

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

KT IMAGING USA, LLC,

Plaintiff

-against-

GOOGLE LLC.

Defendant

Civil Action No.: 6:21-CV-1003-ADA

Jury Trial Demanded

FRIST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff KT Imaging USA, LLC (“KTI” or “Plaintiff”), by way of this First Amended Complaint against Defendant Google LLC (“Google” or “Defendant”), 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 6th Street, Suite 900, Austin, TX 78701.
2. Defendant Google is a limited liability company organized and existing under the laws of the State of Delaware. Google maintains a regular and established place of business in this Judicial District at 500 West 2nd Street, Austin, Texas, 78701. Google may be served with process through its registered agent, the Corporation Service Company dba CSC – Lawyers Incorporating Service Company, at 211 East 7th Street, Suite 620, Austin, Texas 78701. Google is registered to do business in the State of Texas and has been since at least November 17, 2006.
3. On information and belief, Defendant Google, either itself and/or through the activities of its subsidiaries, makes, uses, sells, offers for sale, and/or imports throughout the United States,

including within this District, products that infringe the Patents-in-Suit, defined below.

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 Google of claims of U.S. Patent No. 6,876,544, U.S. Patent No. 7,196,322, U.S. Patent No. 7,598,580, 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. Google is subject to personal jurisdiction of this Court because, *inter alia*, on information and belief, (i) Google maintains a regular and established place of business in this Judicial District located at 500 West 2nd Street, Austin, Texas, 78701; (ii) Google sells products and services to customers in this Judicial District; (iii) the patent infringement claims arise directly from Google’s continuous and systematic activity in this Judicial District; and (iv) actively employs and seeks the services of Texas residents in this Judicial District.

7. Venue is proper as to Google in this Judicial District under 28 U.S.C. § 1400(b) because, *inter alia*, on information and belief, Google has a regular and established place of business in this Judicial District located at 500 West 2nd Street, Austin, Texas, 78701, and has committed acts of patent infringement in this Judicial District and/or has contributed to or induced acts of patent infringement by others in this Judicial District.

BACKGROUND

8. 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.”

9. 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.”

10. On October 6, 2009, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 7,598,580 (“the ’580 Patent”), entitled “Image Sensor Module Package Structure with Supporting Element.”

11. 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.”

12. 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.

13. By letter dated March 31, 2020, KTI notified Google of the existence of the ’544 Patent, the ’322 Patent, and the ’481 Patent; notified Google that it infringes the ’544 Patent, the ’322 Patent, and the ’481 Patent; identified exemplary infringed claims and infringing products; and invited Google to hold a licensing discussion with KTI.

14. By email dated September 24, 2020, KTI provided sample claim charts to Google for the ’544 Patent, the ’322 Patent, and the ’481 Patent.

15. Google 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 mobile devices, such as smartphones, tablets, and laptops with front and/or rear image sensors.

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 and specifications, instructions, manuals, advertisements, marketing materials, and technical assistance provided by Google relating to the installation, set up, use, operation, and maintenance of certain Accused Products.

COUNT I: INFRINGEMENT OF THE '544 PATENT BY GOOGLE

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

17. On information and belief, Google 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.

18. For example, on information and belief, Google 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 Google Pixel XL product. *See* Ex. 1 (cross-sectional image of the Google Pixel XL front facing image sensor). The 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. 1 and 2 (Google Pixel XL front facing image sensor). The image sensor module further comprises a photosensitive chip mounted to the upper surface of the substrate. *See* Ex. 1 (cross-sectional image of the Google Pixel XL 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. 2 (Google Pixel XL 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. 1 and 3 (Google Pixel XL 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* Ex. 1 (Google Pixel XL front facing image sensor).

19. On information and belief, Google 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. *See* Ex. 4 (Google providing hardware technical specifications for the Google Pixel XL, including for the "Front camera," to its customers); Ex. 5 (Google providing a diagram of Pixel (2016) phones, including for the "Front-facing camera," to its customers); Exs. 6-9 (Google providing guidance and instructions to its customers to use the camera on Pixel phones to take photos, record videos, and make video calls).

20. On information and belief, Google has committed the foregoing infringing activities without a license.

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

COUNT II: INFRINGEMENT OF THE '322 PATENT BY GOOGLE

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

23. On information and belief, Google 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.

24. For example, on information and belief, Google has infringed and continues to infringe at least claim 1 of the '322 Patent by including an image sensor module in the Google Nest Hub Max product. Ex. 10 (cross-sectional image of the Google Nest Hub Max image sensor). The image sensor module structure in the Accused Products comprises a substrate having an upper surface, and a lower surface on which second electrodes are formed. Ex. 10 (cross-sectional image of the Google Nest Hub Max image sensor). The image sensor module structure in the Accused Products further comprises 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* Ex. 11 (Google Nest Hub Max image sensor). The image sensor module structure 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. 10 ad 11 (Google Nest Hub Max image sensor). The image sensor module structure 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. 10 and 11 (Google Nest Hub Max image sensor). The image sensor module structure of the Accused Products 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* Ex. 10 (cross-sectional image of the Google Nest Hub Max image sensor).

25. On information and belief, Google 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. *See* Ex. 12 (Google Nest Hub Max guide provided by Google detailing that the Google "Nest Hub Max also has a built-in camera for features like video calling and home monitoring"); Ex. 13 (Google marketing for video calling and home monitoring on the Google Next Hub Max product page on Google's website); Exs. 14-17 (Google providing guidance and instructions to its customers on how to setup and use the camera on the Google Nest Hub Max to make video calls and monitor a home);

26. On information and belief, Google has committed the foregoing infringing activities without a license.

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

COUNT III: INFRINGEMENT OF THE '580 PATENT BY GOOGLE

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

29. On information and belief, Google has infringed the '580 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.

30. For example, on information and belief, Google has infringed and continues to infringe at least claim 1 of the '580 Patent by including an image sensor module package structure with a supporting element in the Google Nest Cam Indoor product. *See* Ex. 18 (cross-sectional image of the Google Nest Cam Indoor image sensor). The image sensor module package structure in the Accused Products comprises a chip having a plurality of light-sensing elements arranged on a light-sensing area of a first surface of the chip, a plurality of first conducting pads electrically connected to the light-sensing elements, and at least one conducting channel passing through the chip and electrically connected to the first conducting pads at one end. *See* Exs. 18 and 19 (Google Nest Cam Indoor image sensor). The image sensor module package structure further comprises the supporting element, which is a flat plate having an opening, a first coupling surface, and a second coupling surface, wherein the opening corresponds to the light-sensing area and the first coupling surface is combined with the first surface. *See* Ex. 18 (cross-sectional image of the Google Nest Cam Indoor image sensor). The image sensor module package structure further comprises a light-transmitting element combined with the second coupling surface. *See* Ex. 18 (cross-sectional image of the Google Nest Cam Indoor image sensor).

31. On information and belief, Google has induced infringement of the '580 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. See Ex. 20 (Google providing technical specifications for the Google Nest Cam Indoor to its customers); Exs. 21-22 (Google providing instructions on how to install the Google Nest Cam Indoor); Ex. 23 (Google Nest Cam Indoor guide provided by Google detailing instructions for setup and use)

32. On information and belief, Google has committed the foregoing infringing activities without a license.

COUNT IV: INFRINGEMENT OF THE '481 PATENT BY GOOGLE

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

34. On information and belief, Google 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.

35. For example, on information and belief, Google 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 Google Pixel 4 XL product. See Ex. 24 (cross-sectional image of the Google Pixel 4 XL rear facing telephoto 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 Ex. 25 (cross-sectional image of the Google Pixel 4 XL rear facing telephoto 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. 25 and 26 (cross-sectional images of the Google Pixel 4 XL rear facing telephoto image sensor).

36. On information and belief, Google 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. *See* Ex. 27 (Google providing hardware technical specifications for the Google Pixel 4 XL, including for the "Front camera," to its customers); Ex. 28 (Google providing a diagram of Pixel 4 (2019) phones, including for the "Front-facing camera with wide-angle lens," to its customers); Exs. 6-9, and 29 (Google providing guidance and instructions to its customers to use the camera on Pixel phones to take photos, record videos, and make video calls).

37. On information and belief, Google has committed the foregoing infringing activities without a license.

38. On information and belief, Google knew the '481 Patent existed and knew of exemplary infringing Google 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 Google for the following relief:

- A. Entry of judgment in favor of KTI against Google on all counts;
- B. Entry of judgment that Google has infringed the Patents-in-Suit;
- C. Entry of judgment that Google's infringement of the '544 Patent, the '322 Patent, and the '481 Patent has been willful;
- D. Award of compensatory damages adequate to compensate KTI for Google's infringement of the '580 Patent, in no event less than a reasonable royalty as provided by 35 U.S.C. § 284;
- E. Award of compensatory damages adequate to compensate KTI for Google's infringement of the '544 Patent, the '322 Patent, and the '481 Patent, in no event less than a reasonable royalty trebled as provided by 35 U.S.C. § 284;
- F. Award of reasonable attorneys' fees and expenses against Google 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: January 7, 2022

Respectfully submitted,

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