

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
SHERMAN DIVISION**

KT IMAGING USA, LLC,

Plaintiff

-against-

LG ELECTRONICS, INC. and  
LG ELECTRONICS U.S.A., INC.,

Defendants

Civil Action No.: 4:20-cv-338-ALM

**Jury Trial Demanded**

**FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff KT Imaging USA, LLC (“KTI” or “Plaintiff”), by way of this First Amended Complaint against Defendants LG Electronics, Inc. (“LG-Korea”) and LG Electronics U.S.A., Inc. (“LG-USA”) (collectively “LG” or “Defendants”), alleges as follows:

**PARTIES**

1. Plaintiff KT Imaging USA, LLC is a limited liability company organized and existing under the laws of the State of Texas, having its principal place of business at 106 E 6<sup>th</sup> Street, Suite 900, Austin, TX 78701.
2. On information and belief, Defendant LG-Korea is a corporation organized and existing under the laws of the Republic of Korea with its principal place of business at LG Twin Towers 20, Yeouido-Dong, Yeongdeungpo-Gu, Seoul, South Korea, 150-721.
3. On information and belief, Defendant LG-USA is a wholly-owned subsidiary of LG-Korea, with a principal place of business at 1000 Sylvan Avenue, Englewood Cliffs, New Jersey 07632. LG-USA has a regular and established place of business in the Eastern District of Texas at 2151-2155 Eagle Parkway, Fort Worth, Texas 76177. LG-USA is registered to do business in

the state of Texas and may be served with process at its registered agent for process at the United States Corporation Company, 211 E. 7<sup>th</sup> Street, Suite 620, Austin, Texas 78701.

### **JURISDICTION AND VENUE**

4. This is an action under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.*, for infringement by LG of claims of U.S. Patent No. 6,590,269 and its Ex Parte Reexamination Certificate; U.S. Patent No. 6,876,544; U.S. Patent No. 7,196,322; and U.S. Patent No. 8,314,481 (collectively “the Patents-in-Suit”).

5. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. LG-Korea is subject to personal jurisdiction of this Court because, *inter alia*, on information and belief, (i) LG-Korea has committed and continues to commit acts of patent infringement in the State of Texas, including by making, using, offering to sell, selling, and/or importing the accused products into Texas; (ii) LG-Korea purposefully supplies and directs the accused products for storage, warehousing, and sales by distributors and resellers in the State of Texas; and (iii) LG-Korea delivers its products into the stream of commerce with the expectation that they will be purchased by consumers in the State of Texas. In addition, or in the alternative, this Court has personal jurisdiction over LG-Korea pursuant to Fed. R. Civ. P. 4(k)(2).

7. LG-USA is subject to personal jurisdiction of this Court because, *inter alia*, on information and belief, (i) LG-USA has committed and continues to commit acts of patent infringement in the State of Texas, including by making, using, offering to sell, selling, and/or importing the accused products into Texas; (ii) LG-USA purposefully supplies and directs the accused products for storage, warehousing, and sales by distributors and resellers in the State of Texas; (iii) LG-USA delivers its products into the stream of commerce with the expectation that they will be purchased by consumers in the State of Texas; (iv) LG-USA derives substantial

revenue from its activities in this District; and (v) LG-USA has purposefully established substantial, systematic and continuous contacts with this District such that it should reasonably expect to be haled into court in this District. LG-USA has also registered with the Texas Secretary of State Office to do business in the State of Texas and has appointed a registered agent for service of process in the State of Texas.

8. Venue is proper as to LG-Korea in this District under 28 U.S.C. § 1391(c) because, *inter alia*, LG-Korea is a foreign corporation.

9. Venue is proper as to LG-USA in this District under 28 U.S.C. § 1400(b) because, *inter alia*, on information and belief, LG-USA has committed acts of infringement in the District and/or has contributed to or induced acts of patent infringement by others in this District, and has a regular and established place of business within the District. For example, on information and belief, LG-USA has offices at 2151-2155 Eagle Parkway, Fort Worth, Texas 76177.

### **BACKGROUND**

10. On July 8, 2003, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 6,590,269 (“the ’269 Patent”), entitled “Package Structure for a Photosensitive Chip.”

11. On April 5, 2005, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 6,876,544 (“the ’544 Patent”), entitled “Image Sensor Module and Method for Manufacturing the Same.”

12. On March 27, 2007, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 7,196,322 (“the ’322 Patent”), entitled “Image Sensor Package.”

13. On November 20, 2012, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 8,314,481 (“the ’481 Patent”), entitled “Substrate Structure for an Image

Sensor Package and Method for Manufacturing the Same.”

14. KTI is the assignee and owner of the right, title, and interest in and to the Patents-in-Suit, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them.

15. On March 10, 2019, KTI notified LG of the existence of the '544 and '322 Patents. KTI also notified LG that LG infringes the '544 and '322 Patents. Accordingly, LG has had notice of infringement of the '544 and '322 Patents at least as early as April 1, 2019, and notice of infringement of all Patents-in-Suit no later than the filing of the original Complaint in this action.

16. LG has infringed and continues to infringe the Patents-in-Suit by making, using, selling, or offering for sale in the United States, or importing into the United States smartphones, tablets, and laptops with front and/or rear image sensor technology claimed in the Patents-in-Suit.

Attachment A to this Complaint provides a non-exhaustive listing of Accused Products.

Attachment B to this Complaint provides a listing of Exhibits comprising exemplary teardown images for certain Accused Products.

#### **COUNT I: INFRINGEMENT OF THE '269 PATENT BY LG**

17. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

18. On information and belief, LG has infringed the '269 Patent pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, offering to sell, selling in the United States or importing into the United States the Accused Products and all other products with substantially similar imaging sensors.

19. For example, on information and belief, LG has infringed and continues to infringe at least claim 2 of the '269 Patent by including a front facing package structure including a photosensitive chip in the LG G5 product. *See* Ex. 1 (LG G5 front facing package structure). The front facing package structure in the Accused Products comprises a substrate having an

upper surface and a lower surface opposite to the upper surface. *See* Ex. 2. The front facing package structure further comprises a frame layer having a first surface and a second surface opposite to the first surface, the frame layer being formed on the substrate with the first surface contacting the upper surface of the substrate, so as to form a cavity with the substrate. *See* Ex. 1. The front facing package structure further comprises a photosensitive chip placed on the upper surface of the substrate and within the cavity. *See* Ex. 2. The front facing package structure further comprises a plurality of wires for electrically connecting the substrate to the photosensitive chip. *See* Ex. 3. The front facing package structure further comprises a transparent layer arranged on the frame layer to cover the photosensitive chip, wherein the second surface of the frame layer is formed with a depression in which the transparent layer is placed to cover the photosensitive chip. *See* Ex. 1. The front facing package further comprises a plurality of projections each having a suitable height and formed within depression layer of the frame layer. *See* Ex. 4.

20. On information and belief, LG has induced infringement of the '269 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, its partners, resellers, distributors, customers, and end users, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, the Accused Products by, among other things, providing the accused products and incorporated image sensor technology, specifications, instructions, manuals, advertisements, marketing materials, and technical assistance relating to the installation, set up, use, operation, and maintenance of said products.

21. On information and belief, LG has committed the foregoing infringing activities without a license.

22. On information and belief, LG knew the '269 Patent existed and knew of exemplary infringing LG products while committing the foregoing infringing acts thereby willfully, wantonly and deliberately infringing the '269 Patent.

**COUNT II: INFRINGEMENT OF THE '544 PATENT BY LG**

23. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

24. On information and belief, LG has infringed the '544 Patent pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, offering to sell, selling in the United States or importing into the United States the Accused Products and all other products with substantially similar imaging sensors.

25. For example, on information and belief, LG has infringed and continues to infringe at least claim 1 of the '544 Patent by including an image sensor module to be mounted to a printed circuit board in the LG G6 product. *See* Ex. 6 (LG G6 front facing image sensor). The front facing image sensor module in the Accused Products comprises a substrate having an upper surface formed with a plurality of first connection points and a lower surface formed with a plurality of second connection points, which is electrically connected to the printed circuit board. *See* Exs. 7-9 (LG G6 front facing image sensor). The image sensor module further comprises a photosensitive chip mounted to the upper surface of the substrate. *See* Ex. 9 (LG G6 front facing image sensor). The image sensor module further comprises a plurality of wires for electrically connecting the photosensitive chip to the first connection points on the upper surface of the substrate. *See* Ex. 8 (LG G6 front facing image sensor). The image sensor module further comprises a frame layer mounted to the upper surface of the substrate to surround the photosensitive chip, an inner edge of the frame layer being formed with an internal thread from top to bottom, and a transparent layer being fixed by the frame layer such that the photosensitive chip may receive optical signals passing through the transparent layer. *See* Exs. 6, 9-10 (LG G6

front facing image sensor). The image sensor module further comprises a lens barrel formed with a chamber at a center thereof and an external thread at an outer edge thereof, the external thread being screwed to the internal thread of the frame layer, wherein the lens barrel has a through hole and an aspheric lens from top to bottom. *See* Exs. 6, 9, 11-12 (LG G6 front facing image sensor).

26. On information and belief, LG has induced infringement of the '544 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, its partners, resellers, distributors, customers, and end users, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, the Accused Products by, among other things, providing the accused products and incorporated image sensor technology, specifications, instructions, manuals, advertisements, marketing materials, and technical assistance relating to the installation, set up, use, operation, and maintenance of said products.

27. On information and belief, LG has committed the foregoing infringing activities without a license.

28. On information and belief, LG knew the '544 Patent existed and knew of exemplary infringing LG products while committing the foregoing infringing acts thereby willfully, wantonly and deliberately infringing the '544 Patent.

**COUNT III: INFRINGEMENT OF THE '322 PATENT BY LG**

29. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

30. On information and belief, LG has infringed the '322 Patent pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, offering to sell, selling in the United States or importing into the United States the Accused Products and all other products with substantially similar imaging sensors.

31. For example, on information and belief, LG has infringed and continues to infringe at least claim 1 of the '322 Patent by including an image sensor module in the LG G Pad F product. *See* Ex. 14 (LG G Pad F rear facing image sensor). The image sensor module in the Accused Products comprises a substrate having an upper surface, and a lower surface on which second electrodes are formed, and a frame layer arranged on the upper surface of the substrate, a cavity formed between the frame layer and substrate, and a plurality of first electrodes are formed on the frame layer. *See* Exs. 15-16 (LG G Pad F rear facing image sensor). The image sensor module in the Accused Products further comprises a photosensitive chip mounted on the upper surface of the substrate and located within the cavity, and electrically connected to the first electrodes of the frame layer. *See* Exs. 14, 16-17 (LG G Pad F rear facing image sensor). The image sensor module in the Accused Products further comprises a lens holder having an upper end face, a lower end face, and an opening penetrating through the lens holder from the upper end face to the lower end face, the upper end of the opening formed with an internal thread and the lower end of the opening formed with a breach, so that the internal diameter of the upper end of the opening is smaller than the lower end of the opening, the lens holder adhered on the upper surface of the substrate by glue, wherein, the frame layer is located within the breach of the lens holder. *See* Exs. 14 and 17 (LG G Pad F rear facing image sensor). The image sensor module of the Accused Product further comprises a lens barrel having an upper end face, a lower end face, and an external thread screwed to the internal thread of the lens holder. *See* Exs. 14 and 18 (LG G Pad F rear facing image sensor).

32. On information and belief, LG has induced infringement of the '322 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, its partners, resellers, distributors, customers, and end users,

to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, the Accused Products by, among other things, providing the accused products and incorporated image sensor technology, specifications, instructions, manuals, advertisements, marketing materials, and technical assistance relating to the installation, set up, use, operation, and maintenance of said products.

33. On information and belief, LG has committed the foregoing infringing activities without a license.

34. On information and belief, LG knew the '322 Patent existed and knew of exemplary infringing LG products while committing the foregoing infringing acts while committing the foregoing infringing acts, thereby willfully, wantonly and deliberately infringing the '322 Patent.

**COUNT IV: INFRINGEMENT OF THE '481 PATENT BY LG**

35. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

36. On information and belief, LG has infringed the '481 Patent pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, offering to sell, selling in the United States, or importing into the United States the Accused Products and all other products with substantially similar imaging sensors.

37. For example, on information and belief, LG has infringed and continues to infringe at least claim 1 of the '481 Patent by including a substrate structure for an image sensor package in the LG G Pad X 8.0. *See* Ex. 21 (LG G Pad X 8.0 front facing image sensor). The substrate structure in the Accused Products comprises a bottom base having an upper surface formed with a plurality of first electrodes, and a lower surface formed with a plurality of second electrodes, wherein an insulation layer is coated between first electrodes and in direct surface contact with the upper surface of the bottom base. *See* Exs. 22-23 (LG G Pad X 8.0 front facing image sensor). The substrate structure in the Accused Products comprises a frame layer arranged on

and in direct surface contact with the first electrodes and the insulation layer to form a cavity together with the bottom base, wherein the insulation layer is interposed between the bottom base and the frame layer. *See* Exs. 21-22 (LG G Pad X 8.0 front facing image sensor).

38. On information and belief, LG has induced infringement of the '481 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, its partners, resellers, distributors, customers, and end users, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, the Accused Products by, among other things, providing the accused products and incorporated image sensor technology, specifications, instructions, manuals, advertisements, marketing materials, and technical assistance relating to the installation, set up, use, operation, and maintenance of said products.

39. On information and belief, LG has committed the foregoing infringing activities without a license.

40. On information and belief, LG knew the '481 Patent existed and knew of exemplary infringing LG products while committing the foregoing infringing acts while committing the foregoing infringing acts, thereby willfully, wantonly and deliberately infringing the '481 Patent.

#### **PRAYER FOR RELIEF**

WHEREFORE, KTI prays for judgment in its favor against LG for the following relief:

- A. Entry of judgment in favor of KTI against LG on all counts;
- B. Entry of judgment that LG has infringed the Patent-in-Suit;
- C. Entry of judgment that LG's infringement of the '544 and '322 Patents has been willful;
- D. An order permanently enjoining LG from infringing the Patent-in-Suit;

E. Award of compensatory damages adequate to compensate KTI for LG's infringement of the Patent-in-Suit, in no event less than a reasonable royalty, with the reasonable royalty trebled for infringement of the '544 and '322 Patents as provided by 35 U.S.C. § 284;

F. Award of reasonable attorneys' fees and expenses against LG pursuant to 35 U.S.C. § 285;

G. KTI's costs;

H. Pre-judgment and post-judgment interest on KTI's award; and

I. All such other and further relief as the Court deems just or equitable.

**DEMAND FOR JURY TRIAL**

Pursuant to Rule 38 of the Fed. R. Civ. Proc., Plaintiff hereby demands trial by jury in this action of all claims so triable.

Dated: August 17, 2020

Respectfully submitted,

/s/ Dmitry Kheyfits

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