disregard willfully infringed the '300 Patent. Defendant has thus had actual notice of infringement of the '300 Patent and acted despite an objectively high likelihood that its actions constituted infringement of Plaintiff's valid patent rights, either literally or equivalently.

177. This objective risk was either known or so obvious that it should have been known to Defendant. Accordingly, Plaintiff seeks enhanced damages pursuant to 35 U.S.C. §§ 284 and 285.

Post-Complaint Indirect Infringement

178. Defendant has induced and is knowingly inducing its customers and/or end users to directly infringe the '300 Patent, with the specific intent to encourage such infringement, and knowing that the induced acts constitute patent infringement, either literally or equivalently.

179. Defendant has knowingly contributed to direct infringement by its customers by having imported, sold, and/or offered for sale, and knowingly importing, selling, and/or offering to sell within the United States the '300 Accused Products which are not suitable for substantial non-infringing use and which are especially made or especially adapted for use by its customers in an infringement of the asserted patent.

180. Defendant's indirect infringement includes, for example, providing data sheets, technical guides, demonstrations, software and hardware specifications, installation guides, and other forms of support that induce its customers and/or end users to directly infringe the '300 Patent. Defendant's indirect infringement additionally includes marketing its products for import by its customers into the United States. The '300 Accused Products are designed in such a way that when they are used for their intended purpose, the user infringes the '300 Patent, either literally or equivalently. Defendant knows and intends that customers who purchase the '300 Accused Products will use those products for their intended purpose. For example, Defendant's United States website instructs customers to use '300 Accused Products in numerous infringing applications.⁷ In addition, Defendant specifically intends that its customers, such as United States distributors, retailers, and consumer product companies, will import, use, and sell infringing products in the United States to serve and develop the United States market for Defendant's infringing products.

⁷ <https://www.lextar.com>.

181. As a result of Defendant's infringement, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement which, by law, can be no less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT EIGHT
INFRINGEMENT OF U.S. PATENT 9,209,373

182. Plaintiff incorporates by reference the allegations in all preceding paragraphs as if fully set forth herein.

183. The '373 Patent, entitled "HIGH POWER PLASTIC LEADED CHIP CARRIER WITH INTEGRATED METAL REFLECTOR CUP AND DIRECT HEAT SINK," was filed on February 23, 2011 and issued on December 8, 2015.

184. Plaintiff is the assignee and owner of all rights, title, and interest to the '373 Patent, including the right to recover for past infringement and has the legal right to enforce the patent, sue for infringement, and seek equitable relief and damages.

Technical Description

185. The '373 Patent addresses technical problems in the prior art of LED devices, including that "to increase the capacity of an LED package to dissipate more heat, various designs are used in the industry; however, each of these designs results in LED packages with limited heat dissipation capacities which simultaneously increase the complexity and the costs associated with manufacturing the LED packages." For example:

Some LED package designs utilize a large heat sink slug that is distinct from the lead frame. The heat sink slug increases the capacity of the LED package to dissipate heat; however, because the heat sink slug is a separate component, the costs associated with manufacturing LED packages according to this design are relatively difficult and more costly, particularly because the number of manufacturing steps are increased due to the need to assemble the multiple pieces together. Furthermore, LED packages which incorporate a separate heat sink slug are larger in size due to the increased number of components in the LED package.

Another shortcoming is that because a large LED package is required to accommodate the separate heat sink slug, a larger lens is also required to fit onto the larger LED package. All of this increases the cost of the LED package. (col. 1, ll. 28-47).

186. The '373 Patent provides technical solutions, including use of a “plastic molded lead frame” such that

the PLCC package 108 comprises a plastic housing 112 molded around a lead frame 120. As can be seen in FIGS. 1A and 1B, the lead frame 120 may be carried by the package carrier 104. In some embodiments, the package carrier 104 comprises a plurality of lead frames 120. Thus, batch manufacturing techniques can be employed to manufacture a plurality of PLCC packages 108 on a single package carrier 104.” (col. 2, ll. 54-61).

187. The '373 Patent provides that a technical advantage of its solutions is that “some or all of the features of the lead frame 120 may be created in a single manufacturing step (e.g., a single stamping step) or in multiple manufacturing steps (e.g., a stamping step followed by a machining or etching step).” (col. 3, ll. 8-12).

Direct Infringement

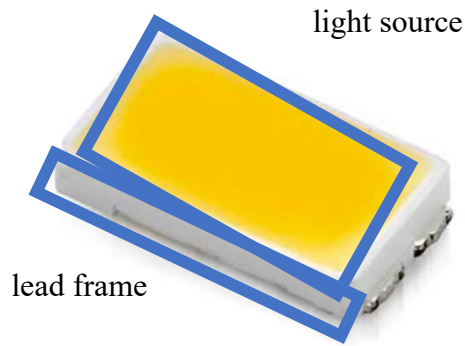
188. Defendant, without authorization or license from Plaintiff, has been and is directly infringing the '373 Patent, either literally or equivalently, as infringement is defined by 35 U.S.C. § 271, including through making, using (including for testing purposes), selling, and offering for sale methods and articles infringing one or more claims of the '373 Patent. Defendant is thus liable for direct infringement pursuant to 35 U.S.C. § 271. Exemplary infringing instrumentalities include the PC56H LED and all other substantially similar products (collectively the “'373 Accused Products”).

189. BWL names this exemplary infringing instrumentality to serve as notice of Defendant's infringing acts, however BWL reserves the right to include additional infringing products under the definition of '373 Accused Products that are either known to BWL or revealed during discovery.

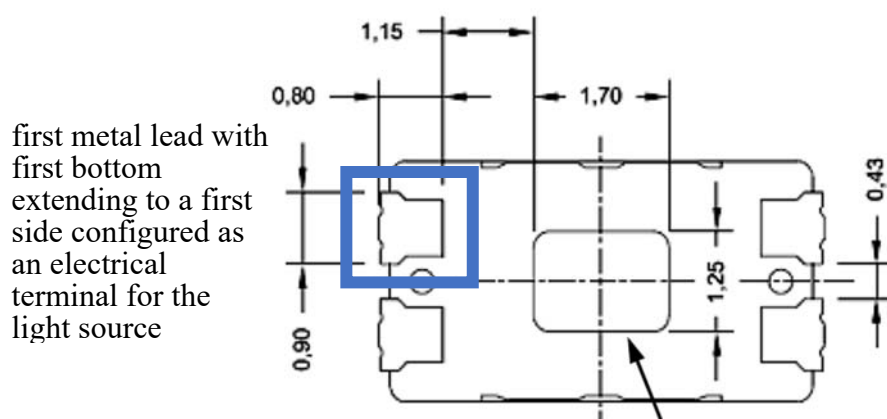
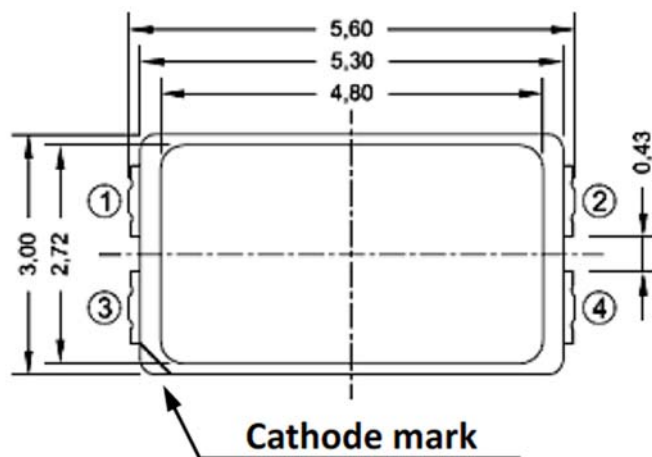
190. Defendant is liable for direct infringement pursuant to 35 U.S.C. § 271 for the development, design, manufacture, sale or distribution of Defendant's PC56H LED.

191. Defendant's PC56H LED is a non-limiting example of a light source that meets all limitations of claim 13 of the '373 Patent, either literally or equivalently.

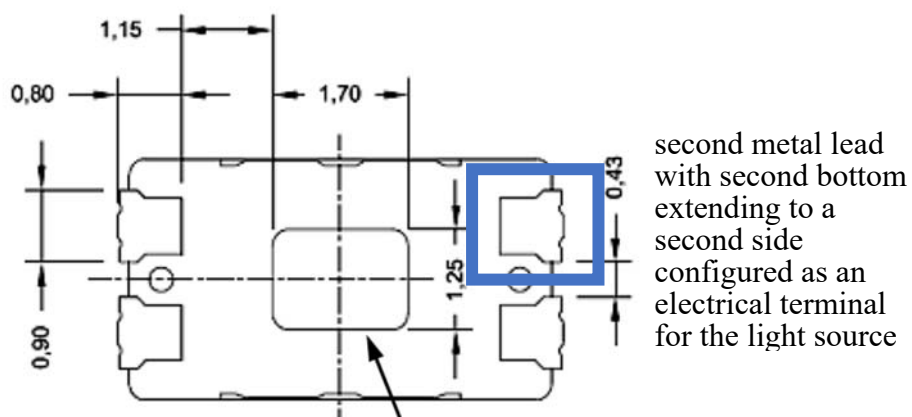
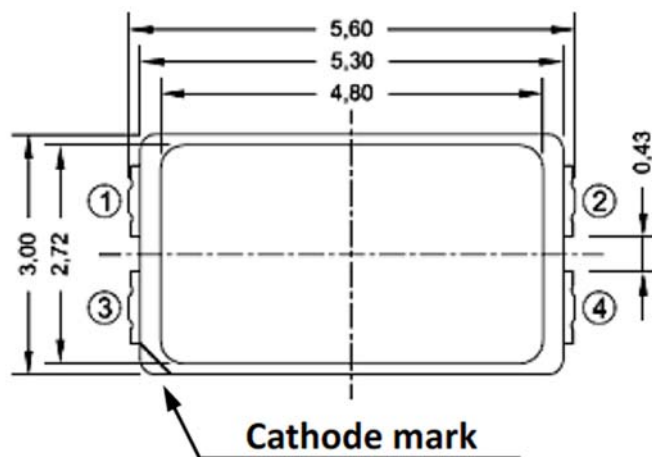
192. Defendant's PC56H LED comprises a lead frame configured to have a light source mounted thereto.



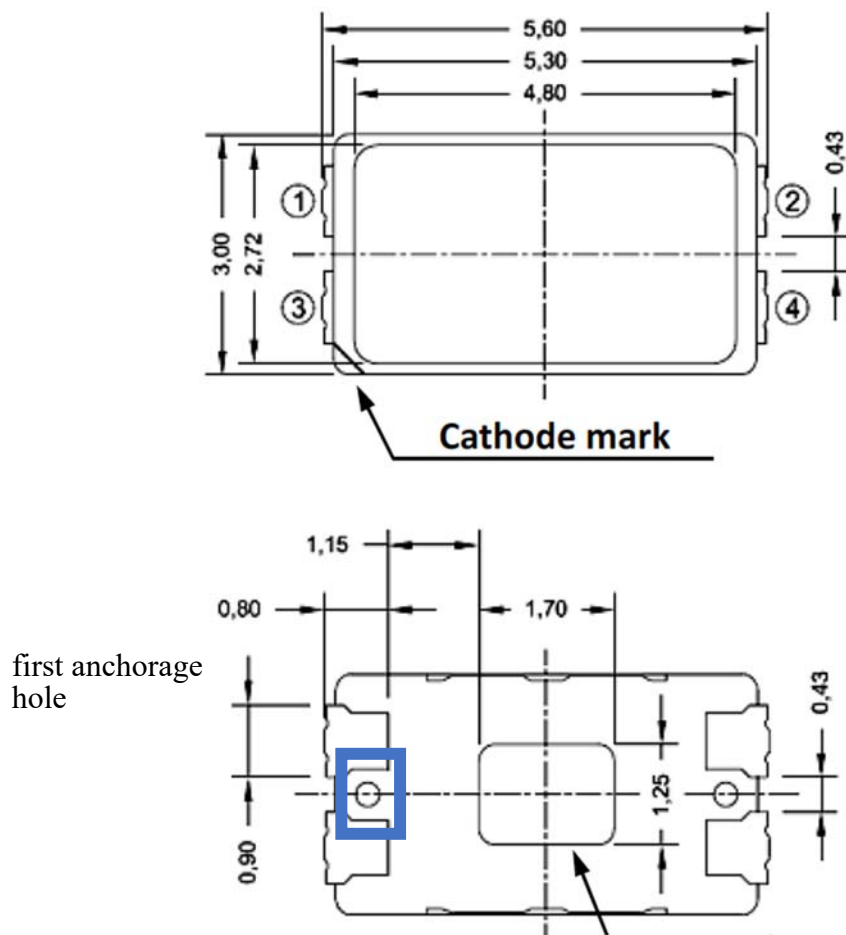
193. Defendant's PC56H LED comprises a first metal lead with a first bottom surface extending to a first side and configured to be a first electrical terminal for the light source.



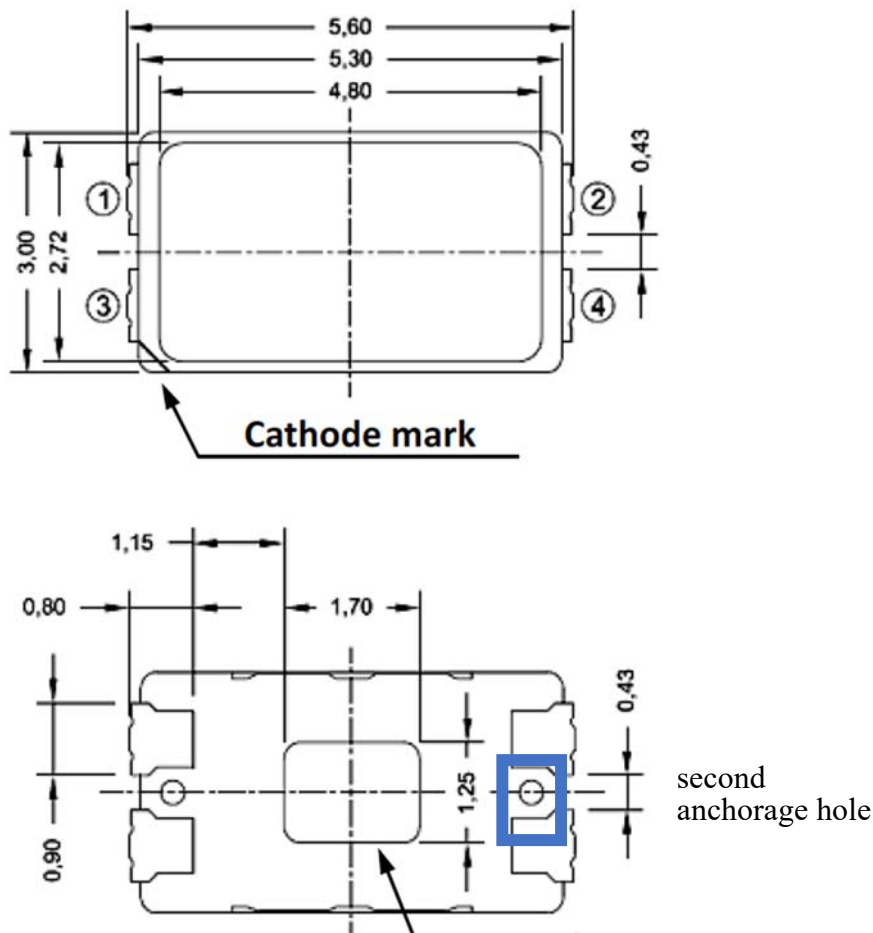
194. Defendant's PC56H LED comprises a second metal lead with a second bottom surface extending to a second side and configured to be a second electrical terminal for the light source.



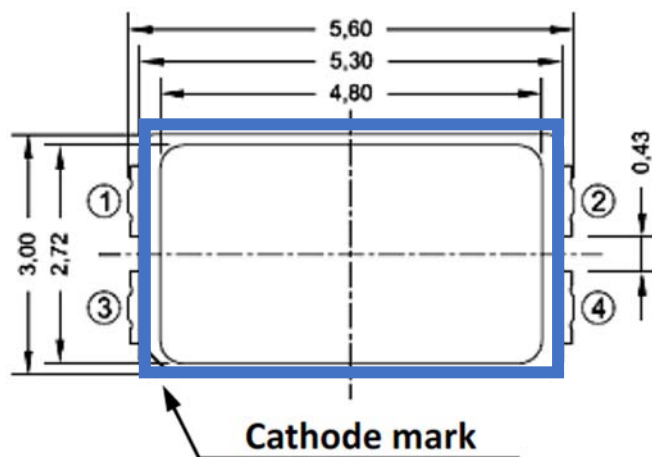
195. Defendant's PC56H LED comprises a first anchorage hole in the first bottom surface.



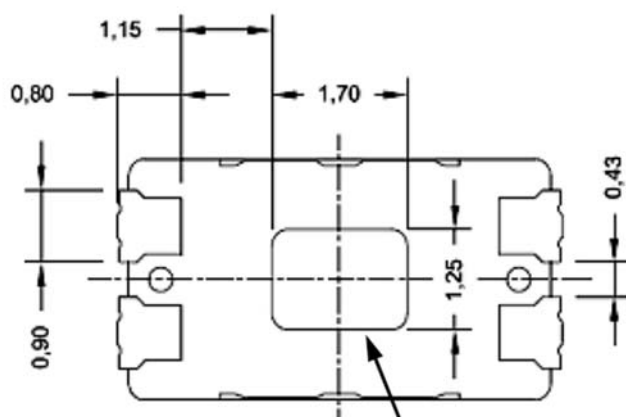
196. Defendant's PC56H LED comprises a second anchorage hole in the second bottom surface.



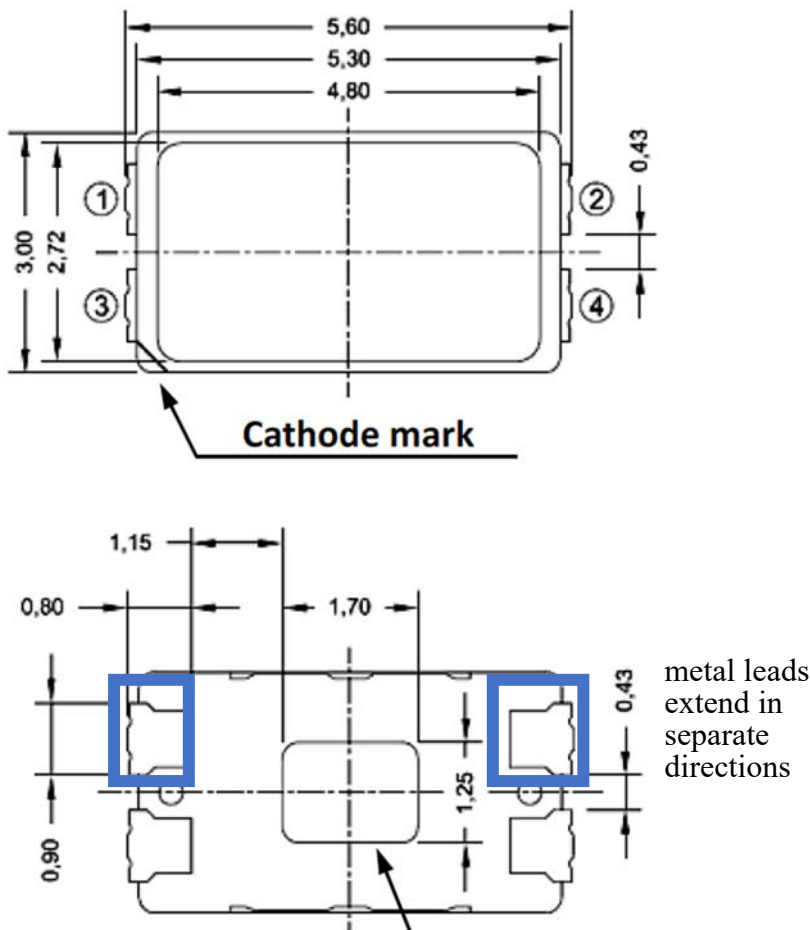
197. Defendant’s PC56H LED comprises a heat sink comprising a lead frame cavity that is configured to have the light source mounted therein and reflect light emitted by the light source, the heat sink being separated physically from the second metal lead and disposed between the first metal lead and the second metal lead such that the first bottom surface of the first metal lead and the second bottom surface of the second metal lead are on a same plane.



heat sink cavity configured for a light source between the first and second leads



198. Defendant's PC56H LED comprises a first and second metal lead wherein the bottom surfaces of the first metal lead and the second metal lead extend in opposite directions.



Post-Complaint Willful Infringement

199. Defendant has had actual knowledge of its infringement of the '373 Patent at least as of service of Plaintiff's Complaint.

200. Defendant's risk of infringement of the patents-in-suit was either known or was so obvious that it should have been known to Defendant.

201. Notwithstanding this knowledge, Defendant has knowingly or with reckless disregard willfully infringed the '373 Patent. Defendant has thus had actual notice of infringement of the '373 Patent and acted despite an objectively high likelihood that its actions constituted infringement of Plaintiff's valid patent rights, either literally or equivalently.

202. This objective risk was either known or so obvious that it should have been known to Defendant. Accordingly, Plaintiff seeks enhanced damages and reimbursement of its reasonable attorney fees pursuant to 35 U.S.C. §§ 284 and 285.

Post-Complaint Indirect Infringement

203. Defendant is knowingly inducing its customers and/or end users to directly infringe the '373 Patent, with the specific intent to encourage such infringement, and knowing that the induced acts constitute patent infringement, either literally or equivalently.

204. Defendant is knowingly contributing to direct infringement by its customers by importing, selling, and/or offering for sale within the United States the '373 Accused Products which are not suitable for substantial non-infringing use and which are especially made or especially adapted for use by its customers in an infringement of the asserted patent.

205. Defendant's indirect infringement includes, for example, providing data sheets, technical guides, demonstrations, software and hardware specifications, installation guides, and other forms of support that induce its customers and/or end users to directly infringe the '373 Patent. Defendant's indirect infringement additionally includes marketing its products for import by its customers into the United States. The '373 Accused Products are designed in such a way that when they are used for their intended purpose, the user infringes the '373 Patent, either literally or equivalently. Defendant knows and intends that customers who purchase the '373 Accused Products will use those products for their intended purpose. For example, Defendant's United States website instructs customers to use the '373 Accused Products in numerous infringing applications.⁸ In addition, Defendant specifically intends that its customers, such as United States distributors, retailers, and consumer product companies, will import, use, and sell

⁸ <https://www.lextar.com>.

infringing products in the United States to serve and develop the United States market for Defendant's infringing products.

206. As a result of Defendant's infringement, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement which, by law, can be no less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT NINE
INFRINGEMENT OF U.S. PATENT 9,887,338

207. Plaintiff incorporates by reference the allegations in all preceding paragraphs as if fully set forth herein.

208. The '338 Patent, entitled "LIGHT EMITTING DIODE DEVICE," was filed on July 28, 2009 and issued on February 6, 2018.

209. Plaintiff is the assignee and owner of all rights, title, and interest to the '338 Patent, including the right to recover for past infringements, and has the legal right to enforce the patent, sue for infringement, and seek equitable relief and damages.

Technical Description

210. The '338 Patent addresses technical problems in the prior art of LED devices, including that "typically, there are multiple thermal interfaces, comprising multiple layers of dissimilar materials, which impede heat flow." (col. 1, ll. 20-22).

211. Additionally, the '338 Patent addresses technical problems including that:

Sometimes, a LED package includes a heat slug (a mass of metal, typically copper) and heat generated by the LED is dissipated by the heat slug, or transferred through the heat slug In order to attach the LED to the heat slug, proper metallic configurations are needed at each of the mating surfaces In addition, if the heat slug is soldered to a circuit board (for example, a metal-core printed circuit board), then the circuit board also needs compatible metal plating, for example, copper, nickel, and silver/gold. All these various plating layers with dissimilar materials impede heat flow and add manufacturing cost. (col. 1, ll. 23-38).

212. To address these prior art problems, the '338 Patent discloses a technical solution of an "LED device, mounted on a circuit board or other substrate, with a reduced number of thermal interfaces layers of dissimilar materials), and with improved heat flow, and reduced manufacturing cost." (col. 2, ll. 18-21).

213. Specifically, the '338 Patent discloses the technical solution as an improvement over having the electrodes in the primary path of heat flow (col. 2, ll. 53-55).

214. The '338 Patent further teaches the technical solution including a substrate with a solder filled via such that "the solder filled via then acts as a heat plug, without requiring an intermediate package substrate or a package that includes a heat plug." (col. 2, ll. 6-11).

215. Figure 4 of the '338 Patent illustrates "an optional heat sink 318 on the surface opposite from the LED 300." (col. 3, ll. 24-25).

216. The '338 Patent further teaches that an advantage of its technical solution is that "the resulting structure has only two heat transfer interfaces: (1) from the LED body to the solder filled via, and (2) from the solder-filled via to the substrate or circuit board (or other heat sink)." (col. 3, ll. 32-36).

217. The '338 Patent teaches that a further advantage of its technical solution is that "solder is commonly used for circuit board assembly, eliminating the need for a separate process step for a heat conducting material." (col. 3, ll. 39-41).

Direct Infringement

218. Defendant, without authorization or license from Plaintiff, has been and is directly infringing the '338 Patent, either literally or equivalently, as infringement is defined by 35 U.S.C. § 271, including through making, using (including for testing purposes), selling and offering for sale methods and articles infringing one or more claims of the '338 Patent. Defendant, individually and operating as part of a common business enterprise, develops,

designs, manufactures, and distributes LED products that infringe one or more claims of the '338 Patent. Defendant is thus liable for direct infringement pursuant to 35 U.S.C. § 271. Exemplary infringing instrumentalities include the PU88S01 UV Emitter and all substantially similar products (collectively the "'338 Accused Products").

219. BWL names this exemplary infringing instrumentality to serve as notice of Defendant's infringing acts, however BWL reserves the right to include additional infringing products into the definition of '338 Accused Products that are either known to BWL or revealed during discovery.

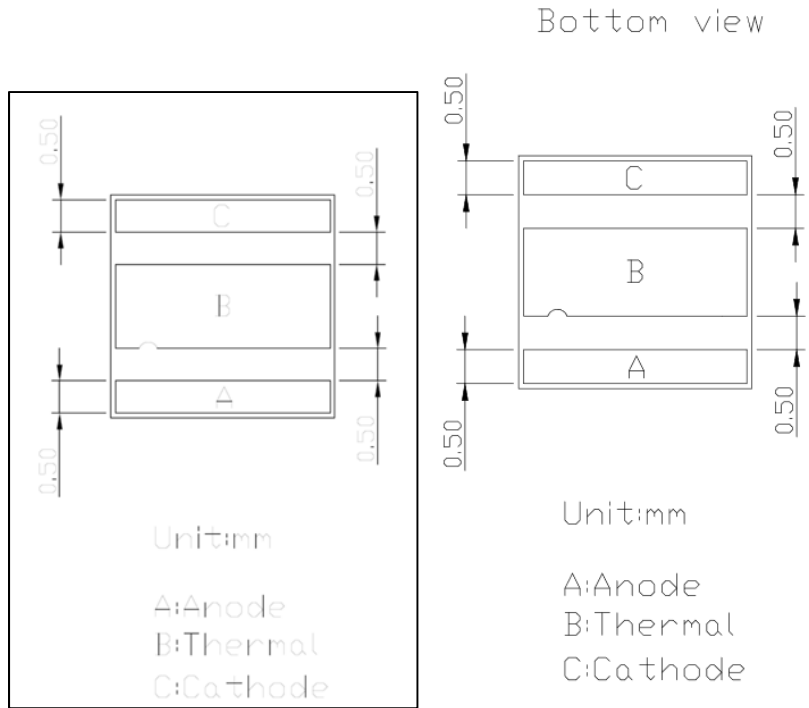
220. Defendant is liable for direct infringement pursuant to 35 U.S.C. § 271 for the development, design, manufacture, sale, or distribution of Defendant's PU88S01 UV Emitter.

221. Defendant's PU88S01 UV Emitter is a non-limiting example of a light source that meets all limitations of claim 3 of the '338 Patent, either literally or equivalently.

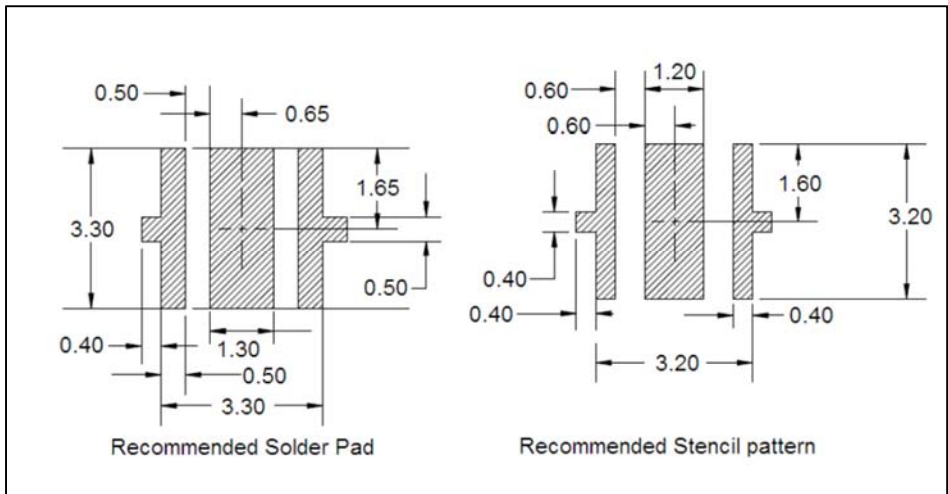
222. Defendant's PU88S01 UV Emitter is an electronic assembly.



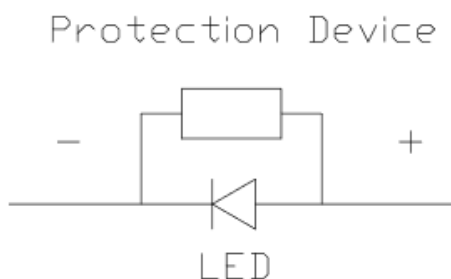
223. Defendant's PU88S01 UV Emitter is a Light Emitting Diode having an outer periphery and including a first surface with at least two electrodes.



224. Defendant’s PU88S01 UV Emitter is a Light Emitting Diode also having a solderable metallic surface on a second surface of the Light Emitting Diode opposite to the first surface such that the solderable metallic surface is only within the outer periphery of the Light Emitting Diode.



225. Defendant’s PU88S01 UV Emitter comprises at least one electric circuit element other than the at least one Light Emitting Diode.



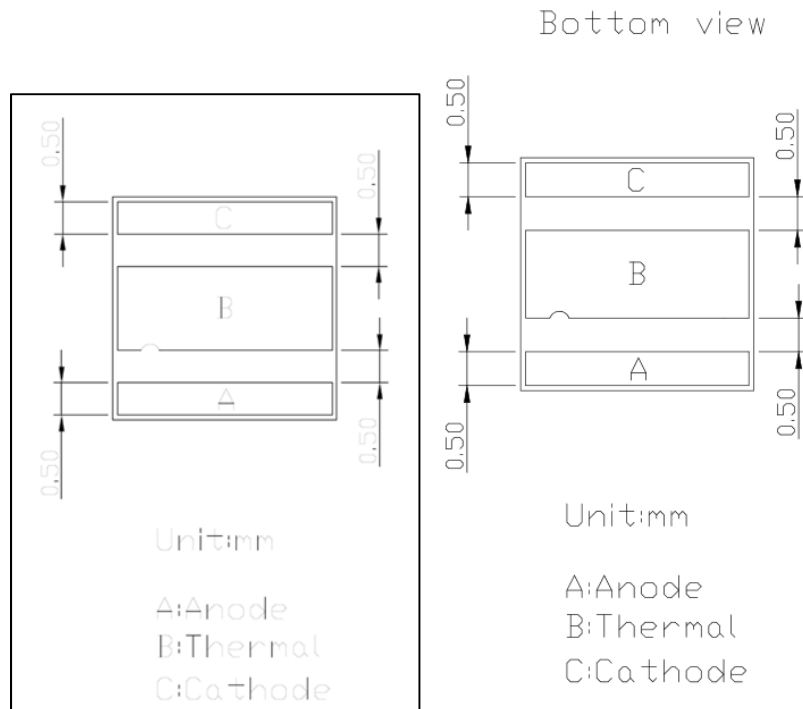
226. Defendant's PU88S01 UV Emitter comprises a printed circuit board having a first surface on which the Light Emitting Diode and the at least one electric circuit element are mounted, wherein the printed circuit board has a via.

227. The below image shows the metal traces on a substrate, which meets the printed circuit board element.



228. Defendant's PU88S01 UV Emitter comprises a heat sink disposed on a second surface of the printed circuit board, wherein the second surface is opposed to the first surface, wherein the solderable metallic surface is positioned across the via and in direct contact with the

printed circuit board and thermally connected to the heat sink through the via to dissipate heat generated by the at least one Light Emitting Diode.



Post-Complaint Willful Infringement

229. Defendant has had actual knowledge of its infringement of the '338 Patent at least as of service of Plaintiff's Complaint.

230. Defendant's risk of infringement of the patents-in-suit was either known or was so obvious that it should have been known to Defendant.

231. Notwithstanding this knowledge, Defendant has knowingly or with reckless disregard willfully infringed the '338 Patent. Defendant has thus had actual notice of infringement of the '338 Patent and acted despite an objectively high likelihood that its actions constituted infringement of Plaintiff's valid patent rights, either literally or equivalently.

232. This objective risk was either known or so obvious that it should have been known to Defendant. Accordingly, Plaintiff seeks enhanced damages pursuant to 35 U.S.C. §§ 284 and 285.

Post-Complaint Indirect Infringement

233. Defendant has induced and is knowingly inducing its customers and/or end users to directly infringe the '338 Patent, with the specific intent to encourage such infringement, and knowing that the induced acts constitute patent infringement, either literally or equivalently.

234. Defendant has knowingly contributed to direct infringement by its customers by having imported, sold, and/or offered for sale, and knowingly importing, selling, and/or offering to sell within the United States the '338 Accused Products which are not suitable for substantial non-infringing use and which are especially made or especially adapted for use by its customers in an infringement of the asserted patent.

235. Defendant's indirect infringement includes, for example, providing data sheets, technical guides, demonstrations, software and hardware specifications, installation guides, and other forms of support that induce its customers and/or end users to directly infringe the '338 Patent. Defendant's indirect infringement additionally includes marketing its products for import by its customers into the United States. The '338 Accused Products are designed in such a way that when they are used for their intended purpose, the user infringes the '338 Patent, either literally or equivalently. Defendant knows and intends that customers who purchase the '338 Accused Products will use those products for their intended purpose. For example, Defendant's United States website instructs customers to use the '338 Accused Products in numerous infringing applications.⁹ In addition, Defendant specifically intends that its customers, such as

⁹ <https://www.lextar.com>.

United States distributors, retailers, and consumer product companies, will import, use, and sell infringing products in the United States to serve and develop the United States market for Defendant's infringing products.

236. As a result of Defendant's infringement, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement which, by law, can be no less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

VI. NOTICE

237. BWL has complied with the notice requirement of 35 U.S.C. § 287 and does not currently distribute, sell, offer for sale, or make products embodying the Asserted Patents.

VII. JURY DEMAND

238. Plaintiff demands a trial by jury of all matters to which it is entitled to trial by jury, pursuant to FED. R. CIV. P. 38.

VIII. PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for judgment and seeks relief against Defendant as follows:

- A. A determination that one or more claims of the Asserted Patents is infringed by Defendant, both literally and under the doctrine of equivalents;
- B. A determination that one or more claims of the Asserted Patents is indirectly infringed by Defendant;
- C. An award of damages adequate to compensate Plaintiff for the patent infringement that has occurred, together with prejudgment and post-judgment interest and costs, and an ongoing royalty for continued infringement;

- D. For Defendant to be permanently enjoined pursuant to 35 U.S.C. § 283;
- E. A finding that this case is exceptional pursuant to 35 U.S.C. § 285;
- F. A determination that Defendant's infringements were willful;
- G. An award of enhanced damages against Defendant pursuant to 35 U.S.C. § 284;
- H. An award of reasonable attorneys' fees; and
- I. An award of any such other relief to Plaintiff as the Court deems just and proper.

Dated: January 14, 2020

Respectfully Submitted,

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