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UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

LG Innotek Co., Ltd., *Plaintiff*, vs. MelodySusie Brand Industrial Co., Limited; LOFTK International Inc.; LOFTK Tech Info Co., Ltd.; and LOFTK E Commercial Trading Co. Limited, *Defendants*.	Case No. 2:18-cv-6404 **COMPLAINT FOR PATENT INFRINGEMENT** **DEMAND FOR JURY TRIAL**

Plaintiff LG Innotek Co., Ltd. ("LG Innotek"), by and through its undersigned counsel, files this Complaint against MelodySusie Brand Industrial Co., Limited ("MelodySusie Brand Industrial"), LOFTK International Inc. ("LOFTK International"), LOFTK Tech Info Co., Ltd., ("LOFTK Tech Info"), and LOFTK E Commercial Trading Co. Limited ("LOFTK E-Commerce"), and alleges as follows:

PARTIES

1. Plaintiff LG Innotek is a corporation organized under the laws of the Republic of Korea, having its principal place of business in Seoul, Korea. LG Innotek is the assignee of the patents that are the subject of this Complaint.

2. Defendant LOFTK International, upon information and belief, is a Hong Kong corporation, with a principal place of business at Room 603, 6/F, Hang Pont Commercial Building, Kowloon, Hong Kong. Upon information and belief, LOFTK International is the parent company of Evergreat, Inc. ("Evergreat"), a California corporation located in Union City, CA that sells and offers for sale the MelodySusie brand products at issue.

3. Defendant MelodySusie Brand Industrial, upon information and belief, has a registered office at Unit D2, 18/F TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., Hong Kong. On information and belief, MelodySusie Brand Industrial is the successor to LOFTK International.

4. Defendant LOFTK Tech Info, upon information and belief, is a corporation organized under the laws of the People's Republic of China, with a place of business at E-commerce Incubation, Longsheng Dalang, Longhua New District, Shenzhen, Guangdong, China, 518100. On information and belief, LOFTK International is the parent company of LOFTK Tech Info. On information and belief, LOFTK Tech Info has a branch office in California through which it sells MelodySusie products: the California corporation QNG International Inc. ("QNG") located in Union City, CA. On information and belief, LOFTK Tech Info manufactures infringing MelodySusie products. On information and belief, LOFTK

Tech Info has imported and continues to import infringing MelodySusie brand products into this State and into this District, including into the Port of Los Angeles and the Port of Long Beach, California.

5. Defendant LOFTK E-Commerce, upon information and belief, is a corporation organized under the laws of the People's Republic of China, with a place of business at 6F, 1st Building, Jingshunli Industrial Park, Heng Xin Road, Shenzhen, China. On information and belief, LOFTK International is the parent company of LOFTK E-Commerce. On information and belief, LOFTK E-Commerce has imported and continues to import infringing MelodySusie brand products into this State and into this District, including into the Port of Los Angeles and the Port of Long Beach, California.

JURISDICTION AND VENUE

6. This is an action for patent infringement arising under the Patent Laws of the United States, United States Code, Title 35, § 1, et seq.

7. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

8. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(b), (c), and (d) at least because this is the District in which a substantial part of the events giving rise to the claim occurred, and Defendants LOFTK International, LOFTK Tech Info, LOFTK E-Commerce, and MelodySusie Brand Industrial are not resident in the United States, and all Defendants are subject to personal jurisdiction in this District.

9. Personal jurisdiction exists over each of the Defendants because each Defendant has sufficient minimum contacts with this forum as a result of business conducted within this State and District and subsidiaries and branches Evergreat and QNG incorporated in this State. Personal jurisdiction also exists specifically over each of the Defendants because each, directly or through affiliates, subsidiaries, agents, or intermediaries, transacts business in this State or purposefully directed at

this State (including, without limitation, the Port of Los Angeles, California, the Port of Long Beach, California, and/or Evergreat and QNG), including by importing, offering to sell, selling, and/or having sold infringing light emitting diodes and/or infringing systems incorporating light emitting diodes within this State and District or purposefully directed at this State and District. A copy of Panjiva reports showing shipments from LOFTK Tech Info and LOFTK E-Commerce to Evergreat and LOFTK Inc., imported into this State and District at the Port of Los Angeles and the Port of Long Beach, is attached hereto as Exhibit H. Personal jurisdiction also exists specifically over each of the Defendants because, on information and belief, they have overlapping executives, interlocking corporate structures, and close relationships as manufacturer, importer, and retailer of the accused products.

10. In addition, each of the Defendants, directly or through affiliates, subsidiaries, agents, or intermediaries, places infringing light emitting diodes and/or infringing systems incorporating light emitting diodes into the stream of commerce knowing they will be sold and used in this State, and economically benefits from the retail sale of the final product in this State. For example, Defendants' products have been sold and are available for sale in this District through Amazon's website, and are also offered for sale through the LOFTK website and through the MelodySusie website. *See, e.g.*, Exhibit Q. Defendants have published that the name "MelodySusie" refers to two cosmetologists in this State going by the names Melody and Susie who allegedly together created the brand name "MelodySusie." Defendants claim they are one of the largest brands of nail lamps in the world, with over 250,000 products manufactured every month and annual sales exceeding $10 million. As discussed herein, the Defendants' nail lamps include light emitting diodes which infringe LG Innotek's patent rights.

PATENTS-IN-SUIT

11. United States Patent No. 7,569,865 entitled "Method of Fabricating Vertical Structure LEDs" (hereinafter, "the '865 patent") was duly and legally issued on August 4, 2009. A copy of the '865 patent is attached hereto as Exhibit A.

12. United States Patent No. 7,582,912 entitled "Diode Having High Brightness and Method Thereof" (hereinafter, "the '912 patent") was duly and legally issued on September 1, 2009. A copy of the '912 patent is attached hereto as Exhibit B.

13. United States Patent No. 7,785,908 entitled "Method of Making Diode Having Reflective Layer" (hereinafter, "the '908 patent") was duly and legally issued on August 31, 2010. A copy of the '908 patent is attached hereto as Exhibit C.

14. United States Patent No. 8,236,585 entitled "Method of Making Diode Having Reflective Layer" (hereinafter, "the '585 patent") was duly and legally issued on August 7, 2012. A copy of the '585 patent is attached hereto as Exhibit D.

15. United States Patent No. 8,502,248 entitled "Light Emitting Device, Having Protrusions From a Conductive Support Member, Lighting Emitting Device Package, and Lighting System" (hereinafter, "the '248 patent") was duly and legally issued on August 6, 2013. A copy of the '248 patent is attached hereto as Exhibit E.

16. United States Patent No. 9,209,360 entitled "Vertical Topology Light-Emitting Device" (hereinafter, "the '360 patent") was duly and legally issued on December 8, 2015. A copy of the '360 patent is attached hereto as Exhibit F.

17. United States Patent No. 9,640,713 entitled "Diode Having High Brightness and Method Thereof (hereinafter, "the '713 patent") was duly and legally issued on May 2, 2017. A copy of the '713 patent is attached hereto as Exhibit G.

LG INNOTEK

18. LG Innotek is a global specialized material and component manufacturer which has been in business since 1970. LG Innotek has been in the

business of light-emitting diodes (or "LEDs") since at least 2000. LG Innotek competes in the fully integrated LED industry, from wafers, to chips, to LED packages, to modules, to consumer and professional products incorporating LEDs.

19. LG Innotek annually devotes a large percentage of its budget to research and development. LG Innotek built one of the world's largest LED factories. LG Innotek has received recognitions for its LED products, including the 2011 Red Dot Design Award and the Consumer Electronics Show (CES) Innovations 2011 Design and Engineering Award in the Enabling Technologies product category. LG Innotek owns a substantial portfolio of patents in LED technologies, including the patents-in-suit.

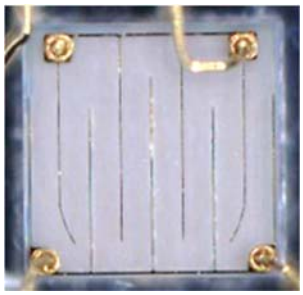
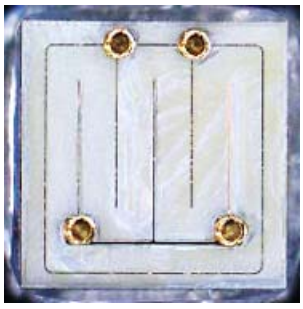
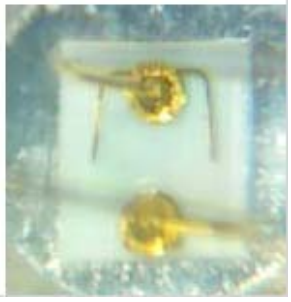
ACCUSED PRODUCTS AND TECHNOLOGY OVERVIEW

20. Diodes are a type of electrical component. Light-emitting diodes, or LEDs, are a type of diode which emit light when current is flowing through the diode. LEDs can be built from layers of different semiconductor materials deposited or formed on a substrate. Sapphire can be used as a substrate, as well as other types of materials. A semiconductor layer can be "n-type" or "p-type", where the "n-type" has an excess of electrons and the "p-type" has an excess of positively charged regions called holes.

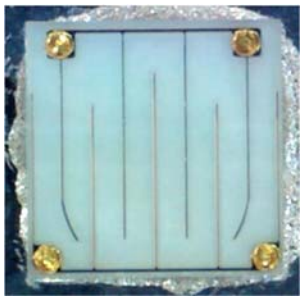
21. One type of semiconductor material that can be used in the layers of an LED is gallium nitride (or GaN), which is a crystal made of the element gallium and nitrogen. In addition to GaN, there are other types of semiconducting materials that can be used in making LEDs. The type of semiconductor material that is used may affect the color light to be emitted. There are several types of LEDs, which emit different colors and wavelengths of light, including ultraviolet light.

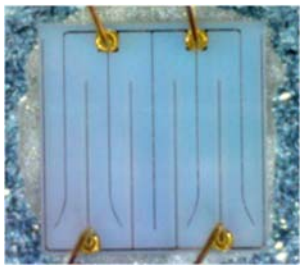
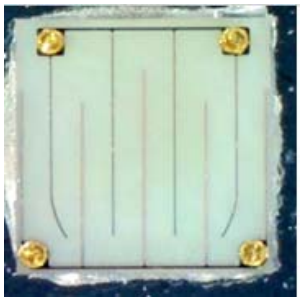
22. On information and belief, Defendants have imported, offered for sale and sold, and continue to import, offer for sale and sell, products containing infringing LED components, including, but not limited to those in the chart below. These products are offered for sale and have been sold in this District through

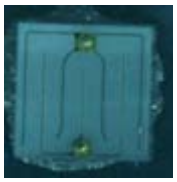
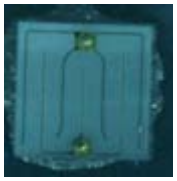
Amazon's website, and are also offered for sale through the MelodySusie website and the LOFTK website. *See* Exhibit Q.

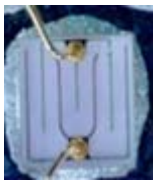
Products	Photos	LED Chips	Offers for Sale
MelodySusie "Violetilac" DR-601 Aurora 1 6W LED		Lateral (#5) 945x945: 	Amazon (Ex. Q at 1) MelodySusie (Ex. Q at 50) LOFTK (Ex. Q at 96)
MelodySusie "Violetilac" DR-601 Aurora 1 6W Mini/Classic		Lateral (#6) 880x880: 	Amazon (Ex. Q at 6) MelodySusie (Ex. Q at 131) LOFTK (Ex. Q at 99)
MelodySusie "Violetili" DR-618 Aurora 12W LED		Lateral (#7) 275x330: 	Amazon (Ex. Q at 11) MelodySusie (Ex. Q at 53) LOFTK (Ex. Q at 102)

Products	Photos	LED Chips	Offers for Sale
MelodySusie "EOS" MS-6320B Pro 12W Smart UV/LED		Lateral (#3) 355x710:  Vertical (#1) 380x380: 	Amazon (Ex. Q at 16) MelodySusie (Ex. Q at 57) LOFTK (Ex. Q at 105)
MelodySusie "Violetair"/"EOS 2" DR-6323A Pro22W Smart UV/LED		Lateral (#4) 430x475:  Vertical (#1) 380x380: 	Amazon (Ex. Q at 20) MelodySusie (Ex. Q at 61) LOFTK (Ex. Q at 108)

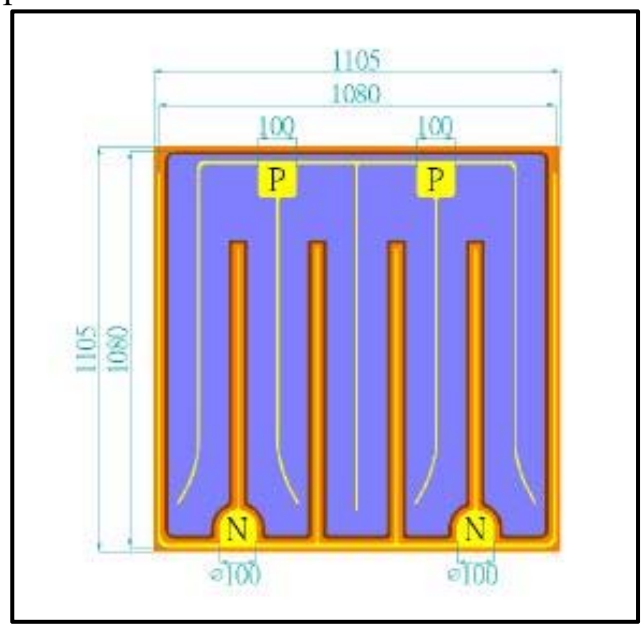
Products	Photos	LED Chips	Offers for Sale
MelodySusie "Violetiel" MS-6320 24W LED	 	Lateral (#5) 945x945: 	Amazon (Ex. Q at 24) MelodySusie (Ex. Q at 65) LOFTK (Ex. Q at 111)
MelodySusie "Violetiya" MS-6320 Pro 24W UV/LED	  	Lateral (#2) 610x610:  Vertical (#2) 380x380: 	Amazon (Ex. Q at 28) MelodySusie (Ex. Q at 69) LOFTK (Ex. Q at 114)

Products	Photos	LED Chips	Offers for Sale
MelodySusie "Violetilly" Aurora 4 DR-6340 48W LED	  	Lateral (#1) 1105x1105:  Lateral (#5) 945x945: 	Amazon (Ex. Q at 32) MelodySusie (Ex. Q at 73) LOFTK (Ex. Q at 117)
MelodySusie "EOS 3" DR-6333 Pro 48W UV/LED	  	Lateral (#4) 430x475:  Vertical (#1) 380x380: 	Amazon (Ex. Q at 36) MelodySusie (Ex. Q at 77)

Products	Photos	LED Chips	Offers for Sale
MelodySusie "Violetira"/ "Violetilly" DR-6340 Pro48W Smart UV/LED	  	Lateral (#2) 610x610:  Vertical (#1) 380x380: 	Amazon (Ex. Q at 41) MelodySusie (Ex. Q at 81) LOFTK (Ex. Q at 120)
MelodySusie "Violeta" DR-6360 Pro 60W UV/LED and MelodySusie "Violeta" DR-6360A Pro 60W UV/LED	  	Lateral (#2) 610x610:  Vertical (#1) 380x380:  Vertical (#3) 510x510: 	Amazon (Ex. Q at 44) MelodySusie (Ex. Q at 85) LOFTK (Ex. Q at 123)

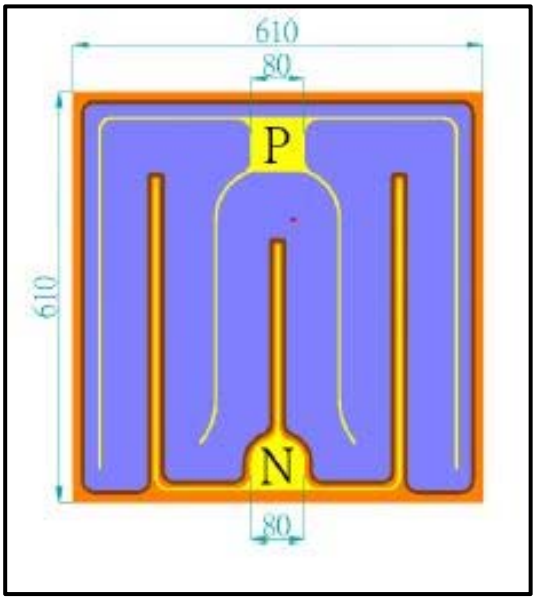
Products	Photos	LED Chips	Offers for Sale
MelodySusie "Violetage" DR-6360 Pro 60W Rechargeable UV/LED and MelodySusie "Violetage" DR-6364 Pro 60W Rechargeable UV/LED	  	Lateral (#2) 610x610:  Vertical (#1) 380x380:  Vertical (#3) 510x510: 	Amazon (Ex. Q at 49) MelodySusie (Ex. Q at 91) LOFTK (Ex. Q at 126)

23. On information and belief, the lateral LED Chip in at least the MelodySusie Nail Dryer Model "Violetilly" Aurora 4 DR-6340 48W LED is an LED manufactured by a company called Epileds designated as model number EP-U4545K-A3. *See* 4545 LED Product Specification (Lateral #1), Exhibit I. The 4545 LED Product Specification shows the dimensions of the LED chip, including the size and thickness of the p-pad, n-pad, and overall chip. The 4545 LED Product Specification also lists the materials comprising the LED chip, including a p-contact conductive layer, a gold (Au) p-pad, a gold (Au) n-pad, and a reflective layer, which comprises aluminum (Al) and gold (Au). The 4545 LED Product Specification also provides electro-optical characteristics and specifications of the LED chip. The 4545 LED Product Specification includes a schematic for that LED chip as follows:

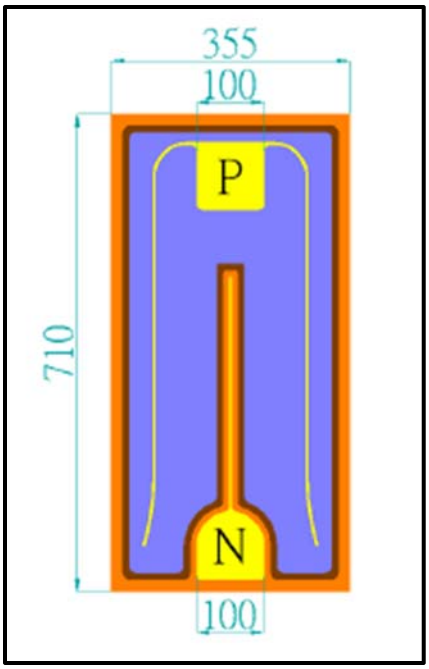


24. On information and belief, the lateral LED Chip in at least the MelodySusie Nail Dryer Models "Violetiya" MS-6320 Pro 24W UV/LED, "Violetira"/ "Violetilly" DR-6340 Pro48W Smart UV/LED, "Violeta" DR-6360(A) Pro 60W UV/LED, and "Violetage" DR-6360/64 Pro 60W Rechargeable UV/LED is an LED manufactured by Epileds and bearing model number EP-U242C-A3. *See* 242 LED Product Specification (Lateral #2), Exhibit J. The 242 LED Product Specification shows the dimensions of that LED chip, including the size and

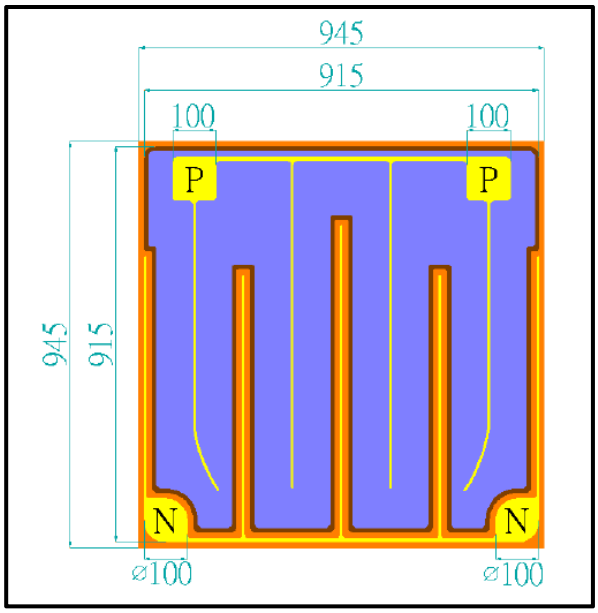
thickness of the p-pad, n-pad, and the overall chip. The 242 LED Product Specification also lists the materials comprising that LED chip, including a p-contact conductive layer, a gold (Au) p-pad, a gold (Au) n-pad, and a reflective layer, which comprises aluminum (Al) and gold (Au). The 242 LED Product Specification also provides electro-optical characteristics and specifications of that LED chip. The 242 LED Product Specification includes a schematic for that LED chip as follows:



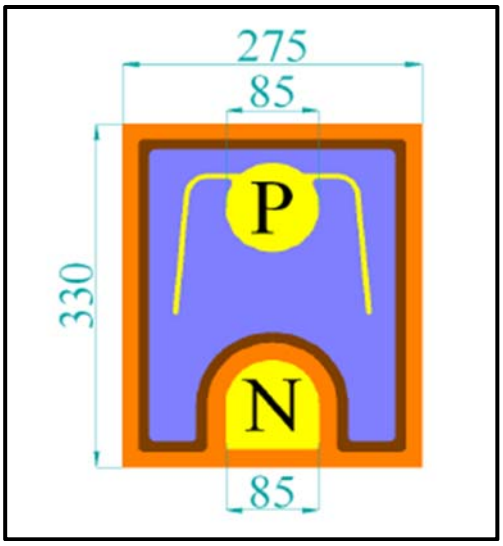
25. On information and belief, the lateral LED Chip in at least the MelodySusie Nail Dryer Model "EOS" MS-6320B Pro 12W Smart UV/LED is an LED manufactured by Epileds and bearing model number EP-B2814A-A2. *See* 2814 LED Product Specification (Lateral #3), Exhibit K. The 2814 LED Product Specification shows the dimensions of that LED chip, including the size and thickness of the p-pad, n-pad, and the overall chip. The 2814 LED Product Specification also lists the materials comprising that LED chip, including a p-contact conductive layer, a gold (Au) p-pad, a gold (Au) n-pad, and a reflective layer, which comprises aluminum (Al). The 2814 LED Product Specification also provides electro-optical characteristics and specifications of that LED chip. The 2814 LED Product Specification includes a schematic for that LED chip as follows:



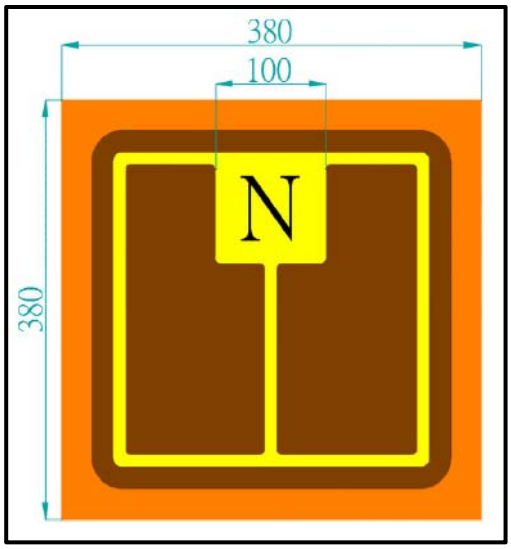
26. On information and belief, the lateral LED Chip in at least the MelodySusie Nail Dryer Models "Violetilac" DR-601 Aurora 1 6W LED, "Violetiel" MS-6320 24W LED, and "Violetilly" Aurora 4 DR-6340 48W LED is an LED manufactured by Epileds and bearing model number EP-U4040F-A3. *See* 4040 LED Product Specification (Lateral #5), Exhibit L. The 4040 LED Product Specification shows the dimensions of the LED chip, including the size and thickness of the p-pad, n-pad, and the overall chip. The 4040 LED Product Specification also lists the materials comprising that LED chip, including a gold (Au) p-pad, a gold (Au) n-pad, and a reflective layer which comprises aluminum (Al) and gold (Au). The 4040 LED Product Specification also provides electro-optical characteristics and specifications of that LED chip. The 4040 LED Product Specification includes a schematic for that LED chip as follows:



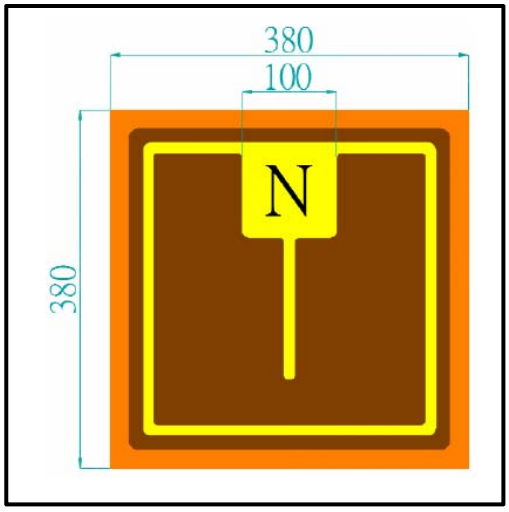
27. On information and belief, the lateral LED Chip in at least the MelodySusie Nail Dryer Model "Violetili" DR-618 Aurora 12W LED is an LED manufactured by Epileds and bearing model number EP-U1311B-A3. *See* 1311 LED Product Specification (Lateral #7), Exhibit M. The 1311 LED Product Specification shows the dimensions of that LED chip, including the size and thickness of the p-pad, n-pad, and the overall chip. The 1311 LED Product Specification also lists the materials comprising that LED chip, including a p-contact conductive layer, a gold (Au) p-pad, a gold (Au) n-pad, and a reflective layer, which comprises aluminum (Al) and gold (Au). The 1311 LED Product Specification also provides electro-optical characteristics and specifications of that LED chip. The 1311 LED Product Specification includes a schematic for that LED chip as follows:



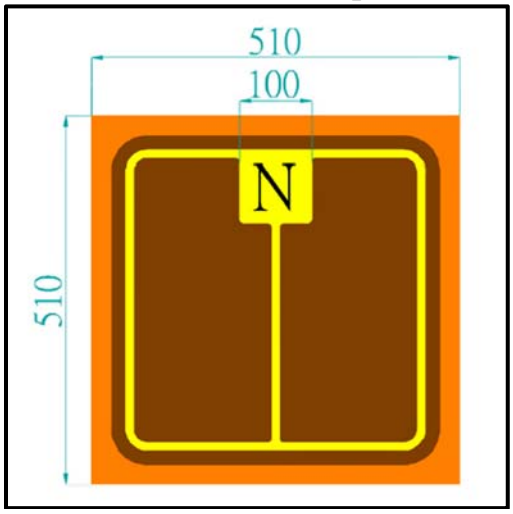
28. On information and belief, the vertical LED Chip in at least the MelodySusie Nail Dryer Models "EOS" MS-6320B Pro 12W Smart UV/LED, "Violetair"/"EOS 2" DR-6323A Pro22W Smart UV/LED, "EOS 3" DR-6333 Pro 48W UV/LED, "Violetira"/ "Violetilly" DR-6340 Pro48W Smart UV/LED, and "Violeta" DR-6360(A) Pro 60W UV/LED is also manufactured by Epileds and bears model number BN-U1515H-A3. *See* 1515H LED Product Specification (Vertical #1), Exhibit N. The 1515H LED Product Specification shows the dimensions of that LED chip, including the size and thickness of the n-pad and chip. The 1515H Product Specification also lists the materials comprising that LED chip, including a gold (Au) alloy n-pad and a gold (Au) backside metal. The 1515H LED Product Specification also provides electro-optical characteristics and specifications of that LED chip. The 1515H LED Product Specification includes a schematic for that LED chip as follows:



29. On information and belief, the vertical LED Chip in at least the MelodySusie Nail Dryer Model "Violetiya" MS-6320 Pro 24W UV/LED is also manufactured by Epileds and bears model number BN-U1515E-A3. See 1515E LED Product Specification (Vertical #2), Exhibit P. The 1515E LED Product Specification shows the dimensions of that LED chip, including the size and thickness of the n-pad and chip. The 1515E Product Specification also lists the materials comprising that LED chip, including a gold (Au) alloy n-pad and a gold (Au) backside metal. The 1515E LED Product Specification also provides electro-optical characteristics and specifications of that LED chip. The 1515E LED Product Specification includes a schematic for that LED chip as follows:



30. On information and belief, the vertical LED Chip in at least the MelodySusie Nail Dryer Model "Violetage" DR-6360/64 Pro 60W Rechargeable UV/LED is also manufactured by Epileds and bears model number BN-U2020J-A3. *See* 2020 LED Product Specification (Vertical #3), Exhibit P. The 2020 LED Product Specification shows the dimensions of that LED chip, including the size and thickness of the n-pad and chip. The 2020 Product Specification also lists the materials comprising that LED chip, including a gold (Au) alloy n-pad and a gold (Au) backside metal. The 2020 LED Product Specification also provides electro-optical characteristics and specifications of that LED chip. The 2020 LED Product Specification includes a schematic for that LED chip as follows:



KNOWLEDGE OF THE PATENTS-IN-SUIT AND INFRINGEMENT

31. The Defendants have had knowledge of the patents-in-suit at least since the date of this Complaint and, on information and belief, well before the date of this Complaint as explained in the following paragraphs, yet Defendants knowingly and intentionally continued making, using, importing, offering to sell, and selling infringing products in this State and District.

32. By letter dated January 23, 2018, LG Innotek corresponded with Shuming Luo, the CEO of Evergreat, which is located in this State and whose parent company is LOFTK International. LG Innotek identified all of the patents-in-suit as being infringed. In particular, LG Innotek identified products sold by Evergreat as

infringing each of the patents-in-suit, specifically the Defendants' MelodySusie brand nail dryers. LG Innotek informed Evergreat that Evergreat needed to obtain a license from LG Innotek for the infringement of LG Innotek's patents. LG Innotek offered to discuss licensing the patents-in-suit to Evergreat.

33. By letter dated February 23, 2018, Mr. Luo the CEO of Evergreat acknowledged receipt of LG Innotek's January 23 letter but did not accept LG Innotek's offer to discuss licensing the patents-in-suit.

34. By letter dated March 26, 2018, LG Innotek responded to Evergreat. LG Innotek stated that Evergreat was selling the identified MelodySusie products and thus was an entity liable for an act of infringement defined under the Patent Act. LG Innotek provided five pages of evidence of Evergreat's infringing products and sales of those products. LG Innotek again offered to openly discuss licensing the patents-in-suit.

35. Evergreat's knowledge of the patents and willful infringement can fairly be imputed to all of the Defendants given their overlapping executives and close relationships as manufacturer, importer, and retailer of the accused products. For example, LOFTK International is the parent company of Evergreat. On information and belief, JinFang "King" Li is the CEO of LOFTK International, and is also the CEO of QNG in this State. On information and belief, Evergreat and QNG have been listed at the same address in this State on at least 3 occasions. On information and belief, Kaming Kwok is the former CEO of Evergreat and also the Secretary of QNG. On information and belief, Shuming Luo is the CEO and agent for service for Evergreat and owned the MelodySusie US trademark for nail dryers, and he was the CEO of another California corporation called "LOFTEK" which upon information and belief is now dissolved but was formerly affiliated with the Defendants.

36. Further, Shuming Luo is the CEO of LOFTK Inc. *See* Exhibit R. Shuming Luo, JinFang "King" Li, and Kaming Kwok are the three directors of

LOFTK Inc. *Id.* The Defendants continue to import infringing products to LOFTK Inc. through the Port of Los Angeles and Port of Long Beach. *See* Exhibit H.

37. None of the Defendants has ever entered into any licensing discussions with LG Innotek for the patents-in-suit.

COUNT I – INFRINGEMENT OF U.S. PATENT NO. 7,569,865

38. The allegations contained in paragraphs 1-37 above are repeated and realleged as if fully set forth herein.

39. LG Innotek is the assignee and owner of the right, title, and interest in and to the '865 patent, now and for the entire period of and relevant to the infringement, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it, including the right to sue for and collect past damages.

40. Defendants are, and have been, on notice of the '865 patent since before the lawsuit was filed. Among the ways that actual notice was provided to Defendants is the January 23, 2018 letter referenced above.

41. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, one or more claims of the '865 patent under 35 U.S.C. § 271, at least by selling, offering for sale, and/or importing in this District and State, products covered by one or more claims of the '865 patent, including, but not limited to, the MelodySusie Nail Dryer Models "EOS" MS-6320B Pro 12W Smart UV/LED, "Violetair"/"EOS 2" DR-6323A Pro22W Smart UV/LED, "Violetiya" MS-6320 Pro 24W UV/LED, "EOS 3" DR-6333 Pro 48W UV/LED, "Violetira"/ "Violetilly" DR-6340 Pro48W Smart UV/LED, "Violeta" DR-6360(A) Pro 60W UV/LED, and "Violetage" DR-6360/64 Pro 60W Rechargeable UV/LED. "EOS" MS-6320B Pro 12W Smart UV/LED ("MelodySusie MS-6320B Nail Dryer") will be exemplary for the remainder of this Count.

42. Defendants have and continue to induce infringement of one or more claims of the '865 patent under 35 U.S.C. § 271(b) by actively inducing the other

Defendants, related entities such as Evergreat and QNG, and/or customers, to use, sell, offer to sell, and/or import in this District and State, products covered by one or more claims of the '865 patent, including, but not limited to, the MelodySusie MS-6320B Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie MS-6320B Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the '865 patent and notice that the accused products infringe the '865 patent prior to this Complaint and at least as of the date of this Complaint.

43. Defendants have and continue to contributorily infringe one or more claims of the '865 patent under 35 U.S.C. § 271(c) at least by selling, offering for sale, and/or importing to its affiliates and customers in this District and State, products covered by one or more claims of the '865 patent that have no substantial non-infringing uses, including, but not limited to the MelodySusie MS-6320B Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie MS-6320B Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the '865 patent and notice that the accused products infringe the '865 patent prior to this Complaint and at least as of the date of this Complaint.

44. On information and belief, the vertical LED Chip inside of the MelodySusie MS-6320B Nail Dryer is Epileds model BN-U1515H-A3. *See* Product Specification (Vertical #1), BN-U1515H-A3, Exhibit N.

45. The MelodySusie MS-6320B Nail Dryer comprises a plurality of LED light beads, and each such LED is a light emitting device. By way of example, the MelodySusie MS-6320B Nail Dryer infringes an exemplary claim of the '865 patent, claim 1, as in the following description which LG Innotek provides without the benefit of information obtained through discovery.

46. An LED in the MelodySusie MS-6320B Nail Dryer comprises a layer structure. The LED layer structure includes a conductive support structure, a first

electrode, a p-type semiconductor layer, a light-emitting layer, an n-type semiconductor layer, a passivation layer, and a second electrode.

47. Claim 1 of the '865 patent claims a light-emitting device, comprising:

a. *a conductive support structure*: An LED in the MelodySusie MS-6320B Nail Dryer has a conductive support structure comprising at least titanium and/or silicon which is electrically conductive.

b. *a first-type GaN based layer over the conductive support structure*: An LED in the MelodySusie MS-6320B Nail Dryer has a p-type GaN layer located in a layer over the conductive support structure.

c. *a first electrode disposed between the conductive support structure and the first-type GaN based layer such that the first-type GaN based layer is over the first electrode*: An LED in the MelodySusie MS-6320B Nail Dryer has an electrode comprising gold or a gold alloy disposed between the conductive support structure and the p-type GaN layer such that the p-type GaN layer is over this electrode.

d. *a second-type GaN based layer over the first-type GaN based layer*: An LED in the MelodySusie MS-6320B Nail Dryer has an n-type GaN layer located in a layer over the p-type GaN layer.

e. *a light-emitting layer disposed between the first-type GaN based layer and the second-type GaN based layer*: An LED in the MelodySusie MS-6320B Nail Dryer has a light-emitting layer located in a layer between the p-GaN layer and the n-GaN layer.

f. *a passivation layer over surfaces of the first-type GaN based layer, of the light emitting layer, of the second-type GaN based layer, and of the first electrode*: An LED in the MelodySusie MS-6320B Nail Dryer has a passivation layer with silicon dioxide located in a layer over the surfaces of the p-type semiconductor layer, the light-emitting layer, the n-type semiconductor layer, and the first electrode.

g. *a second electrode over the second-type GaN based layer*: An LED in the MelodySusie MS-6320B Nail Dryer has a second electrode comprising gold or a gold alloy in a layer located over the n-type GaN layer.

h. *wherein the first electrode and the second electrode are respectively located at opposite sides of the light-emitting layer, and wherein the passivation layer is located over at least an upper portion of the conductive support structure*: In the layer structure of an LED in the MelodySusie MS-6320B Nail Dryer, the first and second electrodes are respectively located on opposite sides of the light-emitting layer. In the layer structure of an LED in the MelodySusie MS-6320B Nail Dryer, the passivation layer is located in a layer located over at least an upper portion of the conductive support structure described above.

48. Upon information and belief, the infringement of the '865 patent by Defendants has been willful.

49. Unless enjoined by this Court, Defendants will continue to infringe the '865 patent, and LG Innotek will continue to suffer irreparable harm. Accordingly, LG Innotek is entitled to interim, temporary, preliminary, and permanent relief against such infringement under 35 U.S.C. § 283.

50. As a result of Defendants' infringement of the '865 patent, LG Innotek has been and continues to be irreparably injured with respect to its business and intellectual property rights, and is entitled to recover damages for such injuries pursuant to 35 U.S.C. § 284.

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 7,582,912

51. The allegations contained in paragraphs 1-37 above are repeated and realleged as if fully set forth herein.

52. LG Innotek is the assignee and owner of the right, title, and interest in and to the '912 patent, now and for the entire period of and relevant to the

infringement, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it, including the right to sue for and collect past damages.

53. Defendants are, and have been, on notice of the ’912 patent since before the lawsuit was filed. Among the ways that actual notice was provided to Defendants is the January 23, 2018 letter referenced above.

54. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the ’912 patent under 35 U.S.C. § 271 at least by selling, offering for sale, and/or importing in this District and elsewhere into the United States, products covered by one or more claims of the ’912 patent, including, but not limited to the MelodySusie Nail Dryer Models “Violetilac” DR-601 Aurora 1 6W LED, “Violetilac” DR-601 Aurora 1 6W Mini/Classic, “Violetili” DR-618 Aurora 12W LED, “Violetiel” MS-6320 24W LED, “Violetiya” MS-6320 Pro 24W UV/LED, “Violetilly” Aurora 4 DR-6340 48W LED, “Violetira”/ “Violetilly” DR-6340 Pro48W Smart UV/LED, “Violeta” DR-6360(A) Pro 60W UV/LED, and “Violetage” DR-6360/64 Pro 60W Rechargeable UV/LED. “Violetilly” Aurora 4 DR-6340 48W LED (“MelodySusie DR-6340 Nail Dryer”) will be exemplary for the remainder of this Count.

55. Defendants have and continue to induce infringement of one or more claims of the ’912 patent under 35 U.S.C. § 271(b) by actively inducing the other Defendants, related entities such as Evergreat and QNG, and/or customers, to make, use, sell, offer to sell, and/or import in this District and State, products covered by one or more claims of the ’912 patent, including, but not limited to, the MelodySusie DR-6340 Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6340 Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the ’912 patent and notice that the

accused products infringe the '912 patent prior to this Complaint and at least as of the date of this Complaint.

56. Defendants have and continue to contributorily infringe one or more claims of the '912 patent under 35 U.S.C. § 271(c) at least by selling, offering for sale, and/or importing to its affiliates and customers in this District and State, products covered by one or more claims of the '912 patent that have no substantial non-infringing uses, including, but not limited to the MelodySusie DR-6340 Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6340 Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the '912 patent and notice that the accused products infringe the '912 patent prior to this Complaint and at least as of the date of this Complaint.

57. On information and belief, the lateral LED Chip inside of the MelodySusie DR-6340 Nail Dryer is Epileds model EP-U4545K-A3. *See* Product Specification (Lateral #1), EP-U4545K-A3, Exhibit I.

58. By way of example, the MelodySusie DR-6340 Nail Dryer infringes an exemplary claim of the '912 patent, claim 1, as in the following description which LG Innotek provides without the benefit of information obtained through discovery.

59. Claim 1 of the '912 patent claims a light emitting diode, comprising:

a. *a substrate*: An LED in the MelodySusie DR-6340 Nail Dryer has a substrate which provides surfaces.

b. *an n-type layer on a first surface of the substrate; an active layer on the n-type layer; a p-type layer on the active layer*: An LED in the MelodySusie DR-6340 Nail Dryer has, on a first surface of the substrate, an n-type layer that is Silicon doped GaN; an active layer of InGaN/GaN on the n-type layer; and a p-type layer comprising magnesium doped AlGaN and magnesium doped GaN on the active layer.

c. *a first electrode contacting the p-type layer*: An LED in the MelodySusie DR-6340 Nail Dryer has an electrode contacting the p-type layer, and the electrode comprises a chromium layer, a platinum layer, and a gold pad.

d. *a second electrode contacting the n-type layer*: An LED in the MelodySusie DR-6340 Nail Dryer has another electrode contacting the n-type layer, and the electrode comprises a chromium layer, a platinum layer, and a gold pad.

e. *a reflective layer on a second surface of the substrate*: An LED in the MelodySusie DR-6340 Nail Dryer has a reflective layer below the substrate, the reflective layer comprises aluminum and/or titanium dioxide and silicon dioxide layers which constitute a Distributed Bragg reflector.

f. *wherein a surface roughness of at least one portion of an interface between the reflective layer and the second surface of the substrate is less than 15 nm*: An LED in the MelodySusie DR-6340 Nail Dryer has an interface between the reflective layer and the second surface of the substrate. The surface roughness of at least one portion of the interface between the reflective layer and second surface of the substrate measures approximately 10.01 nm, which is less than 15 nm.

60. Upon information and belief, the infringement of the ’912 patent by Defendants has been willful.

61. Unless enjoined by this Court, Defendants will continue to infringe the ’912 patent, and LG Innotek will continue to suffer irreparable harm. Accordingly, LG Innotek is entitled to interim, temporary, preliminary, and permanent relief against such infringement under 35 U.S.C. § 283.

62. As a result of Defendants’ infringement of the ’912 patent, LG Innotek has been and continues to be irreparably injured with respect to its business and

intellectual property rights, and is entitled to recover damages for such injuries pursuant to 35 U.S.C. § 284.

COUNT III – INFRINGEMENT OF U.S. PATENT NO. 7,785,908

63. The allegations contained in paragraphs 1-37 above are repeated and realleged as if fully set forth herein.

64. LG Innotek is the assignee and owner of the right, title, and interest in and to the '908 patent, now and for the entire period of and relevant to the infringement, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it, including the right to sue for and collect past damages.

65. Defendants are, and have been, on notice of the '908 patent since before the lawsuit was filed. Among the ways that actual notice was provided to Defendants is the January 23, 2018 letter referenced above.

66. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the '908 patent under 35 U.S.C. § 271(g) by making, using, selling, offering for sale, or importing in this District and elsewhere into the United States, products made by the process of one or more claims of the '908 patent, including, but not limited to the MelodySusie Nail Dryer Models "Violetilac" DR-601 Aurora 1 6W LED, "Violetilac" DR-601 Aurora 1 6W Mini/Classic, "Violetili" DR-618 Aurora 12W LED, "Violetiel" MS-6320 24W LED, "Violetiya" MS-6320 Pro 24W UV/LED, "Violetilly" Aurora 4 DR-6340 48W LED, "Violetira"/ "Violetilly" DR-6340 Pro48W Smart UV/LED, "Violeta" DR-6360(A) Pro 60W UV/LED, and "Violetage" DR-6360/64 Pro 60W Rechargeable UV/LED. "Violetilly" Aurora 4 DR-6340 48W LED ("MelodySusie DR-6340 Nail Dryer") will be exemplary for the remainder of this Count.

67. Defendants have and continue to induce infringement of one or more claims of the '908 patent under 35 U.S.C. § 271(b) by actively inducing the other Defendants, related entities such as Evergreat and QNG, and/or customers, to make,

use, sell, offer to sell, and/or import in this District and State, products made by the process of one or more claims of the '908 patent, including, but not limited to, the MelodySusie DR-6340 Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6340 Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the '908 patent and notice that the accused products infringe the '908 patent prior to this Complaint and at least as of the date of this Complaint.

68. Defendants have and continue to contributorily infringe one or more claims of the '908 patent under 35 U.S.C. § 271(c) at least by selling, offering for sale, and/or importing to its affiliates and customers in this District and State, products made by the process of one or more claims of the '908 patent that have no substantial non-infringing uses, including, but not limited to the MelodySusie DR-6340 Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6340 Nail Dryer because the LEDs are essential to the curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the '908 patent and notice that the accused products infringe the '908 patent prior to this Complaint and at least as of the date of this Complaint.

69. On information and belief, the lateral LED Chip inside of the MelodySusie DR-6340 Nail Dryer is Epileds model EP-U4545K-A3. *See* Product Specification (Lateral #1), EP-U4545K-A3, Exhibit I.

70. By way of example, the MelodySusie DR-6340 Nail Dryer infringes an exemplary claim of the '908 patent, claim 1, as in the following description of the process likely used, which LG Innotek provides without the benefit of information obtained through discovery. LG Innotek believes there is a substantial likelihood that an LED in the MelodySusie DR-6340 Nail Dryer was made by the patented process of claim 1, as demonstrated below.

71. Claim 1 of the '908 patent claims a method of making light emitting devices, comprising:

a. *forming an n-type semiconductor layer on a first side of a substrate*: One layer in an LED in the MelodySusie DR-6340 Nail Dryer is an n-type semiconductor layer made from silicon doped GaN, and it is located on one side of the substrate.

b. *forming an active layer on the n-type semiconductor layer, the active layer configured to generate photons when an electric power is applied to the device*: There is an active InGaN/GaN layer on the n-type semiconductor layer, which generates photons when electricity is applied.

c. *forming a p-type semiconductor layer on the active layer*: Another layer in an LED in the MelodySusie DR-6340 Nail Dryer is a p-type semiconductor layer made from magnesium doped GaN/AlGaN and is located on the active layer.

d. *forming a first electrode on a surface of the p-type semiconductor layer*: An LED in the MelodySusie DR-6340 Nail Dryer has one electrode located on the p-type layer comprising a chromium layer, a platinum layer, and a gold pad.

e. *forming a second electrode on the n-type semiconductor layer*: An LED in the MelodySusie DR-6340 Nail Dryer has another electrode located on the n-type layer comprising a chromium layer, a platinum layer, and a gold pad.

f. *reducing surface roughness of a second side of the substrate using at least one of a mechanical polishing method and a dry etching method*: The other side of the substrate has reduced surface roughness as a result of mechanical polishing and/or chemical mechanical polishing.

g. *forming a reflective layer on a second side of the substrate*: The reflective layer formed below the substrate in an LED in the MelodySusie DR-6340 Nail Dryer comprises aluminum and/or titanium dioxide and silicon dioxide layers.

h. *wherein the second side of the substrate having the reduced surface roughness forms an escaping angle for the photons to enhance the reflectivity of light from the active layer back through the surface of the p-type semiconductor layer*: Because of the reduced surface roughness, which is accomplished using mechanical (or chemical mechanical) polishing of an LED in the MelodySusie DR-6340 Nail Dryer, the second side of the substrate forms an escaping angle in which photons from the active InGaN/GaN layer reflect off of the interface back through the surface of the p-type semiconductor layer.

72. Upon information and belief, the infringement of the '908 patent by Defendants has been willful.

73. Unless enjoined by this Court, Defendants will continue to infringe the '908 patent, and LG Innotek will continue to suffer irreparable harm. Accordingly, LG Innotek is entitled to interim, temporary, preliminary, and permanent relief against such infringement under 35 U.S.C. § 283.

74. As a result of Defendants' infringement of the '908 patent, LG Innotek has been and continues to be irreparably injured with respect to its business and intellectual property rights, and is entitled to recover damages for such injuries pursuant to 35 U.S.C. § 284.

COUNT IV – INFRINGEMENT OF U.S. PATENT NO. 8,236,585

75. The allegations contained in paragraphs 1-37 above are repeated and realleged as if fully set forth herein.

76. LG Innotek is the assignee and owner of the right, title, and interest in and to the '585 patent, now and for the entire period of and relevant to the

infringement, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it, including the right to sue for and collect past damages.

77. Defendants are, and have been, on notice of the ’585 patent since before the lawsuit was filed. Among the ways that actual notice was provided to Defendants is the January 23, 2018 letter referenced above.

78. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the ’585 patent under 35 U.S.C. § 271(g) by importing in this District and elsewhere into the United States, products made by the process of the ’585 patent, including, but not limited to the MelodySusie Nail Dryer Models “Violetilac” DR-601 Aurora 1 6W LED, “Violetilac” DR-601 Aurora 1 6W Mini/Classic, “Violetili” DR-618 Aurora 12W LED, “Violetiel” MS-6320 24W LED, “Violetiya” MS-6320 Pro 24W UV/LED, “Violetilly” Aurora 4 DR-6340 48W LED, “Violetira”/ “Violetilly” DR-6340 Pro48W Smart UV/LED, “Violeta” DR-6360(A) Pro 60W UV/LED, and “Violetage” DR-6360/64 Pro 60W Rechargeable UV/LED. “Violetilly” Aurora 4 DR-6340 48W LED (“MelodySusie DR-6340 Nail Dryer”) will be exemplary for the remainder of this Count.

79. Defendants have and continue to induce infringement of one or more claims of the ’585 patent under 35 U.S.C. § 271(b) by actively inducing the other Defendants, related entities such as Evergreat and QNG, and/or customers, to make, use, sell, offer to sell, and/or import in this District and State, products made by the process of one or more claims of the ’585 patent, including, but not limited to, the MelodySusie DR-6340 Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6340 Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the ’585 patent and notice that the accused products infringe the ’585 patent prior to this Complaint and at least as of the date of this Complaint.

80. Defendants have and continue to contributorily infringe one or more claims of the ’585 patent under 35 U.S.C. § 271(c) at least by selling, offering for sale, and/or importing to its affiliates and customers in this District and State, products made by the process of one or more claims of the ’585 patent that have no substantial non-infringing uses, including, but not limited to the MelodySusie DR-6340 Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6340 Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the ’585 patent and notice that the accused products infringe the ’585 patent prior to this Complaint and at least as of the date of this Complaint.

81. On information and belief, the lateral LED Chip inside of the MelodySusie DR-6340 Nail Dryer is Epileds model EP-U4545K-A3. *See* Product Specification (Lateral #1), EP-U4545K-A3, Exhibit I.

82. By way of example, the MelodySusie DR-6340 Nail Dryer infringes an exemplary claim of the ’585 patent, claim 1, as in the following description of the process likely used which LG Innotek provides without the benefit of information obtained through discovery. LG Innotek believes there is a substantial likelihood that an LED in the MelodySusie DR-6340 Nail Dryer was made by the patented process of Claim 1, as demonstrated below.

83. Claim 1 of the ’585 patent claims a method of making lateral type light emitting devices, comprising:

a. *providing a substrate having a first side and a second side opposite to the first side*: An LED in the MelodySusie DR-6340 Nail Dryer has a substrate with two sides opposite each other.

b. *forming a buffer layer on the first side of the substrate*: An LED in the MelodySusie DR-6340 Nail Dryer has a buffer layer of undoped GaN on one side of the substrate.

c. *forming a first semiconductor layer on the buffer layer*: An LED in the MelodySusie DR-6340 Nail Dryer has a first semiconductor layer of silicon doped GaN on the buffer layer.

d. *forming an active layer on the first semiconductor layer*: An LED in the MelodySusie DR-6340 Nail Dryer has an active InGaN/GaN layer on the first semiconductor layer.

e. *forming a second semiconductor layer on the active layer*: An LED in the MelodySusie DR-6340 Nail Dryer has a second semiconductor layer comprising magnesium doped AlGaN/GaN on the active layer.

f. *forming a transparent conductive layer on the second semiconductor layer, the transparent conductive layer including ITO (indium-tin-oxide)*: An LED in the MelodySusie DR-6340 Nail Dryer has a transparent conductive layer including ITO on the second semiconductor layer.

g. *forming a first electrode on the transparent conductive layer, the first electrode including at least one of Ni, Au, Pd, and Pt*: An LED in the MelodySusie DR-6340 Nail Dryer has an electrode which comprises platinum (Pt) and chromium (Cr) and a gold (Au) pad.

h. *forming a second electrode on the first semiconductor layer facing the same direction of the first electrode, the second electrode including at least one of Ti, Al, Au, and Cr*: An LED in the MelodySusie DR-6340 Nail Dryer has another electrode located on the first semiconductor layer, and it comprises platinum (Pt) and chromium (Cr) and a gold (Au) pad. This electrode faces the same direction as the other electrode (creating a lateral-type LED).

i. *reducing a thickness of the substrate to be less than 350 μm*: The substrate of an LED in the MelodySusie DR-6340 Nail Dryer has been reduced to approximately 150 μm thick.

j. *reducing a surface roughness of a second side of the substrate*: The second side of the substrate has reduced surface roughness, which is accomplished using chemical mechanical polishing.

k. *forming a pad on at least one of the first electrode and the second electrode, the pad including Au and having a thickness of more than 5000 Å*: the gold (Au) pad of the electrodes is approximately 30,000 Å thick.

84. Upon information and belief, the infringement of the '585 patent by Defendants has been willful.

85. Unless enjoined by this Court, Defendants will continue to infringe the '585 patent, and LG Innotek will continue to suffer irreparable harm. Accordingly, LG Innotek is entitled to interim, temporary, preliminary, and permanent relief against such infringement under 35 U.S.C. § 283.

86. As a result of Defendants' infringement of the '585 patent, LG Innotek has been and continues to be irreparably injured with respect to its business and intellectual property rights, and is entitled to recover damages for such injuries pursuant to 35 U.S.C. § 284.

COUNT V – INFRINGEMENT OF U.S. PATENT NO. 8,502,248

87. The allegations contained in paragraphs 1-37 above are repeated and realleged as if fully set forth herein.

88. LG Innotek is the assignee and owner of the right, title, and interest in and to the '248 patent, now and for the entire period of and relevant to the infringement, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it, including the right to sue for and collect past damages.

89. Defendants are, and have been, on notice of the '248 patent since before the lawsuit was filed. Among the ways that actual notice was provided to Defendants is the January 23, 2018 letter referenced above.

90. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the '248 patent under 35 U.S.C. § 271 at least by selling, offering for sale, and/or importing in this District and elsewhere into the United States, products covered by one or more claims of the '248 patent, including, but not limited to the MelodySusie Nail Dryer Models "EOS" MS-6320B Pro 12W Smart UV/LED, "Violetair"/"EOS 2" DR-6323A Pro22W Smart UV/LED, "Violetiya" MS-6320 Pro 24W UV/LED, "EOS 3" DR-6333 Pro 48W UV/LED, "Violetira"/ "Violetilly" DR-6340 Pro48W Smart UV/LED, "Violeta" DR-6360(A) Pro 60W UV/LED, and "Violetage" DR-6360/64 Pro 60W Rechargeable UV/LED. "Violetair"/"EOS 2" DR-6323A Pro22W Smart UV/LED ("MelodySusie DR-6323A Nail Dryer") will be exemplary for the remainder of this Count.

91. Defendants have and continue to induce infringement of one or more claims of the '248 patent under 35 U.S.C. § 271(b) by actively inducing the other Defendants, related entities such as Evergreat and QNG, and/or customers, to make, use, sell, offer to sell, and/or import in this District and State, products covered by one or more claims of the '248 patent, including, but not limited to, the MelodySusie DR-6323A Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6323A Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the '248 patent and notice that the accused products infringe the '248 patent prior to this Complaint and at least as of the date of this Complaint.

92. Defendants have and continue to contributorily infringe one or more claims of the '248 patent under 35 U.S.C. § 271(c) at least by selling, offering for sale, and/or importing to its affiliates and customers in this District and State,

products covered by one or more claims of the '248 patent that have no substantial non-infringing uses, including, but not limited to the MelodySusie DR-6323A Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6323A Nail Dryer because the LEDs are essential to the curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the '248 patent and notice that the accused products infringe the '248 patent prior to this Complaint and at least as of the date of this Complaint.

93. On information and belief, the vertical LED Chip inside of the MelodySusie DR-6323A Nail Dryer is Epileds model BN-U1515H-A3. *See* Product Specification (Vertical #1), BN-U1515H-A3, Exhibit N.

94. By way of example, the MelodySusie DR-6323A Nail Dryer infringes an exemplary claim of the '248 patent, claim 1, as in the following description which LG Innotek provides without the benefit of information obtained through discovery.

95. Claim 1 of the '248 patent claims a light emitting device comprising:

a. *a light emitting structure layer including a first semiconductor layer, a second semiconductor layer under the first semiconductor layer, and an active layer between the first and second semiconductor layers*: An LED in the MelodySusie DR-6323A Nail Dryer has a light emitting structure layer comprised of a first semiconductor layer on an active layer, which in turn is on a second semiconductor layer.

b. *an electrode electrically connected to the first semiconductor layer*: An LED in the MelodySusie DR-6323A Nail Dryer has an electrode electrically connected to the first semiconductor layer.

c. *an electrode layer under the light emitting structure layer*: An LED in the MelodySusie DR-6323A Nail Dryer has an electrode layer comprising titanium, gold-indium, platinum, and titanium-tungsten located underneath the GaN layer of the light emitting structure.

d. *a conductive support member under the electrode layer*: An LED in the MelodySusie DR-6323A Nail Dryer has a conductive silicon support member located under the electrode layer.

e. *wherein the conductive support member includes a protrusion protruded from at least one edge of the conductive support member*: An LED in the MelodySusie DR-6323A Nail Dryer has a protrusion coming off of at least one edge of the conductive support member.

f. *wherein the protrusion includes a mixture of materials of the electrode layer and the conductive support member*: The protrusion in an LED in the MelodySusie DR-6323A Nail Dryer comprises a mixture of silicon from the conductive support member, and gold, indium, and titanium from the electrode layer.

g. *wherein the protrusion is randomly protruded from an upper edge of the conductive support member*: The protrusions in an LED in the MelodySusie DR-6323A Nail Dryer are random and come from the upper edge of the silicon conductive support member.

96. Upon information and belief, the infringement of the ’248 patent by Defendants has been willful.

97. Unless enjoined by this Court, Defendants will continue to infringe the ’248 patent, and LG Innotek will continue to suffer irreparable harm. Accordingly, LG Innotek is entitled to interim, temporary, preliminary, and permanent relief against such infringement under 35 U.S.C. § 283.

98. As a result of Defendants’ infringement of the ’248 patent, LG Innotek has been and continues to be irreparably injured with respect to its business and intellectual property rights, and is entitled to recover damages for such injuries pursuant to 35 U.S.C. § 284.

COUNT VI – INFRINGEMENT OF U.S. PATENT NO. 9,209,360

99. The allegations contained in paragraphs 1-37 above are repeated and realleged as if fully set forth herein.

100. LG Innotek is the assignee and owner of the right, title, and interest in and to the '360 patent, now and for the entire period of and relevant to the infringement, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it, including the right to sue for and collect past damages.

101. Defendants are, and have been, on notice of the '360 patent since before the lawsuit was filed. Among the ways that actual notice was provided to Defendants is the January 23, 2018 letter referenced above.

102. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the '360 patent under 35 U.S.C. § 271 at least by selling, offering for sale, and/or importing in this District and elsewhere into the United States, products covered by one or more claims of the '360 patent, including, but not limited to the MelodySusie Nail Dryer Models "EOS" MS-6320B Pro 12W Smart UV/LED, "Violetair"/"EOS 2" DR-6323A Pro22W Smart UV/LED, "Violetiya" MS-6320 Pro 24W UV/LED, "EOS 3" DR-6333 Pro 48W UV/LED, "Violetira"/ "Violetilly" DR-6340 Pro48W Smart UV/LED, "Violeta" DR-6360(A) Pro 60W UV/LED, and "Violetage" DR-6360/64 Pro 60W Rechargeable UV/LED. "Violetair"/"EOS 2" DR-6323A Pro22W Smart UV/LED ("MelodySusie DR-6323A Nail Dryer") will be exemplary for the remainder of this Count.

103. Defendants have and continue to induce infringement of one or more claims of the '360 patent under 35 U.S.C. § 271(b) by actively inducing the other Defendants, related entities such as Evergreat and QNG, and/or customers, to make, use, sell, offer to sell, and/or import in this District and State, products covered by one or more claims of the '360 patent, including, but not limited to, the MelodySusie DR-6323A Nail Dryer. There is no substantial non-infringing use for

the LEDs in the MelodySusie DR-6323A Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the '360 patent and notice that the accused products infringe the '360 patent prior to this Complaint and at least as of the date of this Complaint.

104. Defendants have and continue to contributorily infringe one or more claims of the '360 patent under 35 U.S.C. § 271(c) at least by selling, offering for sale, and/or importing to its affiliates and customers in this District and State, products covered by one or more claims of the '360 patent that have no substantial non-infringing uses, including, but not limited to the MelodySusie DR-6323A Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6323A Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the '360 patent and notice that the accused products infringe the '360 patent prior to this Complaint and at least as of the date of this Complaint.

105. On information and belief, the vertical LED Chip inside of the MelodySusie DR-6323A Nail Dryer is Epileds model BN-U1515H-A3. *See* Product Specification (Vertical #1), BN-U1515H-A3, Exhibit N.

106. By way of example, the MelodySusie DR-6323A Nail Dryer infringes an exemplary claim of the '360 patent, claim 15, as in the following description which LG Innotek provides without the benefit of information obtained through discovery.

107. Claim 15 of the '360 patent claims a light emitting device comprising:

a. *a support structure*: An LED in the MelodySusie DR-6323A Nail Dryer has a silicon support structure.

b. *an adhesion structure comprising Au on the support structure, wherein the adhesion structure comprises a first adhesion layer and a second adhesion layer on the first adhesion layer*: An LED in the

MelodySusie Dr-6323A Nail Dryer has a silicon support structure in which the first and second adhesion layers on the support structure are comprised of gold and indium.

c. *a first metal layer on the adhesion structure*: An LED in the MelodySusie DR-6323A Nail Dryer has a metal layer located on the adhesion structure, and it comprises platinum.

d. *a second metal layer on the first metal layer*: An LED in the MelodySusie DR-6323A Nail Dryer has another metal layer located on the adhesion structure and it comprises titanium-tungsten.

e. *a GaN-based semiconductor structure on the second metal layer, wherein the GaN-based semiconductor structure has a thickness less than 5 micrometers*: An LED in the MelodySusie DR-6323A Nail Dryer has a GaN-based semiconductor structure with a thickness of approximately 1.2 – 2.2 micrometers and it is located on top of the second metal layer.

f. *an interface layer on the GaN-based semiconductor structure*: An LED in the MelodySusie DR-6323A Nail Dryer has at least one interface layer of chromium and/or platinum on the GaN-based semiconductor structure.

g. *a contact pad on the interface layer*: An LED in the MelodySusie DR-6323A Nail Dryer has a gold contact pad on the interface layer.

h. *wherein the second metal layer comprises a portion that directly contacts the GaN-based semiconductor structure*: In an LED in the MelodySusie DR-6323A Nail Dryer, at least a portion of the second metal layer is in direct contact with the GaN-based semiconductor structure

i. *wherein a thickness of the support structure is 0.5 times or less than that of a side width of the GaN-based semiconductor structure*: In

an LED in the MelodySusie DR-6323A Nail Dryer, the support structure is approximately 145 micrometers thick, and the side-width of the GaN-based semiconductor structure is approximately 325 micrometers.

108. Upon information and belief, the infringement of the '360 patent by Defendants has been willful.

109. Unless enjoined by this Court, Defendants will continue to infringe the '360 patent, and LG Innotek will continue to suffer irreparable harm. Accordingly, LG Innotek is entitled to interim, temporary, preliminary, and permanent relief against such infringement under 35 U.S.C. § 283.

110. As a result of Defendants' infringement of the '360 patent, LG Innotek has been and continues to be irreparably injured with respect to its business and intellectual property rights, and is entitled to recover damages for such injuries pursuant to 35 U.S.C. § 284.

COUNT VII – INFRINGEMENT OF U.S. PATENT NO. 9,640,713

111. The allegations contained in paragraphs 1-37 above are repeated and realleged as if fully set forth herein.

112. LG Innotek is the assignee and owner of the right, title, and interest in and to the '713 patent, now and for the entire period of and relevant to the infringement, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it, including the right to sue for and collect past damages.

113. Defendants are, and have been, on notice of the '713 patent since before the lawsuit was filed. Among the ways that actual notice was provided to Defendants is the January 23, 2018 letter referenced above.

114. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the '713 patent under 35 U.S.C. § 271 at least by selling, offering for sale, and/or importing in this District and elsewhere into the United States, products covered by one or more claims of the '713 patent, including, but not

limited to the MelodySusie Nail Dryer Models "Violetilac" DR-601 Aurora 1 6W LED, "Violetilac" DR-601 Aurora 1 6W Mini/Classic, "Violetili" DR-618 Aurora 12W LED, "Violetiel" MS-6320 24W LED, "Violetiya" DR-6320 Pro24W UV/LED, "Violetilly" Aurora 4 DR-6340 48W LED, "Violetira" / "Violetilly" DR-6340 Pro48W Smart UV/LED, "Violeta" DR-6360(A) Pro60W, and "Violetage" DR-6360/64 Pro60W Rechargeable UV/LED. "Violetilly" Aurora 4 DR-6340 48W LED ("MelodySusie DR-6340 Nail Dryer") will be exemplary for the remainder of this Count.

115. Defendants have and continue to induce infringement of one or more claims of the '713 patent under 35 U.S.C. § 271(b) by actively inducing the other Defendants, related entities such as Evergreat and QNG, and/or customers, to make, use, sell, offer to sell, and/or import in this District and State, products covered by one or more claims of the '713 patent, including, but not limited to, the MelodySusie DR-6340 Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6340 Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge of the '713 patent and notice that the accused products infringe the '713 patent prior to this Complaint and at least as of the date of this Complaint.

116. Defendants have and continue to contributorily infringe one or more claims of the '713 patent under 35 U.S.C. § 271(c) at least by selling, offering for sale, and/or importing to its affiliates and customers in this District and State, products covered by one or more claims of the '713 patent that have no substantial non-infringing uses, including, but not limited to the MelodySusie DR-6340 Nail Dryer. There is no substantial non-infringing use for the LEDs in the MelodySusie DR-6340 Nail Dryer because the LEDs are essential to the nail gel curing process. As demonstrated above in paragraphs 31-37, Defendants have had actual knowledge

of the '713 patent and notice that the accused products infringe the '713 patent prior to this Complaint and at least as of the date of this Complaint.

117. On information and belief, the lateral LED Chip inside of the MelodySusie DR-6340 Nail Dryer is Epileds model EP-U4545K-A3. *See* Product Specification (Lateral #1), EP-U4545K-A3, Exhibit I.

118. By way of example, the MelodySusie DR-6340 Nail Dryer infringes an exemplary claim of the '713 patent, claim 1, as in the following description which LG Innotek provides without the benefit of information obtained through discovery.

119. Claim 1 of the '713 patent claims a light emitting diode, comprising:

a. *a substrate including a first surface and a second surface opposing the first surface of the substrate, the substrate having a thickness of less than 350 micrometers*: The substrate of an LED in the MelodySusie DR-6340 Nail Dryer has opposing surfaces. The substrate is approximately 150 micrometers thick.

b. *a light emitting structure disposed on the first surface of the substrate, the light emitting structure including a first semiconductor layer, a second semiconductor layer, and an active layer between the first semiconductor layer and the second semiconductor layer, wherein the second semiconductor layer includes an aluminum-gallium-nitride layer*: An LED in the MelodySusie DR-6340 Nail Dryer has an active layer (InGaN/GaN) between two semiconductor layers, where one semiconductor layer includes silicon-doped GaN and the other semiconductor layer includes a magnesium-doped aluminum-gallium-nitride (AlGaN) layer. These layers together comprise a light emitting structure.

c. *a transparent conductive layer disposed on the light emitting structure, the transparent conductive layer including an indium-tin-oxide*: An LED in the MelodySusie DR-6340 Nail Dryer has a

transparent conductive layer located on the light emitting structure, and the layer comprises indium-tin-oxide (ITO).

d. a *first electrode and a second electrode disposed on the light emitting structure, both the first electrode and the second electrode including an intermediate layer having multiple layers and a golden pad, the golden pad having a thickness of more than 500 nanometers*: An LED in the MelodySusie DR-6340 Nail Dryer has an n-electrode and a p-electrode located on the light emitting structure. The intermediate layers of the electrodes comprise chromium and platinum. The golden pad located on top of the intermediate layers has a thickness of approximately 3,000 nanometers.

e. *an aluminum layer disposed on the second surface of the substrate, the aluminum layer having a thickness of less than 300 nanometers*: An LED in the MelodySusie DR-6340 Nail Dryer has an aluminum layer located on the surface below the substrate and the aluminum layer has a thickness of approximately 260 nanometers.

120. Upon information and belief, the infringement of the ’713 patent by Defendants has been willful.

121. Unless enjoined by this Court, Defendants will continue to infringe the ’713 patent, and LG Innotek will continue to suffer irreparable harm. Accordingly, LG Innotek is entitled to interim, temporary, preliminary, and permanent relief against such infringement under 35 U.S.C. § 283.

122. As a result of Defendants’ infringement of the ’713 patent, LG Innotek has been and continues to be irreparably injured with respect to its business and intellectual property rights, and is entitled to recover damages for such injuries pursuant to 35 U.S.C. § 284.

REQUEST FOR RELIEF

WHEREFORE, Plaintiff respectfully requests that the Court enter judgment as follows:

A. Declaring that Defendants have each infringed U.S. Patents Nos. 7,569,865; 7,582,912; 7,785,908; 8,236,585; 8,502,248; 9,209,360; and 9,640,713;

B. Declaring that the Defendants are each jointly and severally liable for the infringement of the patents-in-suit;

C. Permanently enjoining Defendants, their officers, directors, attorneys, agents, servants, employees, parties in privity with, and all persons in active concert or participation with any of the foregoing, from continued acts of infringement;

D. Awarding Plaintiff compensatory damages on account of Defendants' infringement of the patents-in-suit, in an amount no less than an amount adequate to compensate for Defendants' infringing activities, including supplemental damages for any post-verdict infringement up until entry of the final judgment with an accounting as needed, together with pre-judgment and post-judgment interest on all damages awarded; all of these damages to be enhanced in an amount up to treble the amount of compensatory damages under 35 U.S.C. § 284;

E. Declaring that this case is exceptional under 35 U.S.C. § 285 and under the Court's inherent powers, and awarding Plaintiff its entire costs and expenses of litigation, including all attorneys' fees, out of pocket or third party costs, and experts' fees; and

F. Awarding Plaintiff all its costs, interest, legal relief, declaratory relief, equitable relief, and all such other and further relief as the Court may deem just and proper.

Dated: July 25, 2018

Respectfully submitted,

By: /s/ Peter H. Kang

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DEMAND FOR JURY TRIAL

Plaintiff demands a trial by jury on all issues so triable.

Dated: July 25, 2018

Respectfully submitted,

By: /s/ Peter H. Kang

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