IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

JAPAN DISPLAY INC. and PANASONIC LIQUID CRYSTAL DISPLAY CO., LTD.,	
Plaintiffs,	**CIVIL ACTION NO.**
v.	
TIANMA MICROELECTRONICS CO. LTD.,	**JURY TRIAL DEMANDED**
Defendant.	

COMPLAINT FOR PATENT INFRINGEMENT

Japan Display Inc. ("JDI") and Panasonic Liquid Crystal Display Co., Ltd. ("PLD") (together "Plaintiffs") file this complaint for patent infringement ("Complaint") against Tianma Microelectronics Co. Ltd. ("Tianma" or "Defendant"), and alleges as follows:

THE PARTIES

1. Japan Display Inc. is a corporation organized and existing under the laws of Japan. Its principal place of business is located at Landic 2nd Bldg., 3-7-1, Nishishinbashi, Minato-ku, Tokyo, 105-0003, Japan.

2. JDI engages in research, development, manufacturing, and sales for displays, including liquid crystal displays ("LCDs") with thin film transistor ("TFT") technology ("TFT LCDs"). JDI was formed through the integration of the display businesses of Sony Corporation, Toshiba Corporation, and Hitachi, Ltd. Among other contributions, JDI pioneered TFTs that utilize a low temperature polycrystalline silicon ("LTPS") process, which allows TFT LCD panels to achieve a higher resolution while minimizing power consumption. LTPS is now widely used in TFT

LCD panels that are incorporated into consumer and industrial electronic devices, including smartphones, tablets, cameras, game consoles, automotive electronics, and medical equipment.

3. Panasonic Liquid Crystal Display Co., Ltd. is a corporation organized and existing under the laws of Japan. Its principal place of business is located at 1-6 Megahida-cho, Shikama-ku, Himeji City, Hyogo 672-8033, Japan.

4. PLD is a pioneer and leader in liquid crystal display ("LCD") technology, including LCD panels that use IPS (In-Plane-Switching) technology, which features high image quality with a wide viewing angle. PLD changed its name from IPS Alpha Technology Co., Ltd. and was established on October 1, 2010 as a liquid crystal panel manufacturing company of Panasonic Corporation.

5. Tianma is a foreign corporation organized and existing under the laws of China. Its principal place of business is located at No. 88, Daxin Road, Tianma Building, Nanshan District, Shenzhen, China.

6. Tianma "focus[es] on medium-/small-sized displays [and is] dedicated to offering [its] clients the world over cutting-edge technologies and products and quality services. At present, the company chiefly serves customers in Mainland China, Taiwan, Europe, America, Japan and South Korea." *See* 2017 *Corporate Social Responsibility Report*, TIANMA MICROELECTRONICS, http://en.tianma.com/UpLoadFile/20180504/b4618db4-5b0f-43f6-9a7a-c6273b07a90a.pdf.

JURISDICTION AND VENUE

7. This is an action for infringement arising under the patent laws of the United States, 35 U.S.C. § 271. Accordingly, this court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

8. Upon information and belief, Tianma is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to its substantial business in this State and District, including: (A) at least part of its infringing activities alleged herein; and (B) regularly doing or soliciting business, engaging in other persistent conduct, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported and services provided to Texas residents vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, customers, subsidiaries, and/or consumers. For example, Tianma has "established manufacturing facilities in Shenzhen, Shanghai, Chengdu, Wuhan, and Xiamen, China as well as in Akita, Japan" and "a global sales and technical support network has been put in place that includes offices in the United States, Germany, Japan, South Korea, Taiwan, Hong Kong etc. to ensure seamless global support to our customers." *See* http://en.tianma.com/about.shtml. This Court has personal jurisdiction over Tianma, directly or through intermediaries, distributors, importers, customers, subsidiaries, and/or consumers including its U.S. based, wholly-owned subsidiary, Tianma America Inc. ("Tianma America"). Through direction and control of this subsidiary, Tianma has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere within the United States, giving rise to this action and/or has established minimum contacts with Texas such that personal jurisdiction over Tianma would not offend traditional notions of fair play and substantial justice.

9. Tianma maintains a corporate presence in the United States (Tianma America) through which it distributes infringing TFT LCD panels. Tianma America is "a leading provider of small to medium size display solutions to the Americas, utilizing cutting edge technologies from Tianma Microelectronics and Tianma Japan, Ltd. (TMJ), coupled with state-of-the-art manufacturing resources of the Tianma Group, [Tianma America] offers a comprehensive range of

LCD products . . . [including] a-Si and LTPS TFT-LCD." *About Us*, TIANMA AMERICA, https://usa.tianma.com/company-services/company-history-roadmap. "Tianma America has responsibility for all sales, marketing and engineering support of the Tianma Group display solutions in the Americas." *Id.* Tianma America identifies approximately 173 unique display panel model numbers for sale on its website. *See Product Search*, TIANMA AMERICA, https://usa.tianma.com/products-technology/product-filter.

10. Tianma America has a "representative" in Texas that provides support to potential customers in Texas regarding Tianma's products: Tristar Group.[1] Tianma America also has four "authorized distribution partners" in the United States, including, Arrow Intelligent Systems in Centennial, Colorado, Avnet Embedded and Integrated Solutions in Phoenix, Arizona, Edge Electronics, Inc. in Bohemia, NY 11716, and WPG Americas Inc. in San Jose, CA.[2] Upon information and belief, Tianma controls or otherwise directs and authorizes all activities of Tianma America, including Tianma America's using, offering for sale, selling, and/or importing accused products, its components, and/or products containing the same that incorporate the fundamental technologies covered by the asserted patents. Tianma America is authorized to import, sell, or offer for sale the accused products on behalf of its controlling parents. Upon information and belief, Tianma researches, designs, develops, and manufactures the infringing TFT LCD panels and then directs Tianma America to import, offer for sale, and sell the accused products in the United States. Accordingly, Tianma America conducts infringing activities on behalf of Tianma.

[1] Tristar Group is located at 5220 Spring Valley Road, #190, Dallas Texas. *See Contact Us*, Tianma America, https://usa.tianma.com/contact (last visited July 15, 2020) (on Tianma America Contact Us site, select the United States and then mouse over Texas).

[2] Arrow Intelligent Systems is located at 9201 E. Dry Creek Road, Centennial, CO 80112; Avnet Embedded and Integrated Solutions is located at 2211 South 47th Street, Phoenix, AZ 85034; Edge Electronics, Inc. is located at 75 Orville Drive, Unit 2, Bohemia, NY 11716; and WPG Americas Inc. is located at 5285 Hellyer Avenue, Suite 150, San Jose, CA 95138. *See Authorized Distributors*, TIANMA AMERICA, http://usa.tianma.com/company-services/services-we-provide (last visited July 15, 2020)

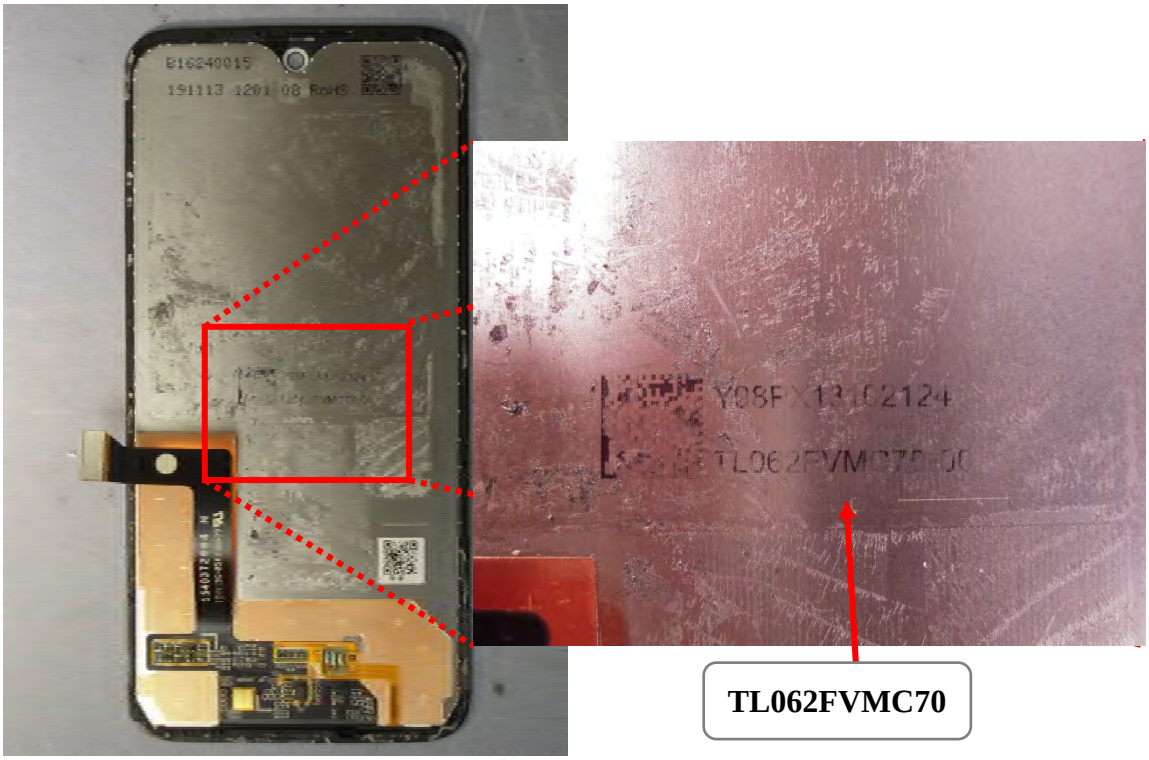
11. Upon information and belief, Tianma America's corporate presence in the United States gives Tianma substantially the same business advantages that it would have enjoyed if it conducted its business through its own offices or paid agents in the state. This corporate presence is comprised of three offices including Tianma America's headquarters in Chino, California, an office in Santa Clara, California, and an office in Troy, Michigan. *See Contact Us*, TIANMA AMERICA, https://usa.tianma.com/contact (last visited July 15, 2020). Upon information and belief, Tianma America's Troy, Michigan office is focused on automobile manufacturers. *See id.* (stating that the Troy Michigan office is "Automotive"). Upon information and belief, Tianma America is authorized to sell and offer for sale TFT LCD panels on behalf of Tianma. For example, Tianma America operates within Tianma's "global sales and technical support network [that] has been put in place that includes offices in the United States, Germany, Japan, South Korea, Taiwan, Hong Kong"… "to ensure seamless global support to our customers." *See About Us*, TIANMA AMERICA, https://usa.tianma.com/company-services/company-history-roadmap. Upon information and belief, Tianma's TFT LCD panels are imported, offered for sale, and sold in the U.S., including in Texas and this District. For example, Tianma's TFT LCD panel model numbers TL062FVMC70, TM062JDSC03, and TL079QDXP02 are utilized in at least the Motorola Moto G7 smartphone, the Motorola Moto G7 Power smartphone, and the Asus ZenPad S 8.0 tablet, respectively.

12. Via its alter egos, representatives, authorized distributors, agents, intermediaries, importers, customers, subsidiaries, and/or consumers maintaining a business presence, operating in, and/or residing in the U.S., Tianma has widely distributed and sold its infringing TFT LCD panels in retail stores, both brick and mortar and online, in Texas including within this District.

13. Upon information and belief, Tianma has placed and continues to place infringing TFT LCD panels into the stream of commerce via established distribution channels comprising at

least representatives such as Tristar Group, distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc., customers such as Motorola and ASUS, and/or its wholly-owned, U.S.-based subsidiary Tianma America, for the sale of the infringing TFT LCD panels, with the knowledge and/or intent that those infringing TFT LCD panels are imported, used, offered for sale, sold, and continue to be sold in the United States and Texas, including in this District.

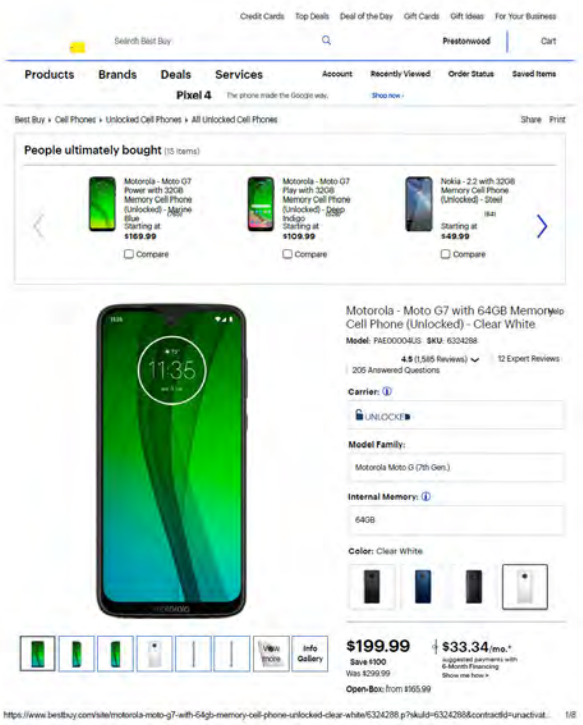
14. For example, the Motorola Moto G7 smartphone utilizes an infringing TFT LCD panel. Upon information and belief, Tianma designed and manufactured a TFT LCD panel with model number TL062FVMC70 for use in the Motorola Moto G7 smartphone.



Tianma's TFT LCD Panel No. TL062FVMC70 in Motorola Moto G7 Smartphone

Motorola Mobility LLC's Landing Page for the Motorola Moto G7 Smartphone

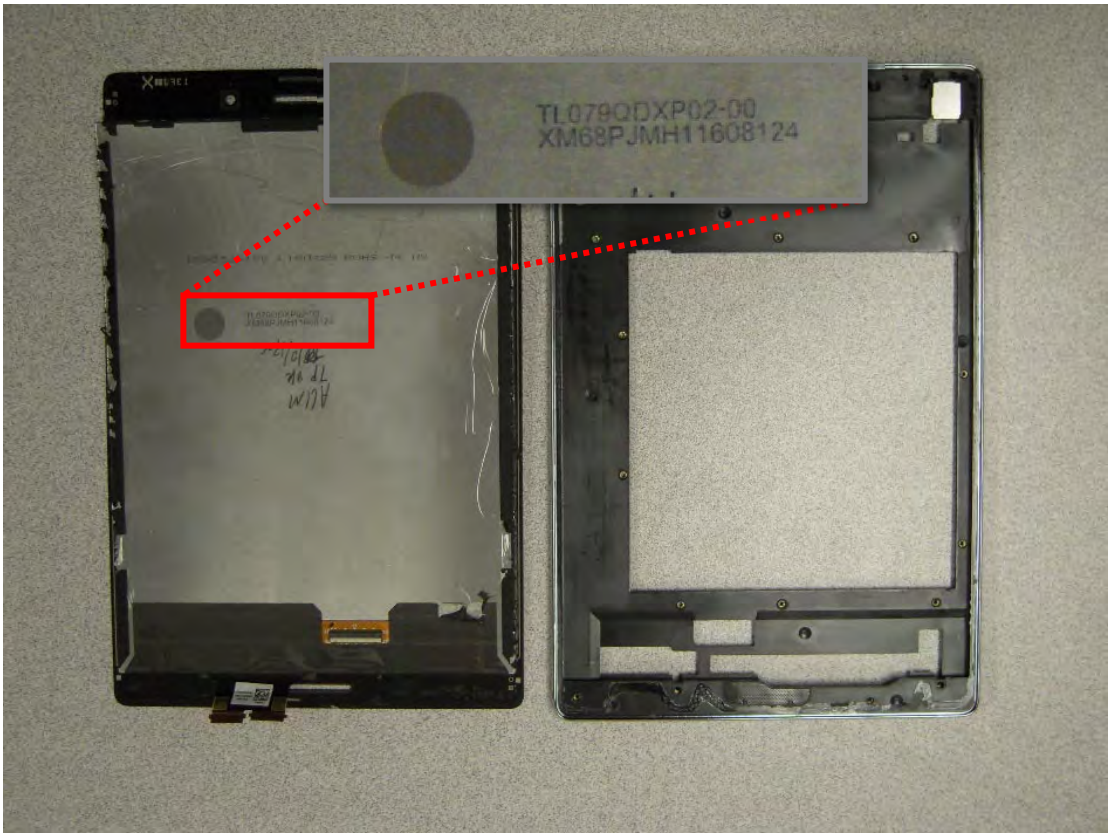
15. Upon information and belief, the Motorola Moto G7 Smartphone, designed and sold by Motorola Mobility LLC, was widely sold and distributed in Texas and in this District. Retailers such as Amazon.com and Best Buy have sold the Motorola Moto G7 Smartphone. *See Motorola Moto G7*, MOTOROLA, https://www.motorola.com/us/smartphones-moto-g7/p.



Best Buy's Landing Page for the Motorola Moto G7 Smartphone

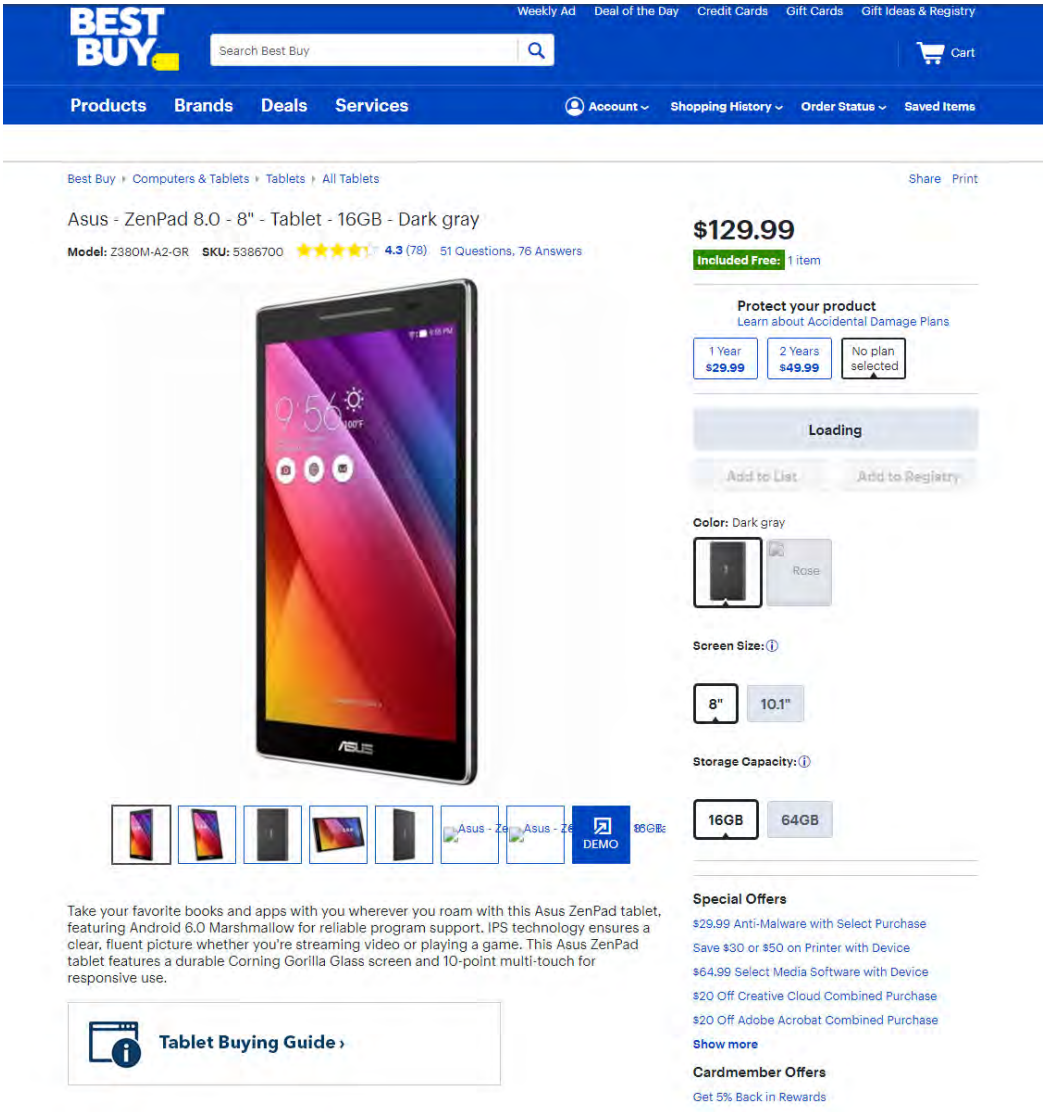
16. The Motorola Moto G7 Smartphone can be purchased through Best Buy's website. *See Motorola Moto G7*, BESTBUY.COM, https://www.bestbuy.com/site/motorola-moto-g7-with-64gb-memory-cell-phone-unlocked-clear-white/6324288.p?skuId=6324288&contractId=unactivat%E2%80%A6.

17. The Asus ZenPad S 8.0 tablet utilizes an infringing TFT LCD panel. Upon information and belief, Tianma designed and manufactured a TFT LCD panel with model number TL079QDXP02 for use in the Asus ZenPad S 8.0 tablet.



Tianma's TFT LCD Panel in Asus ZenPad S 8.0 tablet

18. Upon information and belief, the Asus ZenPad S 8.0 tablet, manufactured by Asustek Computer Inc. and sold by Asus Computer International, was widely sold and distributed in Texas and in this District. The Asus ZenPad S 8.0 tablet was sold on Best Buy's website , https://www.bestbuy.com/site/asus-zenpad-8-0-8-tablet-16gb-dark-gray/5386700.p?skuId=5386700 (archived at Wayback Machine, https://web.archive.org/web/20180618155158/https://www.bestbuy.com/site/asus-zenpad-8-0-8-tablet-16gb-dark-gray/5386700.p?skuId=5386700, for June 18, 2019).



BestBuy.com Landing Page for the Asus ZenPad S 8.0 tablet

19. Tianma also maintains commercial websites accessible to the residents of Texas and this District through which Tianma promotes, markets, advertises, and facilitates sales of the infringing TFT LCD panels. *See* http://en.tianma.com/index.shtml.

20. In the alternative, the Court has personal jurisdiction over Tianma under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise under federal law, Tianma is not subject to the jurisdiction of the courts of general jurisdiction of any state, and exercising jurisdiction over Tianma is consistent with the U.S. Constitution.

21. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391 because, among other things, Tianma is not resident in the United States, and thus may be sued in any judicial district, including this one, pursuant to 28 U.S.C. § 1391(c)(3).

THE ASSERTED PATENTS AND TECHNOLOGY

22. The patents-in-suit include Plaintiffs' United States Patent Nos. 8,218,119 ("the '119 Patent"), 10,139,687 ("the '687 Patent"), 9,715,132 ("the '132 Patent"), 9,793,299 ("the '299 Patent"), 10,018,859 ("the '859 Patent"), 8,218,118 ("the '118 Patent"), 10,423,034 ("the '034 Patent"), 10,330,989 ("the '989 Patent"), and 7,936,429 ("the '429 Patent") (collectively, the "Asserted Patents").

23. On July 10, 2012, the United States Patent and Trademark Office ("USPTO") duly and legally issued U.S. Patent No. 8,218,119 ("the '119 Patent"), titled "Liquid Crystal Display Device" to inventors Kikuo Ono, Makoto Yoneya, Tsunenori Yamamoto, Junichi Hirakata, and Yoshiaki Nakayoshi. A true and correct copy of the '119 Patent is attached as Exhibit 1 to this Complaint.

24. The '119 Patent is generally directed to the structure of a liquid crystal display that has enhanced numerical aperture while still maintaining improved viewing angle characteristics. The '119 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the '119 Patent.

25. On November 27, 2018, the USPTO duly and legally issued U.S. Patent No. 10,139,687 ("the '687 Patent"), titled "Liquid Crystal Display Device" to inventors Kikuo Ono, Makoto Yoneya, Tsunenori Yamamoto, Junichi Hirakata, and Yoshiaki Nakayoshi. A true and correct copy of the '687 Patent is attached as Exhibit 2 to this Complaint.

26. The ’687 Patent is generally directed to the structure of a liquid crystal display that has enhanced numerical aperture while still maintaining improved viewing angle characteristics. The ’687 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the ’687 Patent.

27. On July 25, 2017, the USPTO duly and legally issued U.S. Patent No. 9,715,132 (“the ’132 Patent”), titled “Liquid Crystal Display Device” to inventors Kazuhiko Yanagawa, Yasushi Iwakabe, Yoshiaki Nakayoshi, and Masatoshi Wakagi. A true and correct copy of the ’132 Patent is attached as Exhibit 3 to this Complaint.

28. The ’132 Patent is generally directed to the structure of a liquid crystal display that prevents light leaks near spacers, which are used to ensure the cell gap. The ’132 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the ’132 Patent.

29. On October 17, 2017, the USPTO duly and legally issued U.S. Patent No. 9,793,299 (“the ’299 Patent”), titled “Display Device and Hand-Held Electronic Device” to inventor Koichi Fukuda. A true and correct copy of the ’299 Patent is attached as Exhibit 4 to this Complaint.

30. The ’299 Patent is generally directed to the structure of a liquid crystal display device that has a protective member configured as a protective cover of the electronic device. The ’299 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the ’299 Patent.

31. On July 10, 2018, the USPTO duly and legally issued U.S. Patent No. 10,018,859 ("the '859 Patent"), titled "Liquid Crystal Display Device" to inventors Kazuhiko Yanagawa, Yasushi Iwakabe, Yoshiaki Nakayoshi, and Masatoshi Wakagi. A true and correct copy of the '859 Patent is attached as Exhibit 5 to this Complaint.

32. The '859 Patent is generally directed to the structure of a liquid crystal display device that prevents light leaks around spacers, which are used to ensure cell gap. The '859 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the '859 Patent.

33. On July 10, 2012, the USPTO duly and legally issued U.S. Patent No. 8,218,118 ("the '118 Patent") titled "Liquid Crystal Display Device" to inventors Kikuo Ono, Makoto Yoneya, Tsunenori Yamamoto, Junichi Hirakata, and Yoshiaki Nakayoshi. A true and correct copy of the '118 Patent is attached as Exhibit 7 to this Complaint.

34. The '118 Patent is generally directed to the structure of a liquid crystal display that has enhanced numerical aperture while still maintaining improved viewing angle characteristics. The '118 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the '118 Patent.

35. On September 24, 2019, the USPTO duly and legally issued U.S. Patent No. 10,423,034 ("the '034 Patent"), titled "Liquid Crystal Display Device" issued to inventors Takahiro Ochiai, Tohru Sasaki, and Tetsuya Nagata. A true and correct copy of the '034 Patent is attached as Exhibit 6 to this Complaint.

36. The ’034 Patent is generally directed to the structure of a liquid crystal display device that enables the suppression of oriental disturbance and transmittance reduction due to the formation of a column. The ’034 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the ’034 Patent.

37. On June 25, 2019, the USPTO duly and legally issued U.S. Patent No. 10,330,989 (“the ’989 Patent”), titled “Liquid crystal display device, display device and manufacturing method thereof” to inventors Yoshiaki Nakayoshi and Kazuhiko Yanagawa. A true and correct copy of the ’989 Patent is attached as Exhibit 8 to this Complaint.

38. The ’989 Patent is generally directed to the structure of a liquid crystal display device where an electrode which forms the holding capacity is a linear electrode and the feeding is limited to one direction to increase the feeding resistance so as to enable faster driving of the liquid crystal display device. The ’989 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the ’989 Patent.

39. On May 3, 2011, the USPTO duly and legally issued U.S. Patent No. 7,936,429 (“the ’429 Patent”), titled “Liquid Crystal Display Device” to inventors Kikuo Ono, Makoto Yoneya, Tsunenori Yamamoto, Junichi Hirakata, and Yoshiaki Nakayoshi. A true and correct copy of the ’429 Patent is attached as Exhibit 9 to this Complaint.

40. The ’429 Patent is generally directed to the structure of a liquid crystal display that has enhanced numerical aperture while still maintaining improved viewing angle characteristics. The ’429 Patent discloses and specifically claims novel and non-obvious subject matter that

represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the '429 Patent.

TIANMA'S INFRINGING PRODUCTS AND ACTIVITIES

41. Tianma designs, manufactures, and sells TFT LCD panels. *See About Tianma*, TIANMA MICROELECTRONICS, http://en.tianma.com/about.shtml. According to Tianma, its "shipments of small and medium size modules kept the leading position among the global panel factories" and its "market share for high-end medical devices, aviation entertainment, navigation and VOIP products ranked first worldwide." *Id.* Tianma manufactures infringing TFT LCD panels in Asia and sells them worldwide, including in the United States. *See id.* (stating that Tianma has "manufacturing facilities in Shenzhen, Shanghai, Chengdu, Wuhan, and Xiamen, China as well as in Akita, Japan. In addition, a global sales and technical support network has been put in place that includes offices in the United States, Germany, Japan, South Korea, Taiwan, Hong Kong etc. to ensure seamless global support to our customers."). Tianma makes, uses, sells, offers to sell within the United States or imports to the United States infringing TFT LCD panels through making sales, marketing to, and providing engineering support to U.S. based customers through its wholly-owned subsidiary, Tianma America. *See About Us*, TIANMA AMERICA, https://usa.tianma.com/company-services/company-history-roadmap (stating that "Tianma America has responsibility for all sales, marketing, and engineering support of the Tianma Group display solutions in the Americas.").

42. The claims of the Asserted Patents cover Tianma's TFT LCD panels, their components, and processes related to the same (referred to herein as the "Accused Panel(s)" or "infringing TFT LCD panels"). The Accused Panels are incorporated and utilized in various consumer devices, including "smart phones, tablet PCs, smart wear, automotive instrumentation, industrial and medical instrumentation, avionic display, home automation, etc." *See*

http://en.tianma.com/about.shtml. For example, TL062FVMC70, TM062JDSC03, and TL079QDXP02 are among the infringing TFT LCD panels and are utilized in at least the Motorola Moto G7 smartphone, the Motorola Moto G7 Power smartphone, and the Asus ZenPad S 8.0 tablet, respectively.

43. Tianma's customer Motorola Mobility LLC designs, manufactures, and sells the Motorola Moto G7 smartphone and Moto G7 Power smartphone, which incorporates Tianma's infringing TFT LCD panels with model numbers TL062FVMC70 and TM062JDSC03, respectively. Motorola Mobility LLC is headquartered at 222 W. Merchandise Mart Plaza, Suite 1800 Chicago, Illinois 60654. *See Contact Us*, Motorola Mobility LLC, https://www.motorola.com/us/about/contact. Upon information and belief, Motorola Mobility LLC had on average 8% of the market for all smartphones shipped in the U.S. in 2019. *See US Smartphone Market Share: By Quarter,* COUNTERPOINT, https://www.counterpointresearch.com/us-market-smartphone-share/ (last visited July 31, 2020). Upon information and belief, Motorola Mobility LLC distributes its products, including the Motorola Moto G7 smartphone, across the U.S., including in Texas and this judicial District by direct sales as well as through its retail partners. *See Motorola Moto G7*, MOTOROLA, https://www.motorola.com/us/smartphones-moto-g7/p (last visited July 31, 2020).

44. Tianma's customer Asustek Computer Inc. designs, manufacturers, and sells the Asus ZenPad S 8.0 tablet, which incorporates Tianma's infringing TFT LCD panels with model number TL079QDXP02. Tianma supplies infringing TFT LCD panels to Asustek Computer, Inc. for its smartphones, notebook PCs and tablet products. *See News and Information*, TIANMA AMERICA, https://usa.tianma.com/news-information/news/2016/04/11/tianma-to-be-main-supplier-of-panels-for-new-asustek-notebooks. Asus Computer International, is a corporation established

under the laws of the State of California, having a principal place of business at 48720 Kato Road, Fremont, CA 94538. Upon information and belief, Asus Computer International is a wholly owned subsidiary of Asustek Computer, Inc. responsible for the sales and distribution of Asustek Computer, Inc.'s smartphones, notebook PCs, and tablets in the United States. *See Asustek Computer Inc. and Subsidiaries Consolidated Financial Statements With Independent Auditors' Review Report Thereon September 30, 2019 and 2018*, https://www.asus.com/event/Investor/Content/attachment_en/2019_Q3_Finacial_Report.pdf, at p. 14 (last visited July 31, 2020). Asus Computer International distributes its devices, including the Asus ZenPad S 8.0 tablet, in the U.S., including in Texas and this District by direct sales as well as through its retail partners. *See id.* (stating that Asus Computer International's main business activity is "selling of 3C products in North America") (last visited July 31, 2020).

COUNT I

(INFRINGEMENT OF U.S. PATENT NO. 8,218,119)

45. JDI and PLD re-allege and incorporate by reference the allegations in paragraphs 1-44 above.

46. JDI and PLD are the assignees of the '119 Patent. Plaintiffs have all substantial rights to enforce the '119 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

47. The '119 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

48. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the '119 Patent in this District and elsewhere.

49. At a minimum, Tianma has known of the ’119 Patent at least as early as the filing date of the complaint. In addition, Tianma has known of the ’119 patent since June 17, 2015, when JDI sent Tianma detailed claim charts demonstrating infringement of several products.

50. Tianma directly infringes at least claim 1 of the ’119 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’119 Patent. Furthermore, Tianma directly infringes the ’119 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’119 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

51. Independent claim 1 of the ’119 Patent recites:

> 1. A liquid crystal display comprising:
>
> a pair of transparent substrates opposed to each other with liquid crystal therebetween;

one of the pair of transparent substrates having a plurality of drain signal lines and a plurality of gate signal lines, and a plurality of pixel regions defined by the drain signal lines and the gate signal lines;

wherein the pixel region has: a TFT element; a first electrode formed of a transparent electrode having a plurality of slits;

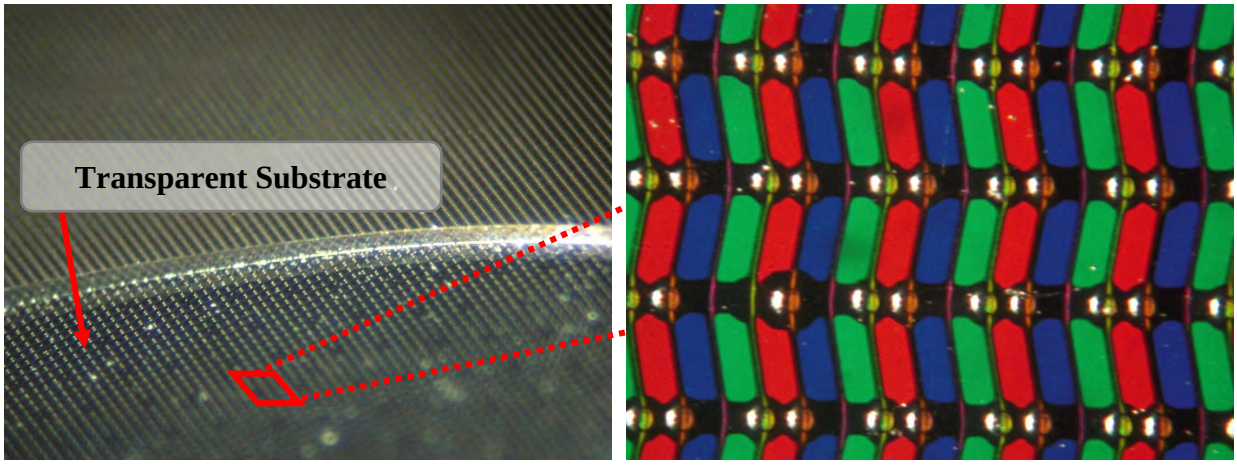
a connection area that connects the first electrode to the TFT element; and

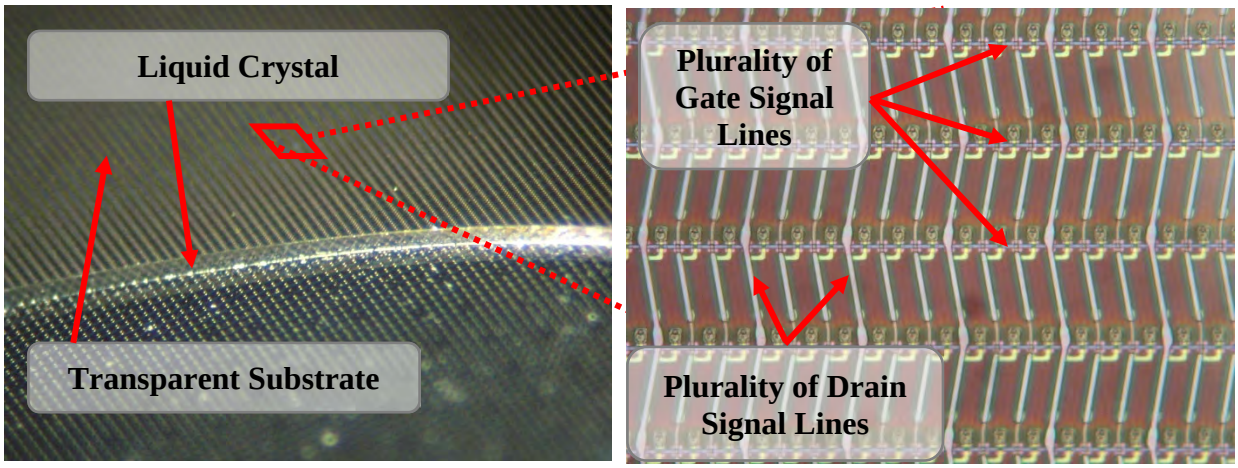
a second electrode formed of a transparent electrode;

wherein the second electrode is disposed between the first electrode and the one of the pair of transparent substrates, the second electrode is connected with the second electrode of an adjacent pixel region, and the connected second electrode is arranged at a position overlapping with the gate signal line.

52. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’119 Patent.

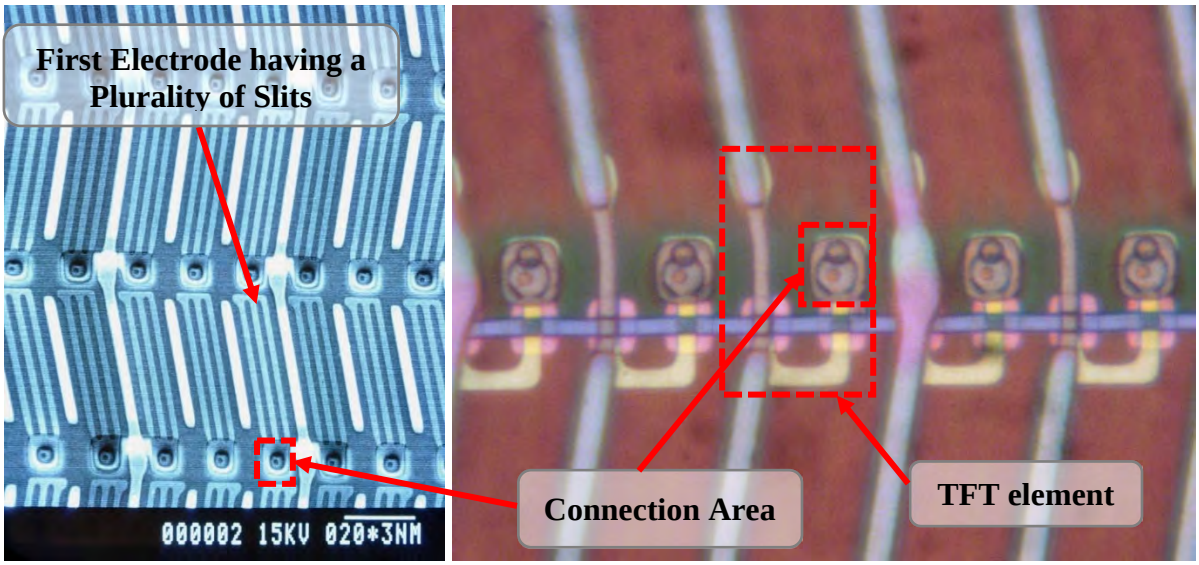
53. The TL062FVMC70 has a liquid crystal display comprising: a pair of transparent substrates opposed to each other with liquid crystal therebetween. One of the pair of transparent substrates having a plurality of drain signal lines and a plurality of gate signal lines.





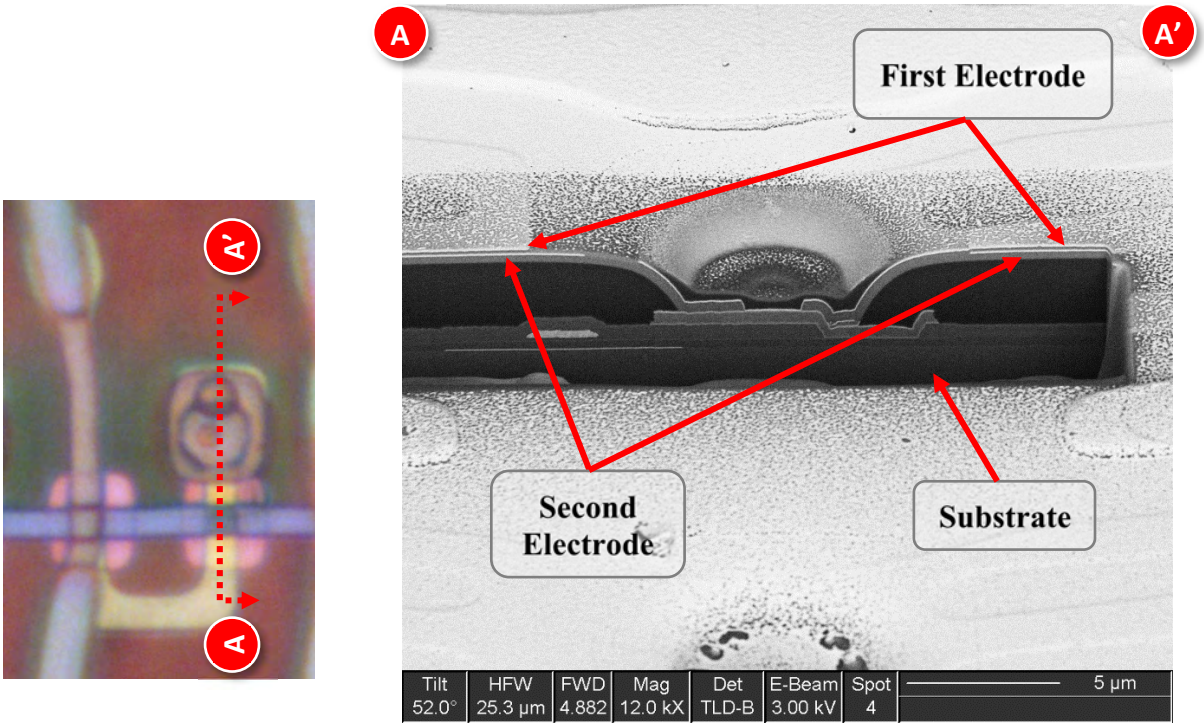
Optical Microscope Images of TL062FVMC70

54. The TL062FVMC70 has a plurality of pixel regions defined by the drain signal lines and the gate signal lines. The pixel region has a TFT element and a first electrode formed of a transparent electrode having a plurality of slits. The TL062FVMC70 has a connection area that connects the first electrode to the TFT element.



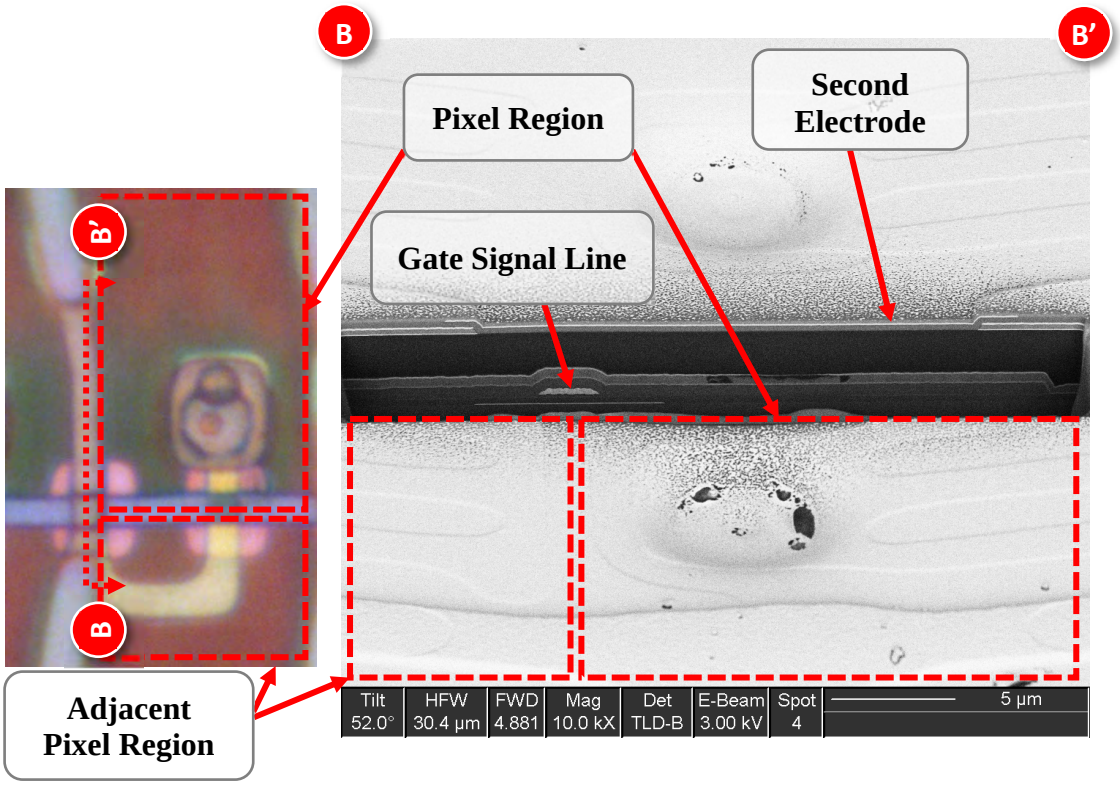
Scanning Electron Microscope Image (left) and Optical Microscope Image (right) of TL062FVMC70

55. The TL062FVMC70 has a second electrode formed of a transparent electrode. The second electrode is disposed between the first electrode and the one of the pair of transparent substrates.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70

56. The second electrode of the TL062FVMC70 is connected with the second electrode of an adjacent pixel region, and the connected second electrode is arranged at a position overlapping with the gate signal line.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70

57. Upon information and belief, since at least June 17, 2015 when Tianma was put on notice of its infringement, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the '119 Patent to directly infringe one or more claims of the '119 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least June 17, 2015, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '119 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the

Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories' standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

58. Upon information and belief, despite having knowledge of the '119 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '119 Patent, Tianma has nevertheless continued its infringing conduct. Tianma's infringing activities relative to the '119 Patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Plaintiffs are entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

59. JDI and PLD have been damaged as a result of Tianma's infringing conduct. Tianma is liable to Plaintiffs in an amount that adequately compensates Plaintiffs for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II

(INFRINGEMENT OF U.S. PATENT NO. 10,139,687)

60. JDI and PLD re-allege and incorporate by reference the allegations in paragraphs 1-59 above.

61. JDI and PLD are the assignees of the ’687 Patent. Plaintiffs have all substantial rights to enforce the ’687 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

62. The ’687 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

63. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the ’687 Patent in this District and elsewhere.

64. At a minimum, Tianma has known of the ’687 Patent at least as early as the filing date of the complaint.

65. Tianma directly infringes at least claim 1 of the ’687 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’687 Patent. Furthermore, Tianma directly infringes the ’687 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that

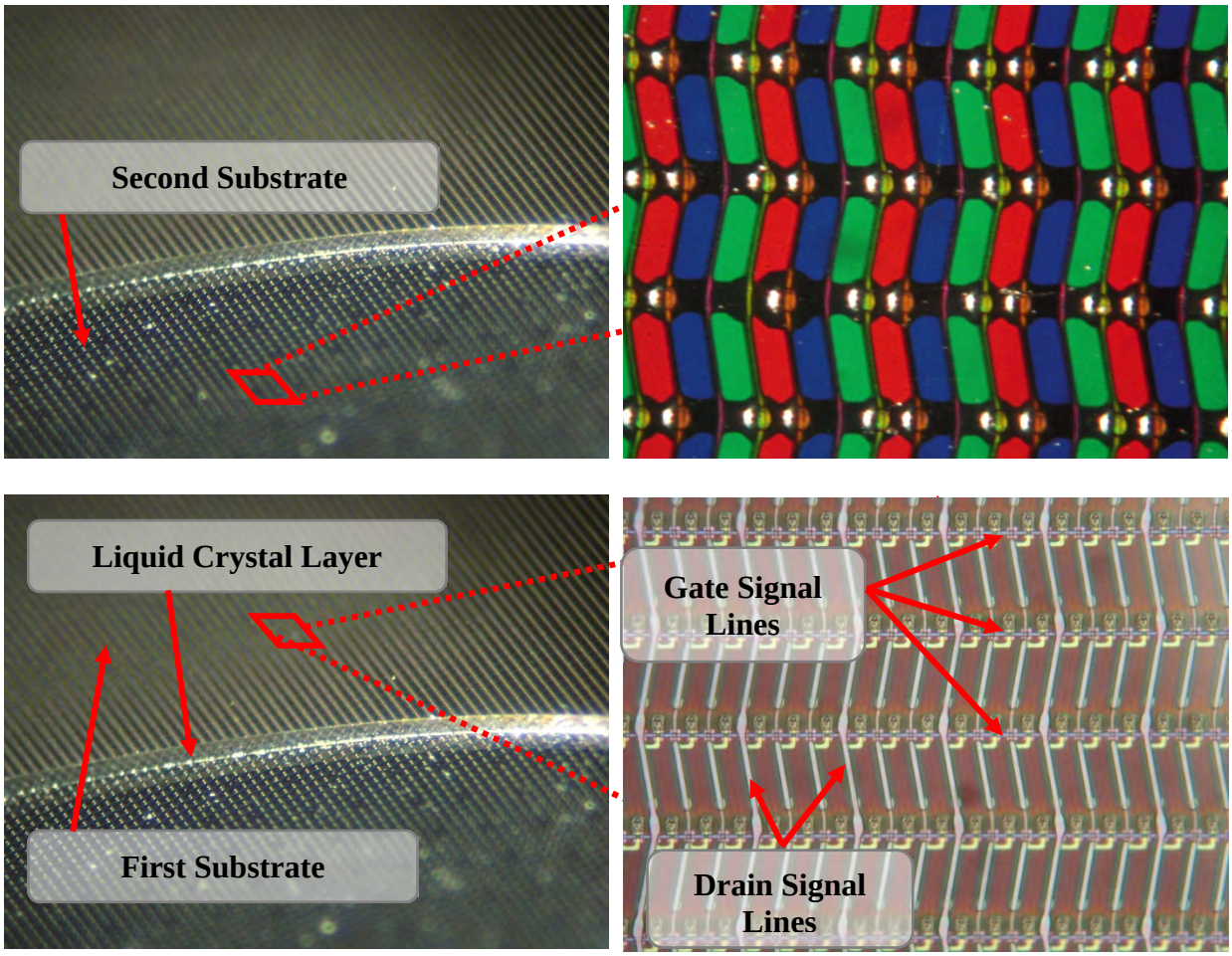
constitutes direct infringement of the ’687 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

66. Independent claim 1 of the ’687 Patent recites:

> 1. A liquid crystal display comprising:
> a first substrate and a second substrate opposed to each other with liquid crystal layer therebetween, the first substrate having drain signal lines and gate signal lines;
> a TFT element connected to one of the drain signal lines and one of the gate signal lines;
> a pixel electrode formed of a transparent conducting layer having a slit, the pixel electrode being connected to the TFT element;
> a counter electrode formed of a planar transparent conducting layer, the counter electrode being disposed on the first substrate; and
> an insulating layer interposed between the counter electrode and the pixel electrode,
> wherein the counter electrode is interposed between the gate signal lines and the liquid crystal layer, the counter electrode is overlapped with the slit of the pixel electrode, the counter electrode is overlapped with the gate signal lines, and the insulating layer has a contact hole, and the pixel electrode is connected to the TFT element through the contact hole. .

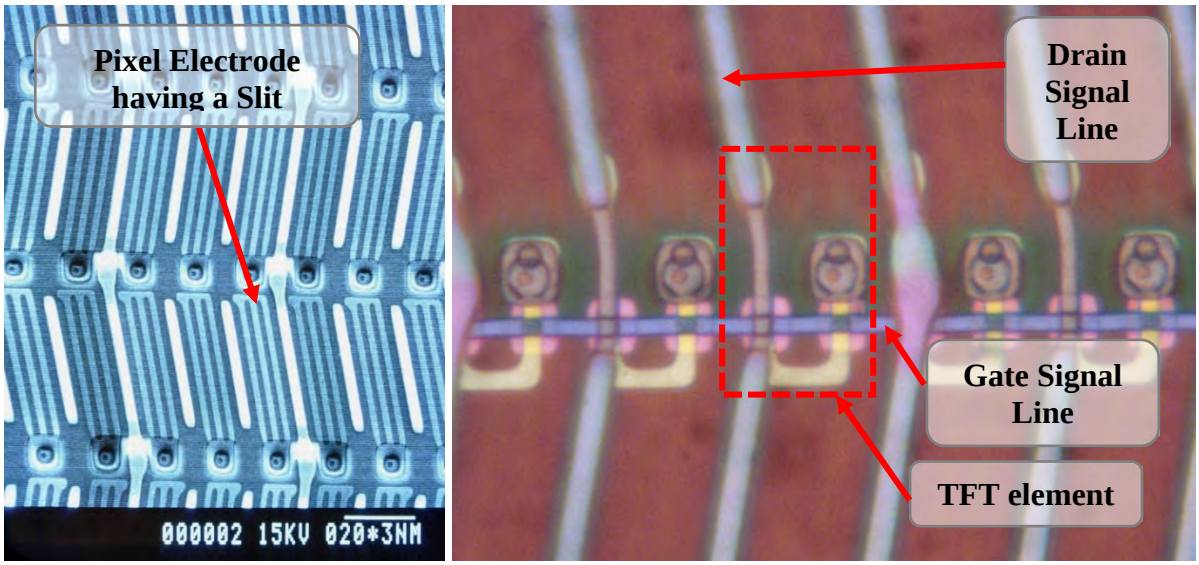
67. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’687 Patent.

68. The TL062FVMC70 has a liquid crystal display comprising: a first substrate and a second substrate opposed to each other with liquid crystal layer therebetween, the first substrate having drain signal lines and gate signal lines.



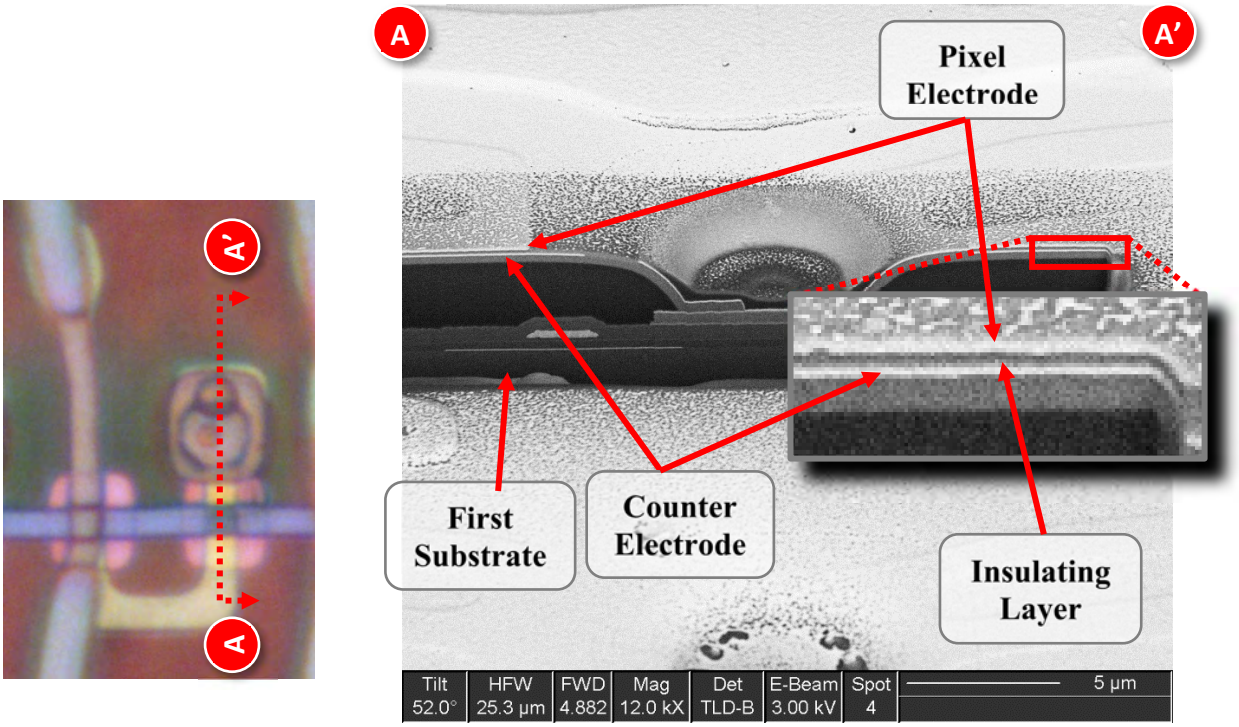
Images from Optical Microscope Analysis of TL062FVMC70

69. The TL062FVMC70 has a TFT element connected to one of the drain signal lines and one of the gate signal lines; a pixel electrode formed of a transparent conducting layer having a slit, the pixel electrode being connected to the TFT element.



Scanning Electron Microscope Image (left) and Optical Microscope Image (right) of TL062FVMC70

70. The TL062FVMC70 has a counter electrode formed of a planar transparent conducting layer, the counter electrode being disposed on the first substrate; and an insulating layer interposed between the counter electrode and the pixel electrode.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70

71. The TL062FVMC70 has the counter electrode interposed between the gate signal lines and the liquid crystal layer.

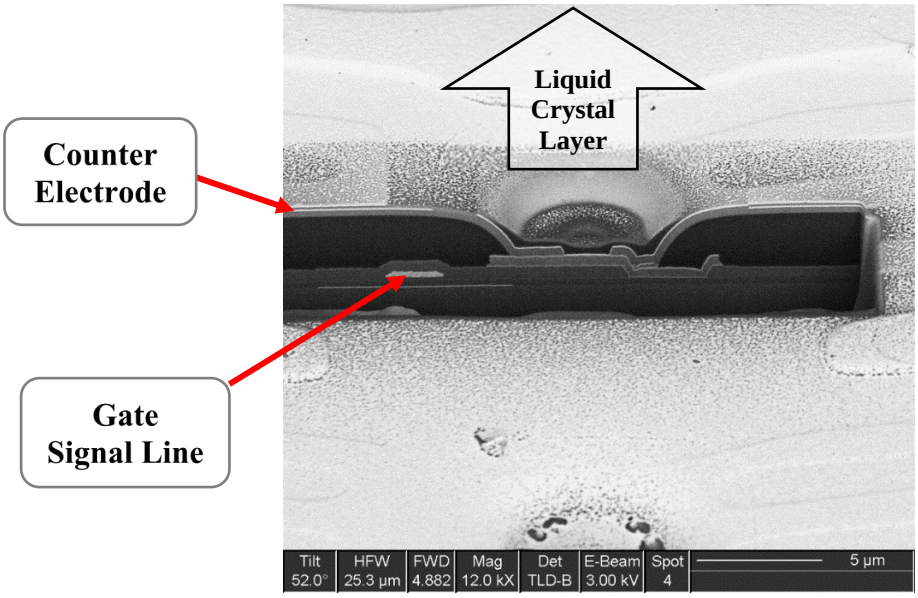
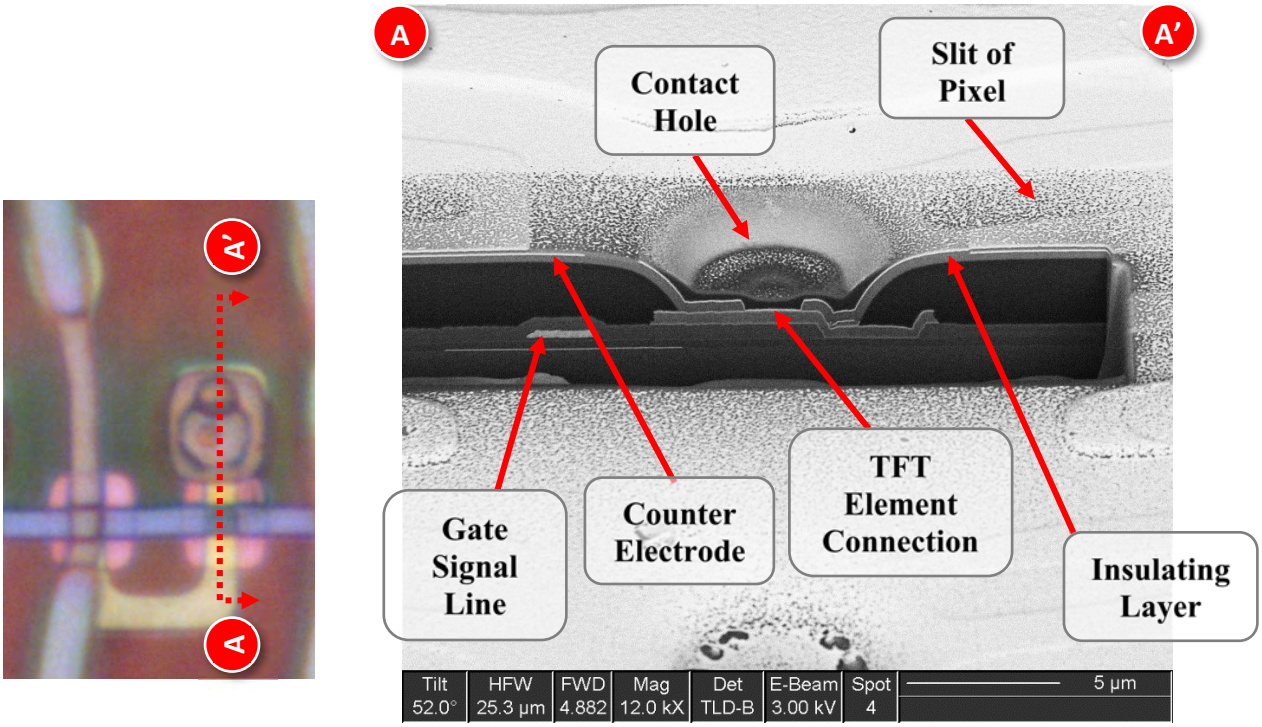


Image from Scanning Electron Microscope Analysis of TL062FVMC70

72. The TL062FVMC70 has the counter electrode overlapped with the slit of the pixel electrode, the counter electrode is overlapped with the gate signal lines, and the insulating layer has a contact hole, and the pixel electrode is connected to the TFT element through the contact hole.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70

73. Upon information and belief, since at least the filing of this complaint when Tianma was on notice of its infringement, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’687 Patent to directly infringe one or more claims of the ’687 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’687 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, inter alia, creating advertisements that promote the

infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories' standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

74. Upon information and belief, despite having knowledge of the '687 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '687 Patent, Tianma has nevertheless continued its infringing conduct. Tianma's infringing activities relative to the '687 Patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Plaintiffs are entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

75. JDI and PLD have been damaged as a result of Tianma's infringing conduct. Tianma is liable to Plaintiffs in an amount that adequately compensates Plaintiffs for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III

(INFRINGEMENT OF U.S. PATENT NO. 9,715,132)

76. JDI and PLD re-allege and incorporate by reference the allegations in paragraphs 1-75 above.

77. JDI and PLD are the assignees of the ’132 Patent. Plaintiffs have all substantial rights to enforce the ’132 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

78. The ’132 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

79. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the ’132 Patent in this District and elsewhere.

80. For example, Tianma directly infringes at least claim 1 of the ’132 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’132 Patent. Furthermore, Tianma directly infringes the ’132 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale

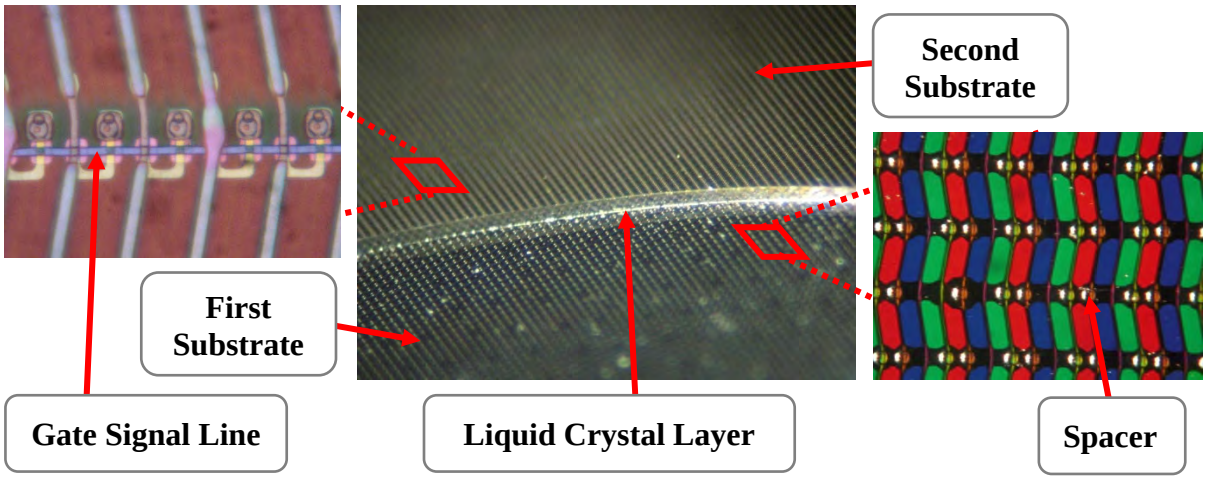
the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’132 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

81. Independent claim 1 of the ’132 Patent recites:

> 1. A liquid crystal display device comprising:
> a first substrate and a second substrate;
> a liquid crystal layer between the first substrate and the second substrate;
> a liquid crystal molecule in the liquid crystal layer;
> a spacer formed on an inner surface of the first substrate, the inner surface of the first substrate facing the liquid crystal layer;
> a gate signal line formed on an inner surface of the second substrate, the inner surface of the second substrate facing the liquid crystal layer;
> a pixel electrode;
> a reference electrode which causes an electric field controlling the liquid crystal molecule to form between the reference electrode and the pixel electrode; and
> a layer disposed between the pixel electrode and the reference electrode, wherein
> the pixel electrode is made of transparent conductive material,
> the reference electrode is made of transparent conductive material,
> the spacer overlaps the gate signal line and reference electrode,
> an inorganic material layer and an organic material layer are disposed between the gate signal line and the reference electrode,
> the gate signal line has edges facing each other, and
> the reference electrode is formed on the gate signal line and covers the edges in plan view.

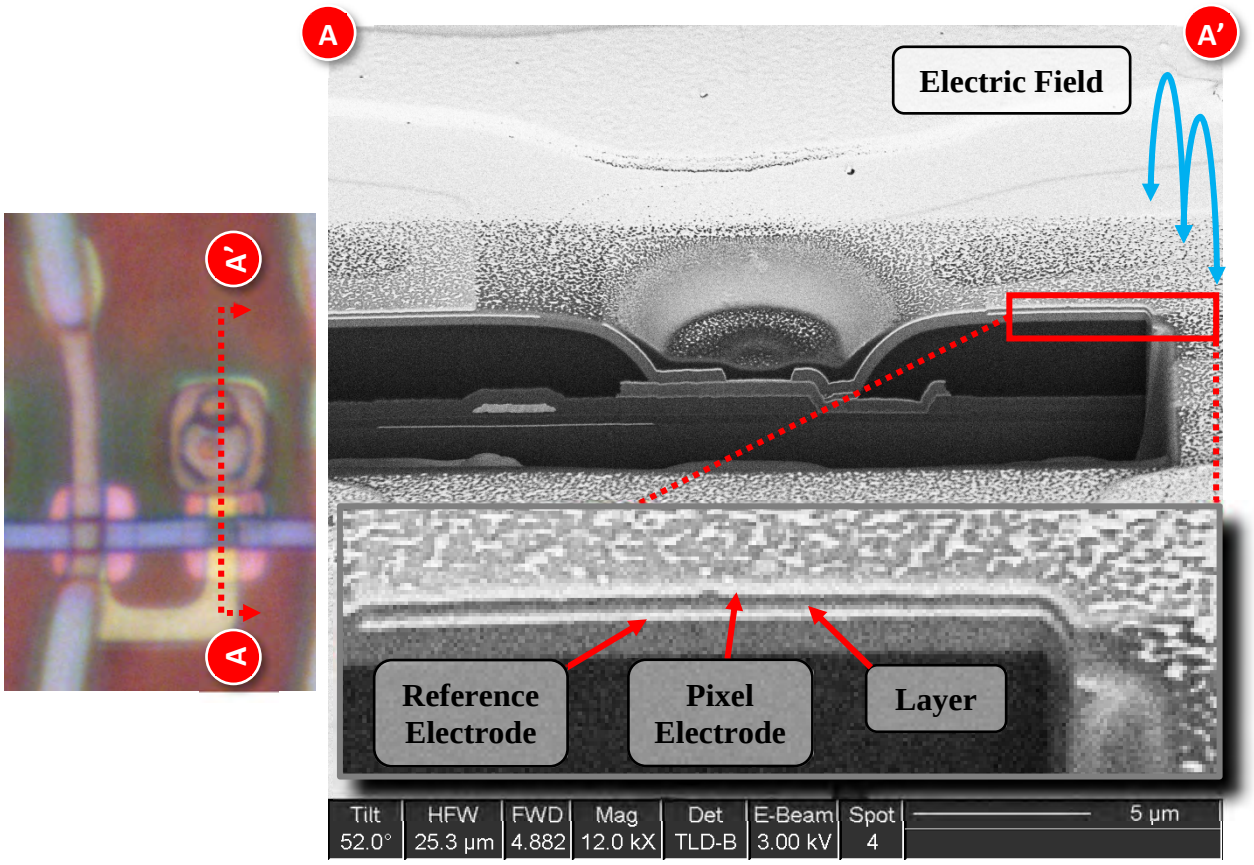
82. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’132 Patent.

83. The TL062FVMC70 is liquid crystal display device comprising a first substrate and a second substrate with a liquid crystal layer in between. The liquid crystal layer includes liquid crystal molecules. The TL062FVMC70 has a spacer formed on an inner surface of the first substrate, which faces the liquid crystal layer, and a gate signal line formed on an inner surface of the second substrate, which faces the liquid crystal layer.



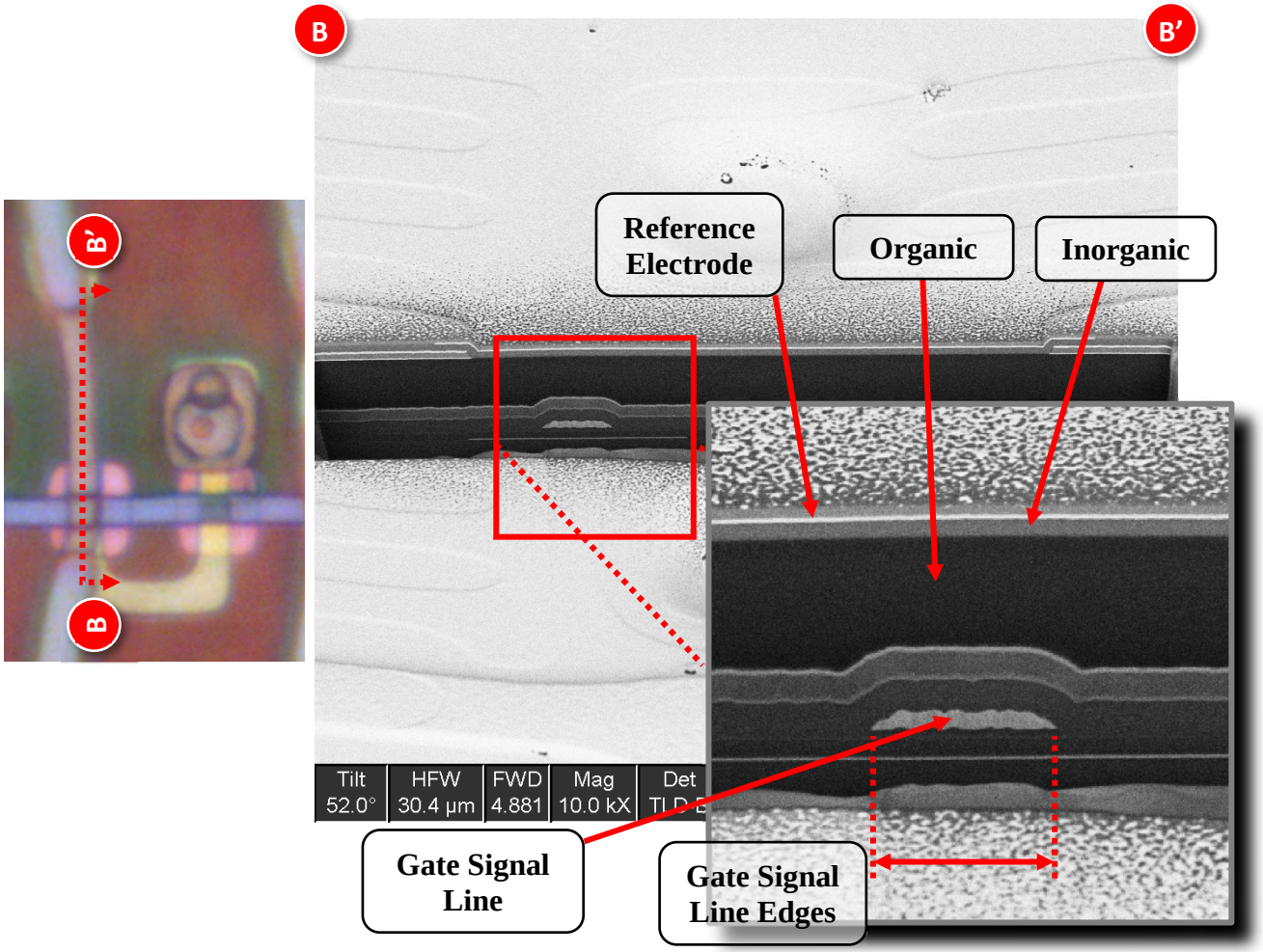
Images from Optical Microscope Analysis of TL062FVMC70

84. The TL062FVMC70 has a pixel electrode and reference electrode, both made of transparent conductive material (e.g., ITO), with a layer in between. The reference electrode causes an electric field controlling the liquid crystal molecule to form between the reference electrode and the pixel electrode.

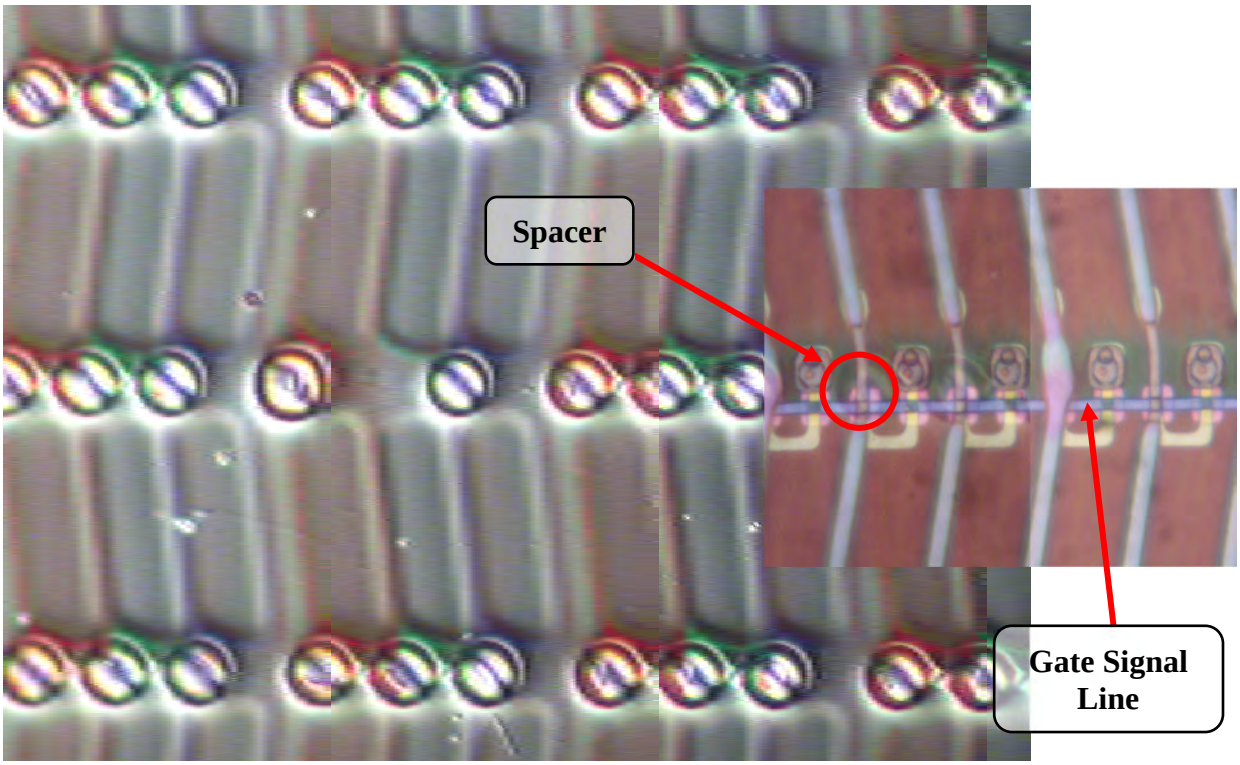


Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70

85. The TL062FVMC70 has an inorganic material layer and an organic material layer in between the gate signal line and the reference electrode. The reference electrode covers the edges of the gate signal line, and both are overlapped by the spacer.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70



Interference Contrast Microscope Image of Color Filter Substrate of TL062FVMC70 overlaid with Optical Microscope Image of TFT Substrate

86. At a minimum, Tianma has known of the ’132 Patent at least as early as the filing date of the complaint.

87. Upon information and belief, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’132 Patent to directly infringe one or more claims of the ’132 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least the filing date of the complaint, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’132 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused

Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories' standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

88. Upon information and belief, despite having knowledge of the '132 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '132 Patent, Tianma has nevertheless continued its infringing conduct. Tianma's infringing activities relative to the '132 Patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Plaintiffs are entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

89. JDI and PLD have been damaged as a result of Tianma's infringing conduct with regard to the '132 Patent. Tianma is liable to Plaintiffs in an amount that adequately compensates Plaintiffs for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT IV

(INFRINGEMENT OF U.S. PATENT NO. 9,793,299)

90. JDI and PLD re-allege and incorporate by reference the allegations in paragraphs 1-89 above.

91. JDI and PLD are the assignees of the ’299 Patent. Plaintiffs have all substantial rights to enforce the ’299 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

92. The ’299 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

93. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the ’299 Patent in this District and elsewhere.

94. At a minimum, Tianma has known of the ’299 Patent at least as early as the filing date of the complaint.

95. Tianma directly infringes at least claim 1 of the ’299 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’299 Patent.

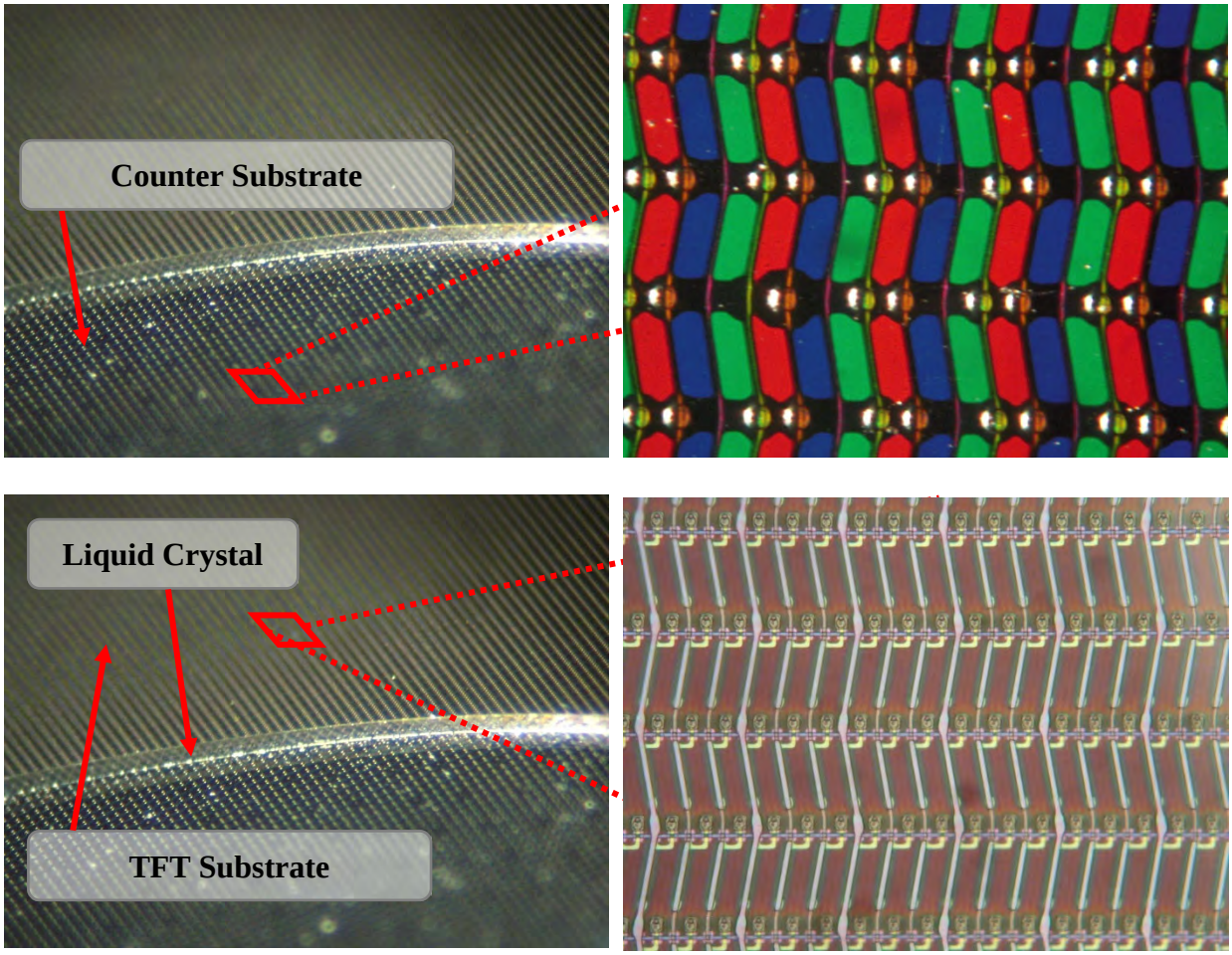
Furthermore, Tianma directly infringes the ’299 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’299 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

96. Independent claim 1 of the ’299 Patent recites:

> 1. A display device comprising display area and used in a hand-held electronic device comprising:
> a TFT substrate,
> a counter substrate,
> a multi-thin film layer,
> a liquid crystal layer,
> a seal member,
> a polarizing plate,
> an adhesive member, and
> a protective member;
> wherein the multi-thin film layer disposed on the TFT substrate,
> wherein the liquid crystal layer disposed on the multi-thin film layer,
> wherein the seal member surrounds the liquid crystal layer,
> wherein the counter substrate is disposed between the TFT substrate and the polarizing plate,
> wherein the polarizing plate is a separate member from the protective member and disposed between the counter substrate and the protective member,
> wherein the adhesive member overlaps with the display area in a plan view, and is between the protective member and the polarizing plate, and
> wherein the protective member is a protective cover of the hand-held electronic device,
> wherein the protective member overlaps with the sealing member in a plan view, and
> wherein a thickness of the protective member is at least 0.2 mm and no greater than 1.0 mm.

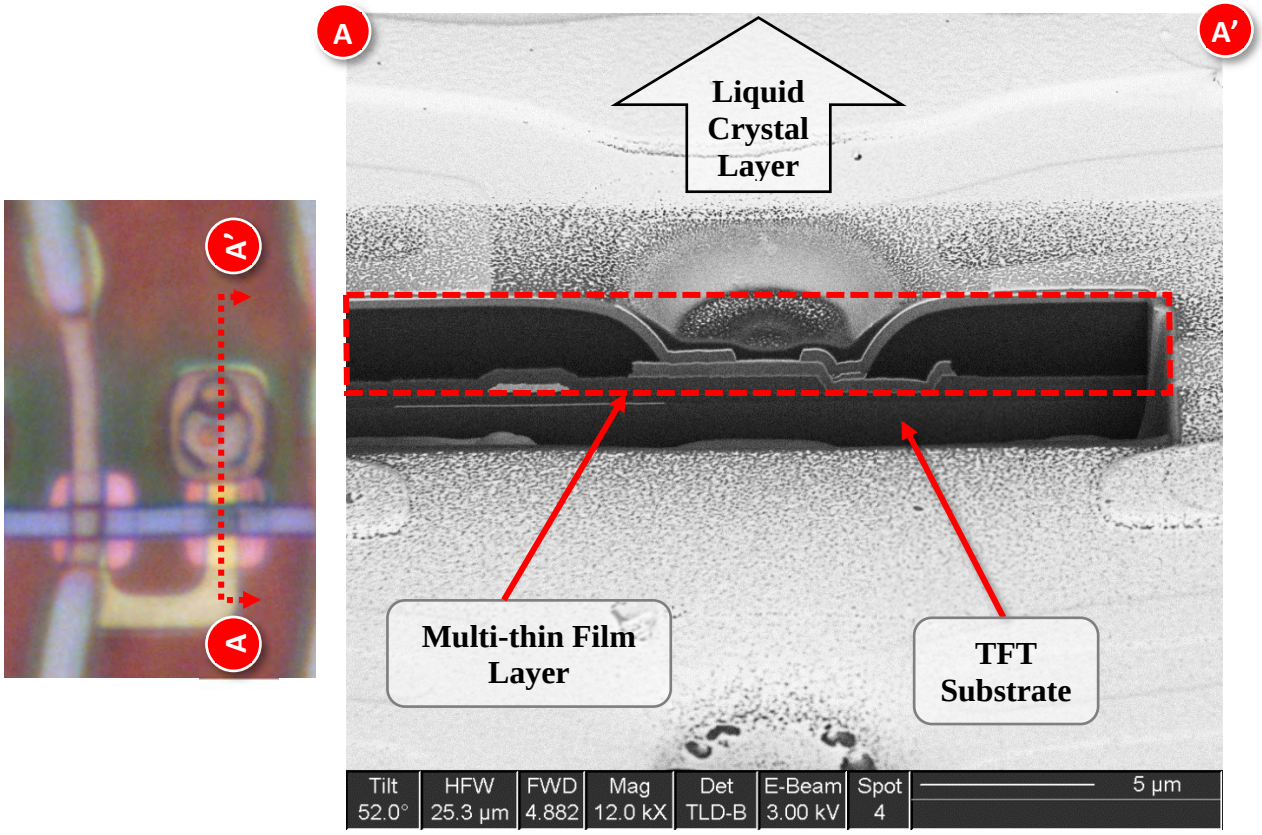
97. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’299 Patent.

98. The TL062FVMC70 has a display device comprising display area and used in a hand-held electronic device comprising: a TFT substrate, a counter substrate, and a liquid crystal layer.



Images from Optical Microscope Analysis of TL062FVMC70

99. The TL062FVMC70 has a multi-thin film layer; wherein the multi-thin film layer disposed on the TFT substrate.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70

100. The TL062FVMC70 has a seal member; wherein the seal member surrounds the liquid crystal layer.

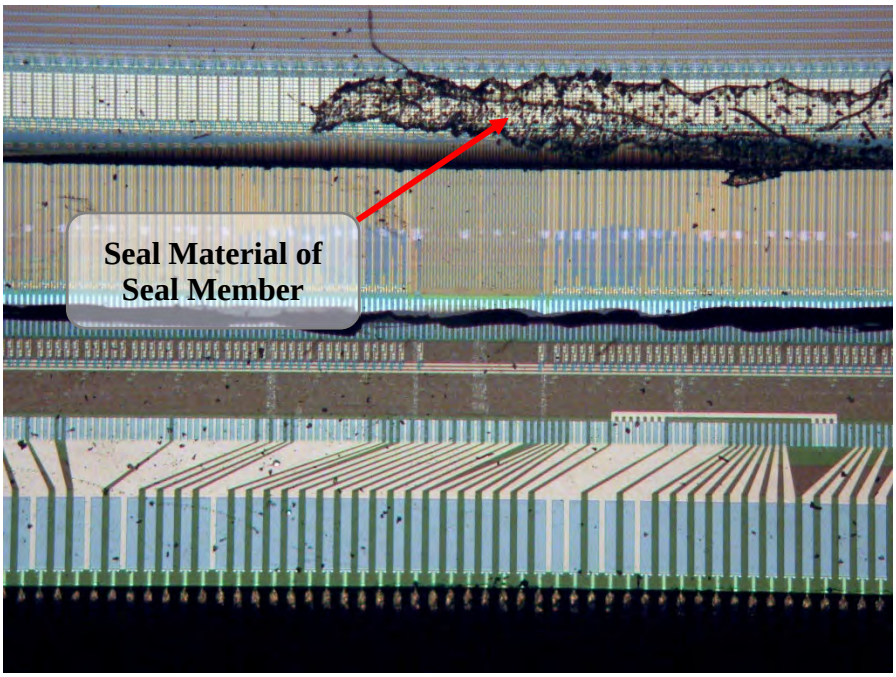
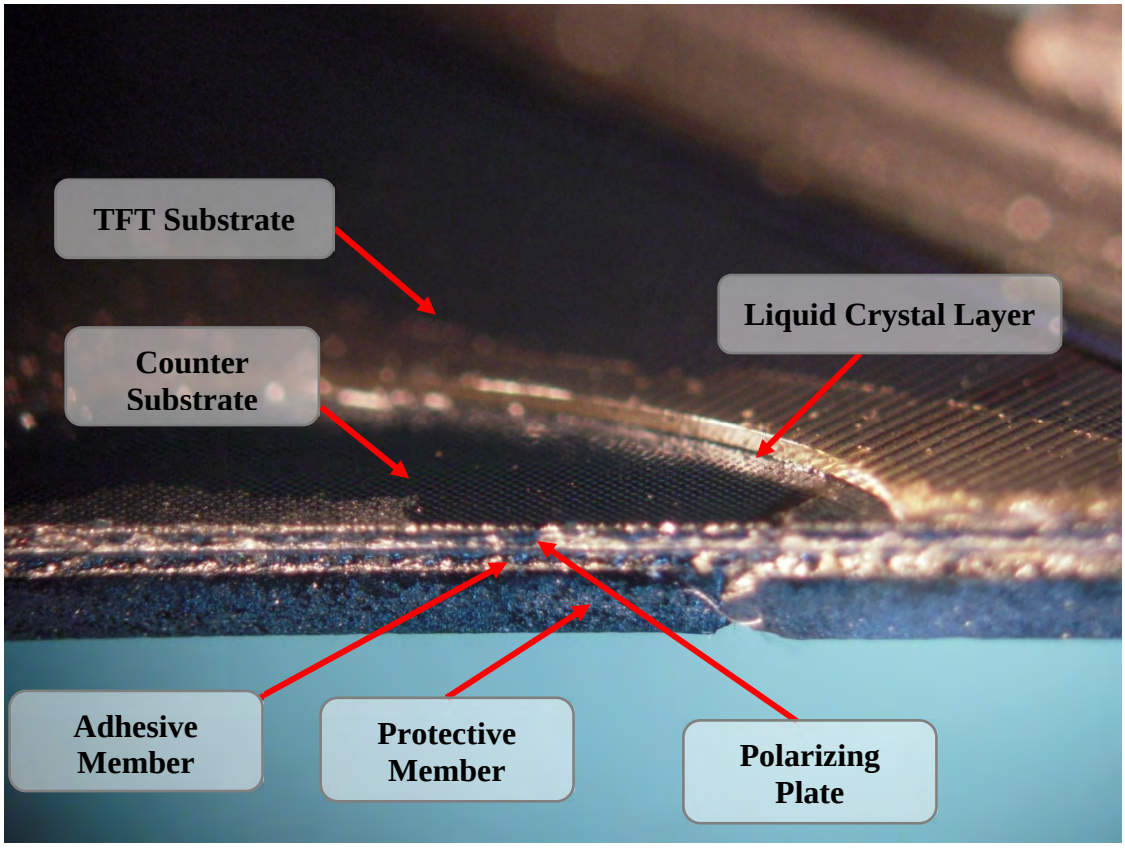


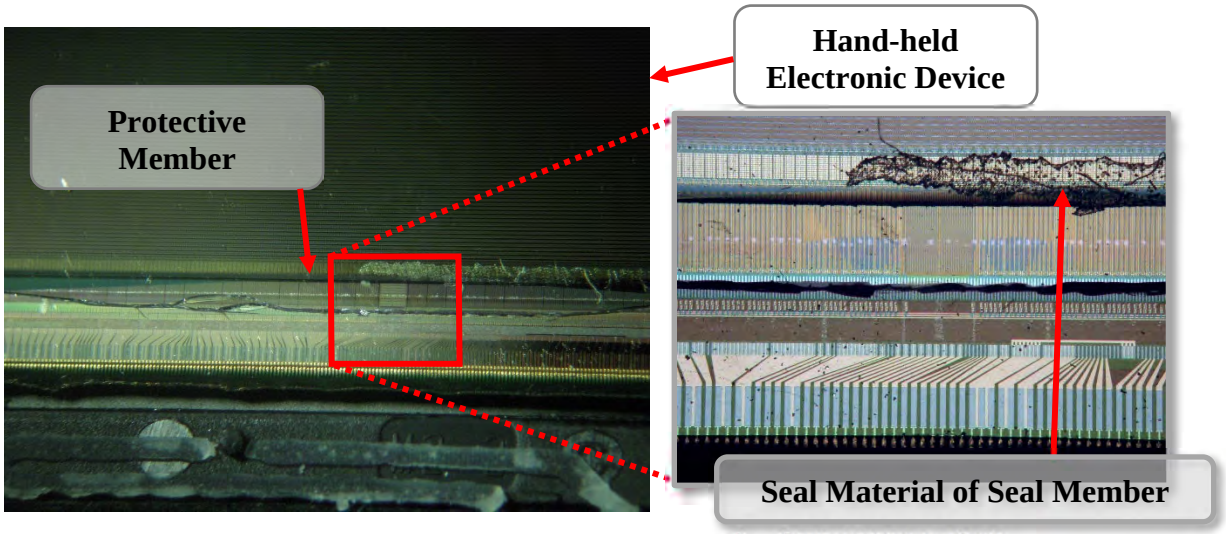
Image from Optical Microscope Analysis of TL062FVMC70

101. The TL062FVMC70 has a polarizing plate, an adhesive member, and a protective member. The counter substrate of the TL062FVMC70 is disposed between the TFT substrate and the polarizing plate. The polarizing plate of the TL062FVMC70 is a separate member from the protective member and disposed between the counter substrate and the protective member; wherein the adhesive member overlaps with the display area in a plan view, and is between the protective member and the polarizing plate.



Images from Scanning Electron Microscope Analysis of TL062FVMC70

102. The protective member of the TL062FVMC70 is a protective cover of the hand-held electronic device; wherein the protective member overlaps with the sealing member in a plan view.



Images from Optical Microscope Analysis of TL062FVMC70

103. The thickness of the protective member in the TL062FVMC70 is at least 0.2 mm and no greater than 1.0 mm based on a measurement of the protective member of the Motorola Moto G7 at 0.55 mm.

104. Upon information and belief, since at least the filing of this complaint when Tianma was on notice of its infringement, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’299 Patent to directly infringe one or more claims of the ’299 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’299 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, inter alia, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories’ standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

105. Upon information and belief, despite having knowledge of the ’299 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’299 Patent,

Tianma has nevertheless continued its infringing conduct. Tianma's infringing activities relative to the '299 Patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Plaintiffs are entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

106. JDI and PLD have been damaged as a result of Tianma's infringing conduct. Tianma is liable to Plaintiffs in an amount that adequately compensates Plaintiffs for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT V

(INFRINGEMENT OF U.S. PATENT NO. 10,018,859)

107. JDI and PLD re-allege and incorporate by reference the allegations in paragraphs 1-106 above.

108. JDI and PLD are the assignees of the '859 Patent. Plaintiffs have all substantial rights to enforce the '859 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

109. The '859 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

110. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the '859 Patent in this District and elsewhere.

111. For example, Tianma directly infringes at least claim 1 of the '859 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including

without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the '859 Patent. Furthermore, Tianma directly infringes the '859 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the '859 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America's infringing acts and receives a direct financial benefit from Tianma America's infringement.

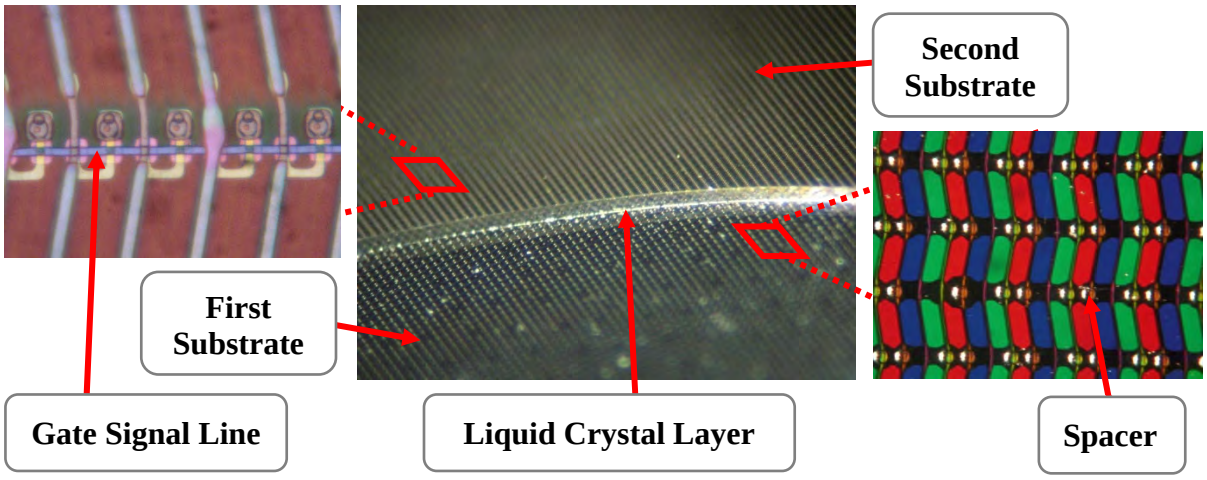
112. Independent claim 1 of the '859 Patent recites:

> 1. A liquid crystal display device comprising:
> a first substrate and a second substrate;
> a seal material between the first substrate and the second substrate;
> a liquid crystal layer between the first substrate and the second substrate;
> a liquid crystal molecule in the liquid crystal layer;
> a spacer formed on an inner surface of the first substrate;
> a gate signal line formed on an inner surface of the second substrate;
> a pixel electrode;
> a reference electrode which causes an electric field controlling the liquid crystal molecule to form between the reference electrode and the pixel electrode;
> an organic material layer disposed between the gate signal line and the reference electrode; and

a layer disposed between the pixel electrode and the reference electrode, wherein
the pixel electrode is made of transparent conductive material,
the reference electrode is made of transparent conductive material,
the spacer overlaps the gate signal line in plane view,
the gate signal line has edges facing each other,
the reference electrode is formed on the gate signal line and covers the edges in plane view,
a non-formation region of the organic material layer is outside a display area in plane view, and
the non-formation region is between formation regions of the organic material layer in plane view, the non-formation region extending in a direction in which the seal material extends.

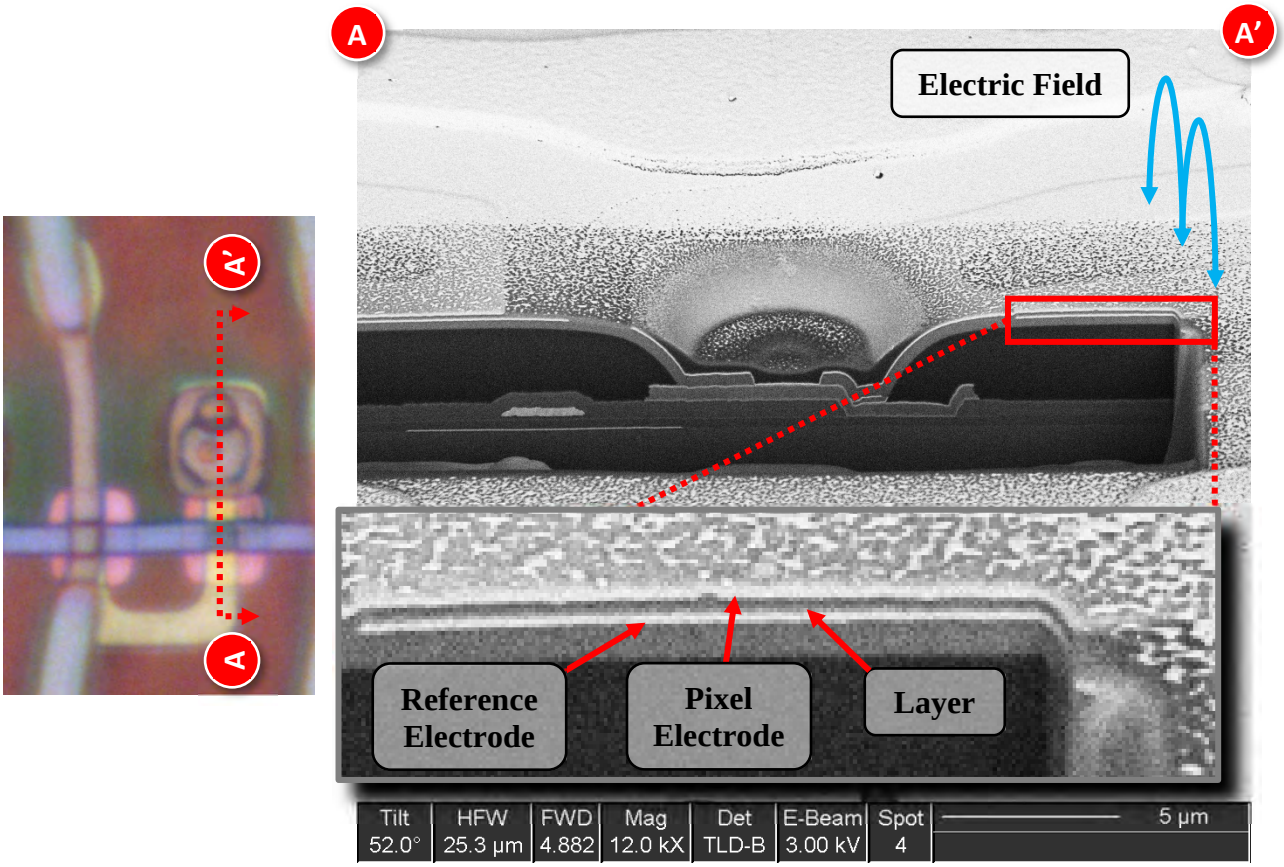
113. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’859 Patent.

114. The TL062FVMC70 is liquid crystal display device comprising a first substrate and a second substrate with a liquid crystal layer in between. The liquid crystal layer includes liquid crystal molecules. The TL062FVMC70 has a spacer formed on an inner surface of the first substrate and a gate signal line formed on an inner surface of the second substrate.



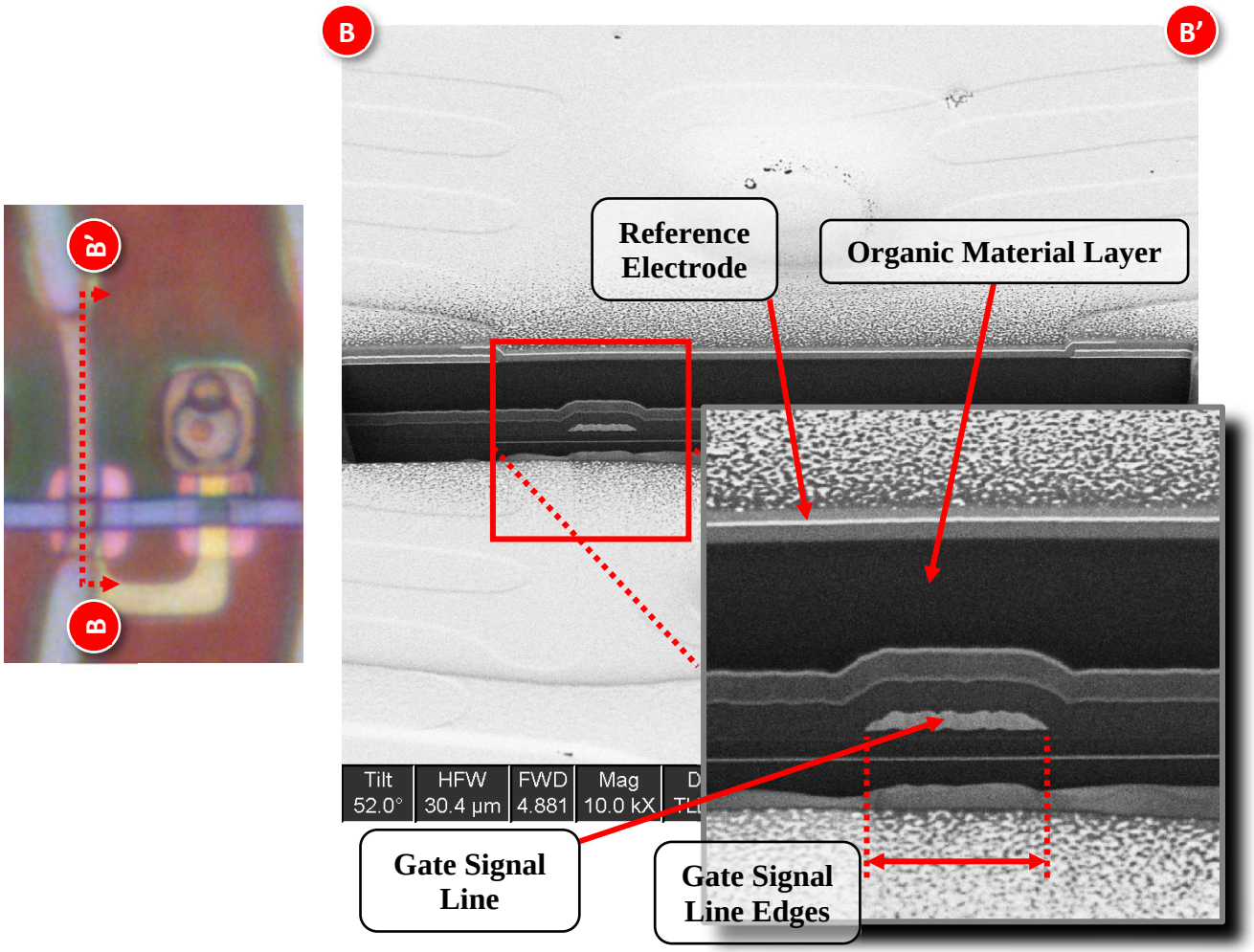
Optical Microscope Images of TL062FVMC70

115. The TL062FVMC70 has a pixel electrode and reference electrode, both made of transparent conductive material (e.g., ITO), with a layer in between. The reference electrode causes an electric field controlling the liquid crystal molecule to form between the reference electrode and the pixel electrode.



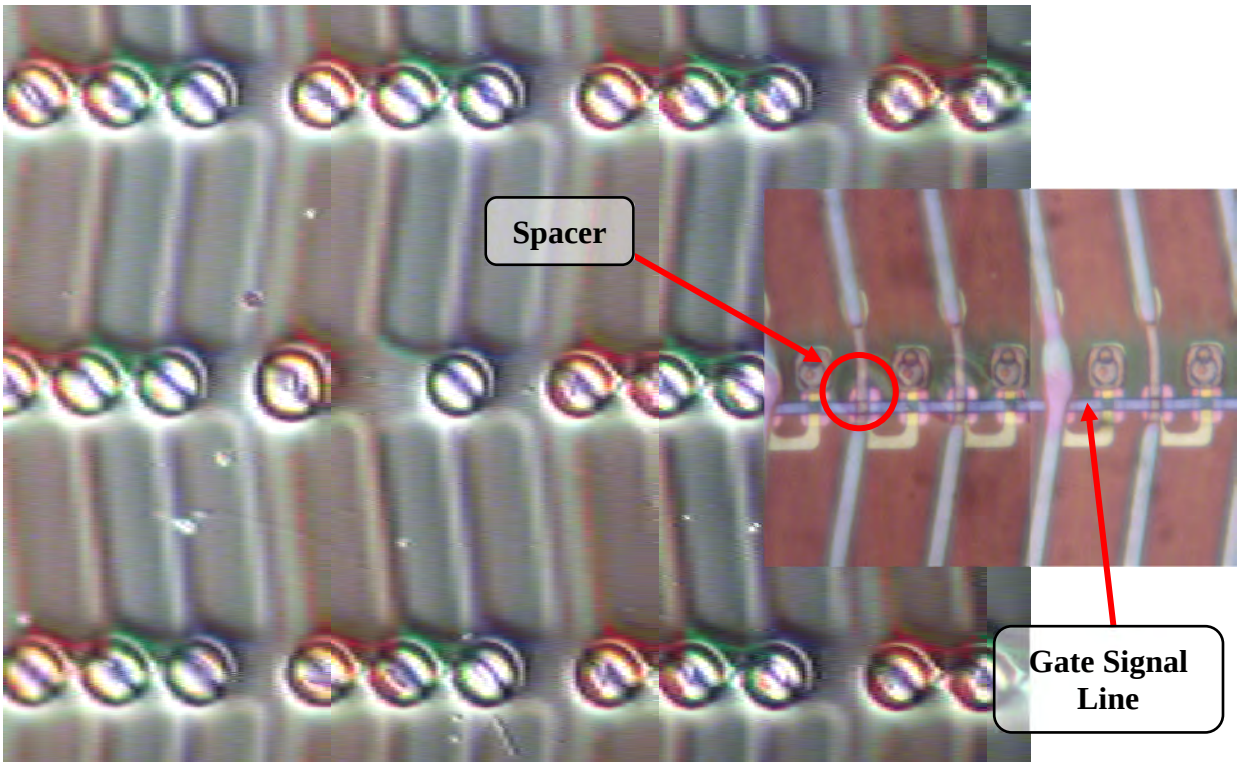
Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70

116. The TL062FVMC70 has an organic material layer in between the gate signal line and the reference electrode. The reference electrode covers the edges of the gate signal line.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70

117. The spacer of the TL062FVMC70 overlaps the gate signal line in plane view.

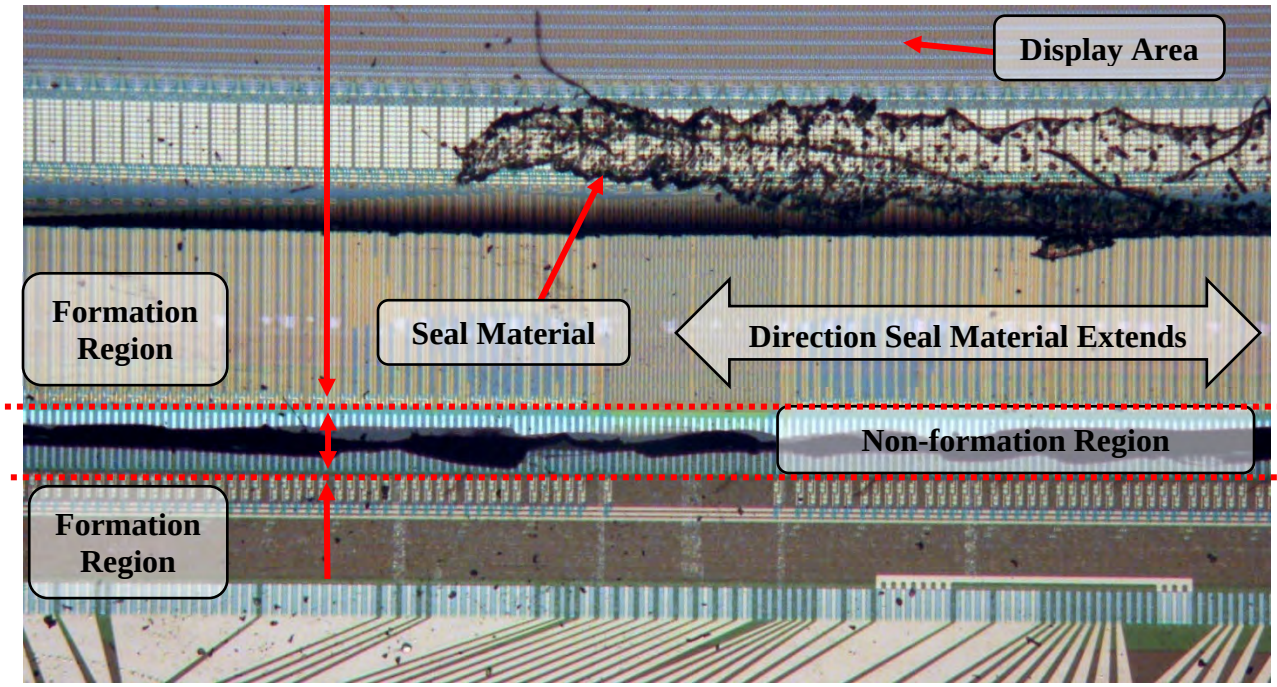


Interference Contrast Microscope Image of Color Filter Substrate of TL062FVMC70 overlaid with Optical Microscope Image of TFT Substrate

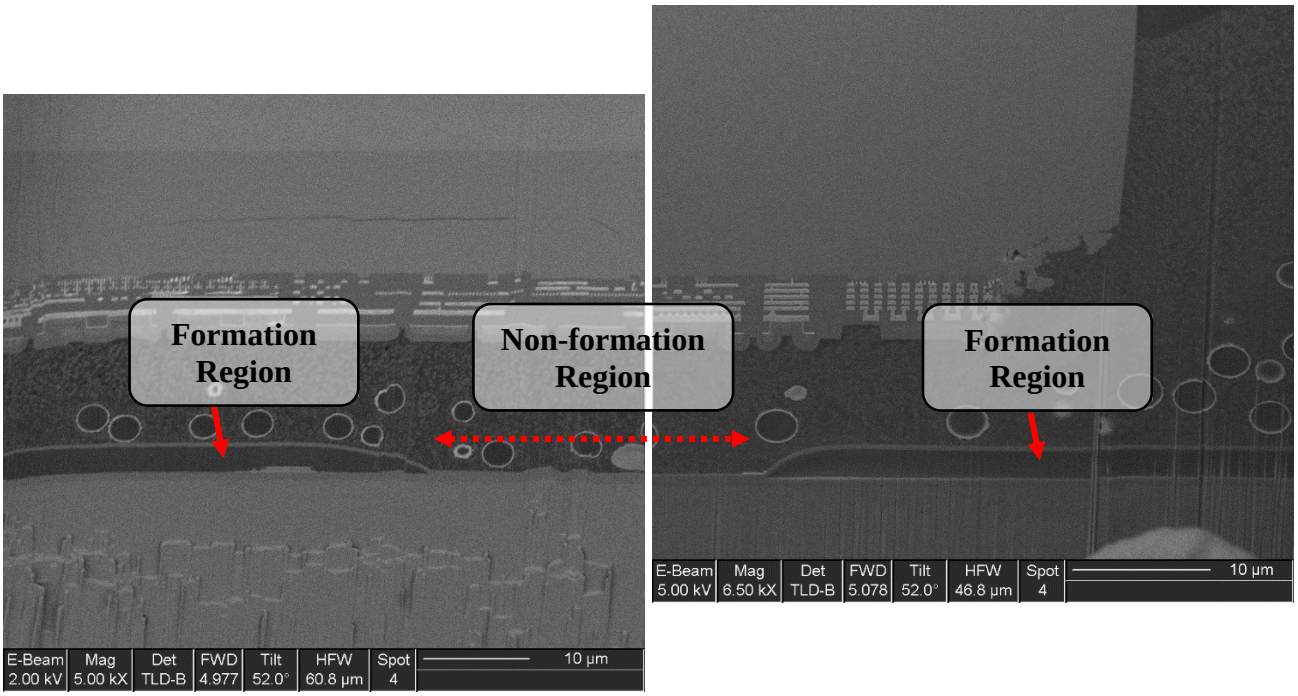
118. The TL062FVMC70 has a seal material between the first substrate and the second substrate. The TL062FVMC70 has a non-formation region of the organic material layer, which is outside a display area, between formation regions of the organic material layer, and extends in a direction in which the seal material extends.

CONTINUATION TO
COMPLAINT FOR PATENT INFRINGEMENT

PART 2



Optical Microscope Image of TL062FVMC70 TFT Substrate



Scanning Electron Microscope Images of TL062FVMC70 TFT Substrate

119. At a minimum, Tianma has known of the ’859 Patent at least as early as the filing date of the complaint.

120. Upon information and belief, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’859 Patent to directly infringe one or more claims of the ’859 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least the filing date of the complaint, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’859 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories’ standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

121. Upon information and belief, despite having knowledge of the ’859 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’859 Patent, Tianma has nevertheless continued its infringing activities. Tianma’s infringing activities relative to the ’859 Patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate,

consciously wrongful, flagrant, and an egregious case of misconduct beyond typical infringement such that Plaintiffs are entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

122. JDI and PLD have been damaged as a result of Tianma's infringing conduct with regard to the '859 Patent. Tianma is liable to Plaintiffs in an amount that adequately compensates Plaintiffs for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VI

(INFRINGEMENT OF U.S. PATENT NO. 8,218,118)

123. JDI and PLD re-allege and incorporate by reference the allegations in paragraphs 1-122 above.

124. JDI is the assignee of the '118 Patent. JDI has all substantial rights to enforce the '118 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

125. The '118 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

126. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the '118 Patent in this District and elsewhere.

127. At a minimum, Tianma has known of the '118 Patent at least as early as the filing date of the complaint.

128. Tianma directly infringes at least claim 1 of the '118 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United

States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TM062JDSC03 incorporated into the Motorola Moto G7 Power smartphone. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the '118 Patent. Furthermore, Tianma directly infringes the '118 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the '118 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America's infringing acts and receives a direct financial benefit from Tianma America's infringement.

129. Independent claim 1 of the '118 Patent recites:

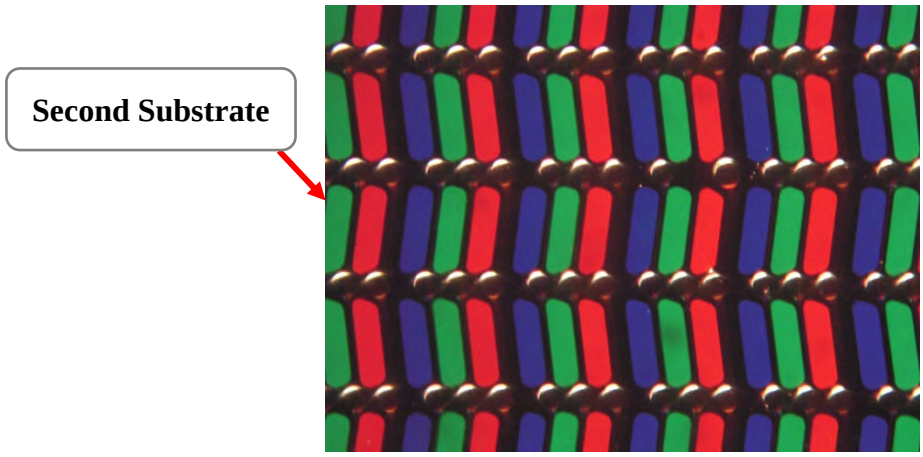
> 1. A liquid crystal display comprising:
> a first substrate and a second substrate opposed to each other with liquid crystal therebetween, the first substrate having a plurality of drain signal lines and a plurality of gate signal lines; and
> a plurality of pixel regions defined by the drain signal lines and the gate signal lines;
> the pixel region having:
> a first electrode formed of a transparent conducting layer having a plurality of slits;
> a second electrode formed of a transparent conducting layer without slits; and
> an insulating layer interposed between the first electrode and the second electrode;

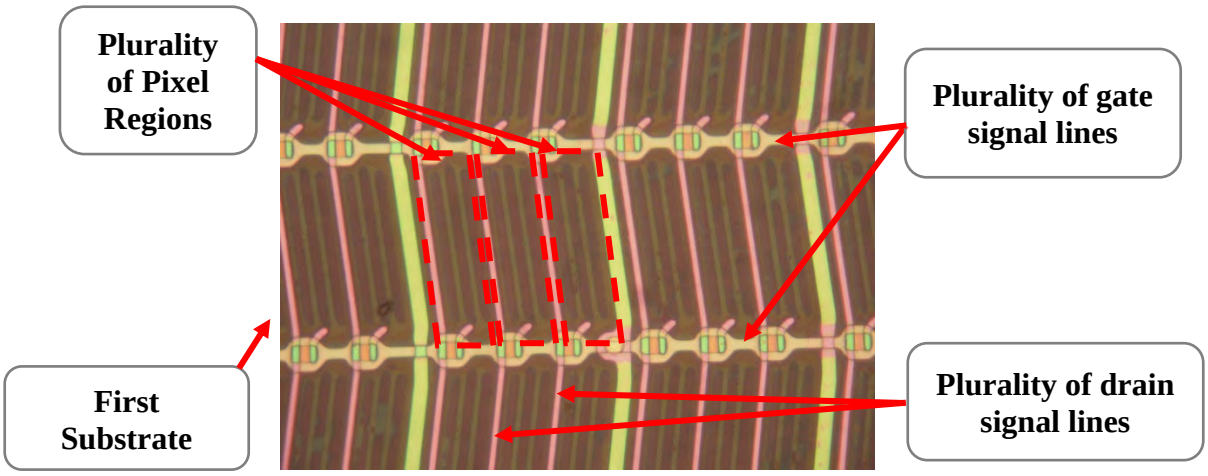
wherein the second electrode is overlapped with a plurality of the slits of the first electrode in the pixel region, the first electrode is overlapped with the drain signal line and the gate signal line; and

wherein at least one of the first electrode and the second electrode is formed between the first substrate and the liquid crystal layer in the pixel region.

130. The TFT LCD panel model number TM062JDSC03, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 Power smartphone infringes at least claim 1 of the ’118 Patent.

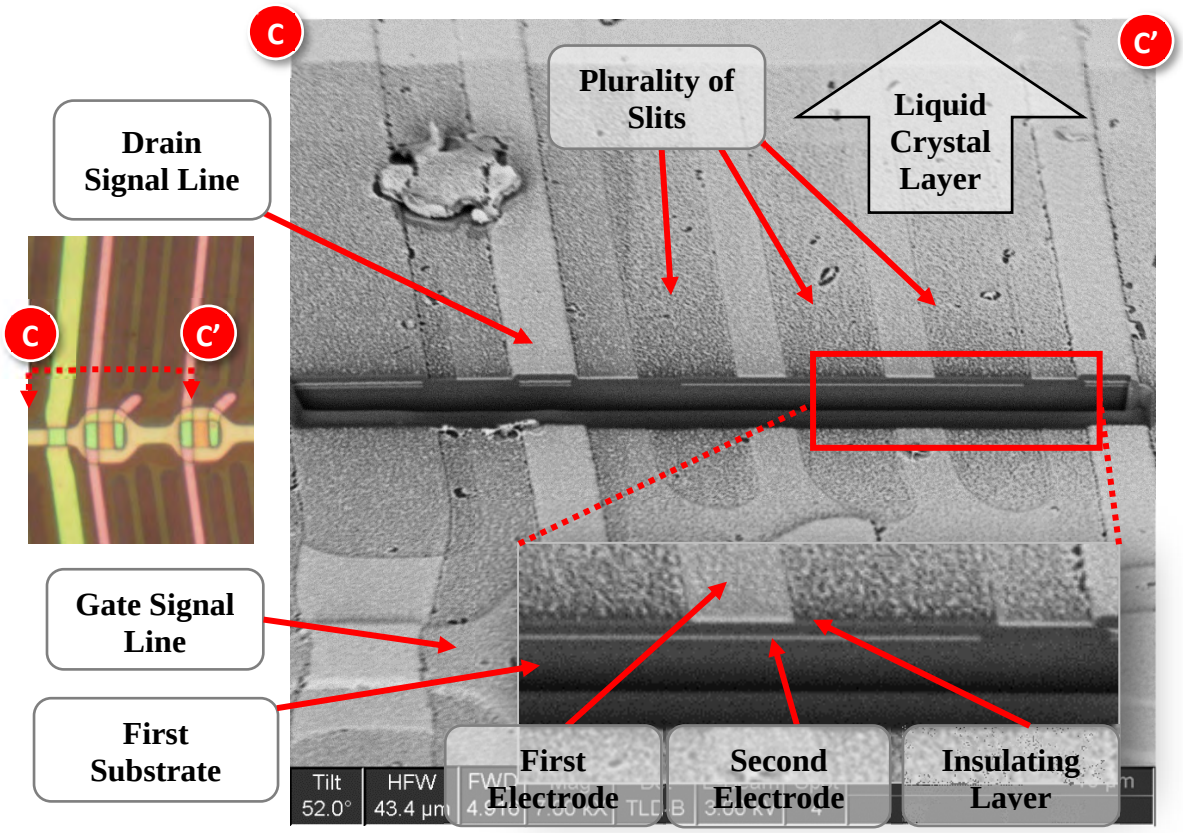
131. The TM062JDSC03 has a first substrate and a second substrate opposed to each other with liquid crystal therebetween, the first substrate having a plurality of drain signal lines and a plurality of gate signal lines; and a plurality of pixel regions defined by the drain signal lines and the gate signal lines.





Images from Optical Microscope Analysis of TM062JDSC03

132. The pixel region of the TM062JDSC03 has a first electrode formed of a transparent conducting layer having a plurality of slits; a second electrode formed of a transparent conducting layer without slits; and an insulating layer interposed between the first electrode and the second electrode; wherein the second electrode is overlapped with a plurality of the slits of the first electrode in the pixel region, the first electrode is overlapped with the drain signal line and the gate signal line; and wherein at least one of the first electrode and the second electrode is formed between the first substrate and the liquid crystal layer in the pixel region.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TM062JDSC03

133. Upon information and belief, since at least the filing of this complaint, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the '118 Patent to directly infringe one or more claims of the '118 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least June 17, 2015, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '118 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products

that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories' standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

134. Upon information and belief, despite having knowledge of the '118 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '118 Patent, Tianma has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Tianma's infringing activities relative to the '118 Patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Plaintiffs are entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

135. JDI and PLD have been damaged as a result of Tianma's infringing conduct. Tianma is liable to Plaintiffs in an amount that adequately compensates Plaintiffs for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VII

(INFRINGEMENT OF U.S. PATENT NO. 10,423,034)

136. JDI and PLD re-allege and incorporate by reference the allegations in paragraphs 1-135 above.

137. JDI and PLD are the assignees of the ’034 Patent. Plaintiffs have all substantial rights to enforce the ’034 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

138. The ’034 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

139. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the ’034 Patent in this District and elsewhere.

140. For example, Tianma directly infringes at least claim 1 of the ’034 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’034 Patent. Furthermore, Tianma directly infringes the ’034 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale

the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’034 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

141. Independent claim 1 of the ’034 Patent recites:

> 1. A liquid crystal display device comprising:
> a first substrate;
> a second substrate;
> liquid crystal enclosed between the first substrate and the second substrate;
> a scanning line formed between the first substrate and the liquid crystal;
> a drain line crossing the scanning line;
> a thin film transistor having a semiconductor layer and a source electrode,
> a first insulation film above the semiconductor layer and having a first contact hole and a second contact hole, the semiconductor layer being connected to the drain line via the first contact hole and connected to the source electrode via the second contact hole;
> an organic film above the source electrode;
> a second insulation film;
> a common electrode between the organic film and the second insulation film;
> a first pixel electrode above the second insulation film and connected to the source electrode via a third contact hole formed in the second insulation film;
> a second pixel electrode adjacent to the first pixel electrode; and
> a spacer disposed between the first substrate and the second substrate,
> wherein the scanning line has a first side and a second side opposite to the first side in the plan view, the first pixel electrode is located on the first side and the second pixel electrode is located on the second side,
> wherein the semiconductor layer overlapped with the scanning line at a first channel region and a second channel region, and a part of the semiconductor layer between the first

channel region and the second channel region is located on the second side of the scanning line,

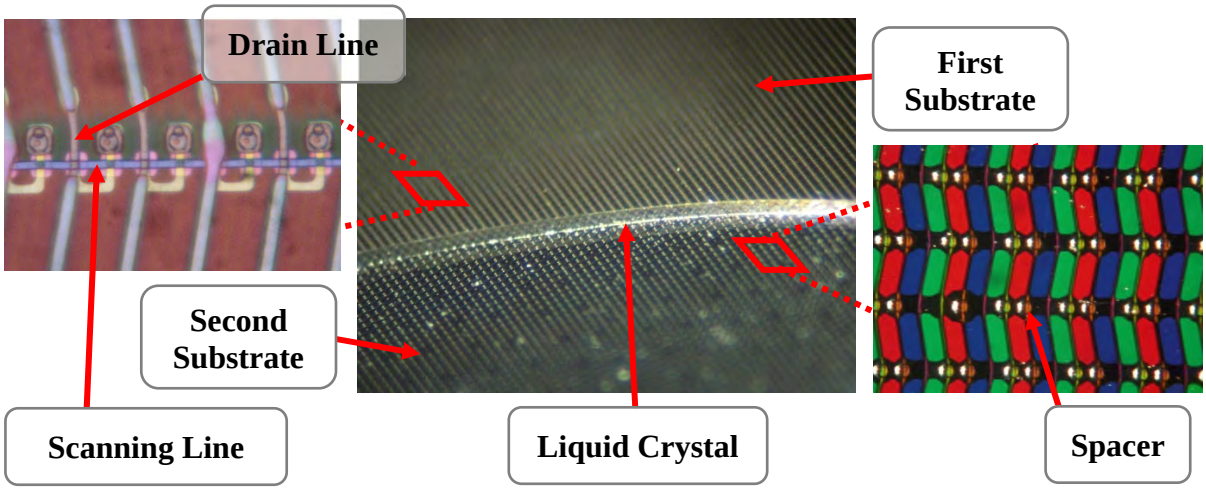
wherein the spacer is overlapped with the semiconductor layer, the drain line, the organic film, and the common electrode,

wherein the first contact hole, the second contact hole, and the third contact hole are located on the first side of the scanning line, and

wherein the part of the semiconductor layer between the first channel region and the second channel region is overlapped with the second pixel electrode.

142. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’034 Patent.

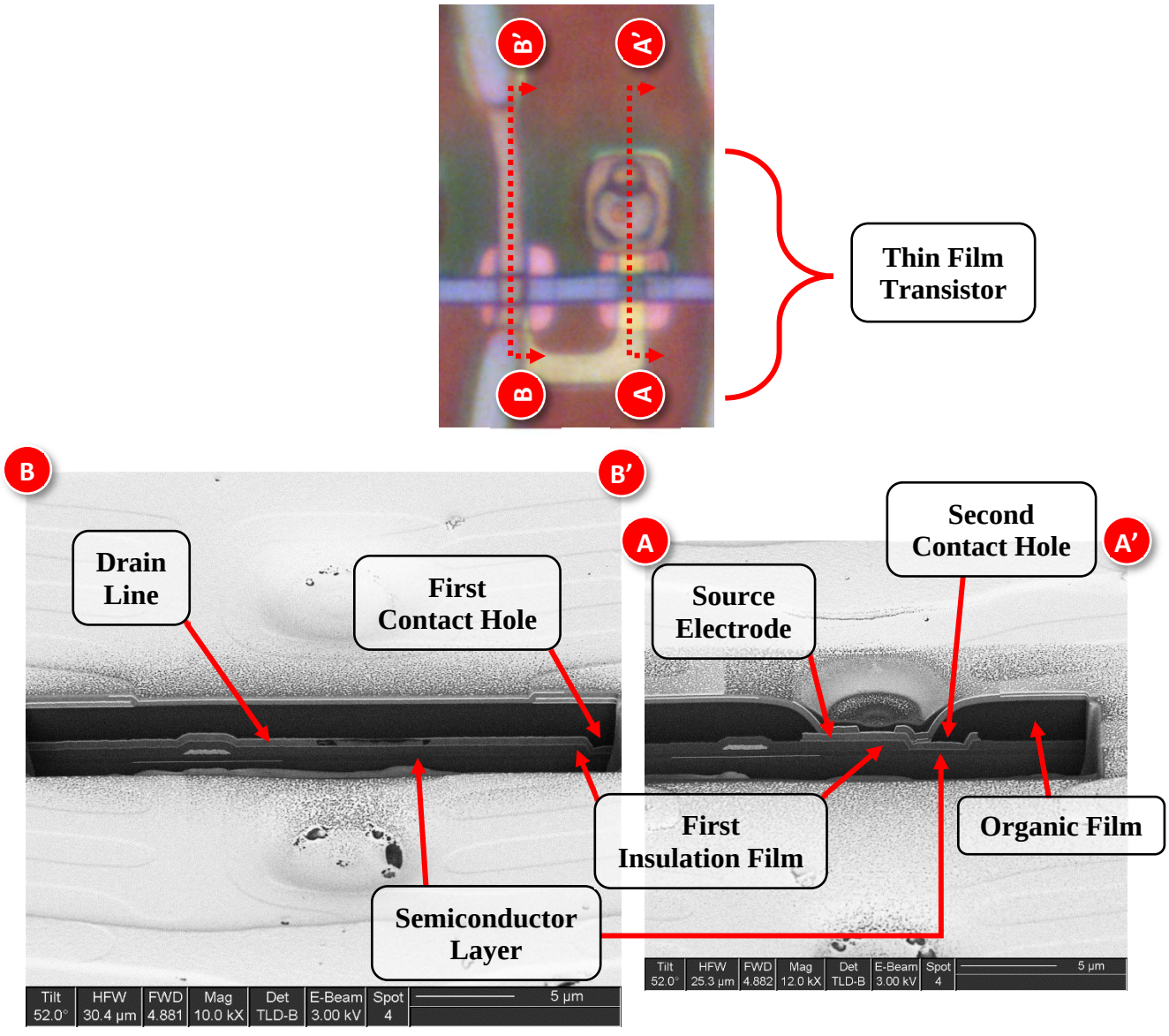
143. The TL062FVMC70 is liquid crystal display device comprising a first substrate and a second substrate with a liquid crystal and a spacer in between. The TL062FVMC70 has a scanning line formed between the first substrate and the liquid crystal, and a drain line crossing the scanning line.



Optical Microscope Images of TL062FVMC70

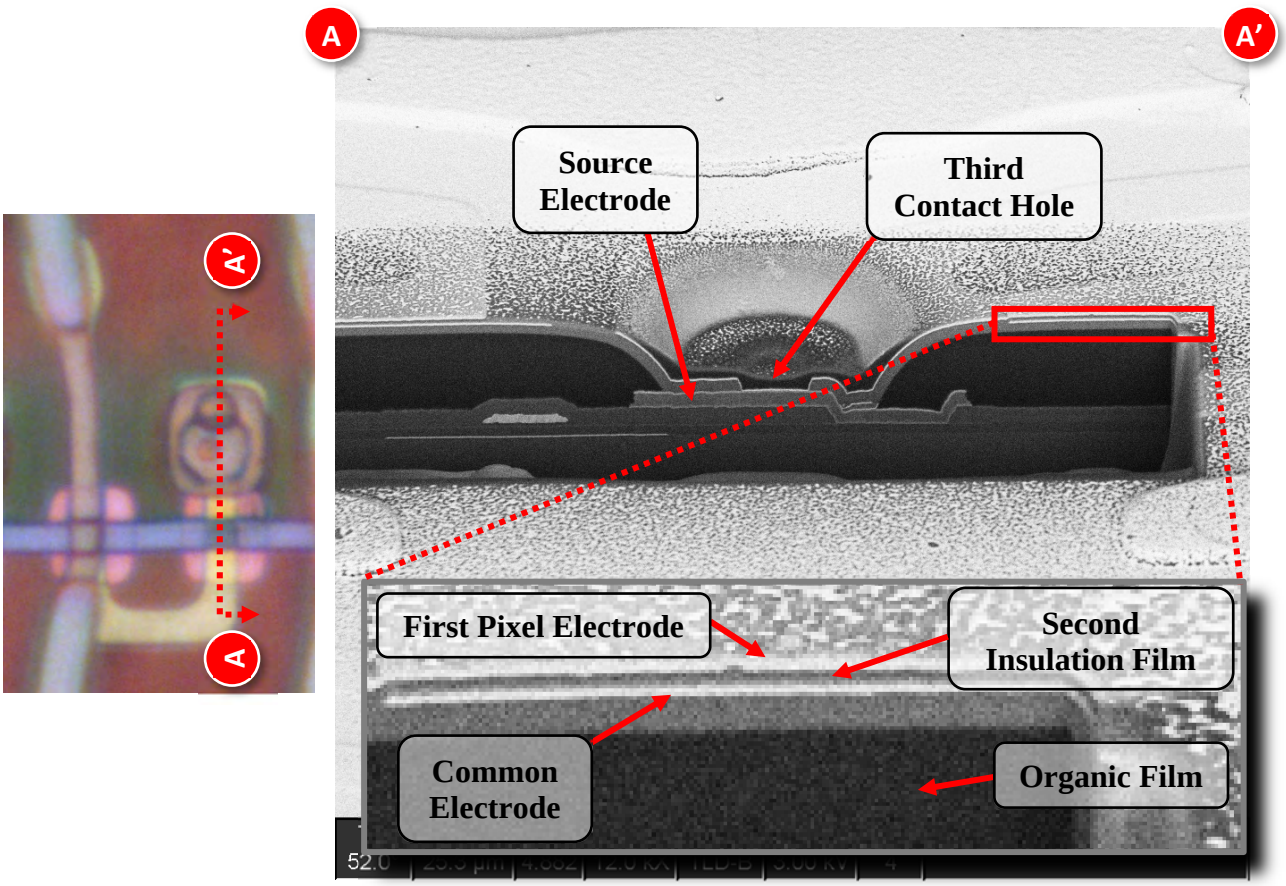
144. The TL062FVMC70 has a thin film transistor with a first insulation film above a semiconductor layer. The drain line is connected to the semiconductor layer via a first contact hole

in the first insulation film. A source electrode is connected to the semiconductor layer via a second contact hole in the first insulation film. The TL062FVMC70 has an organic film above the source electrode.



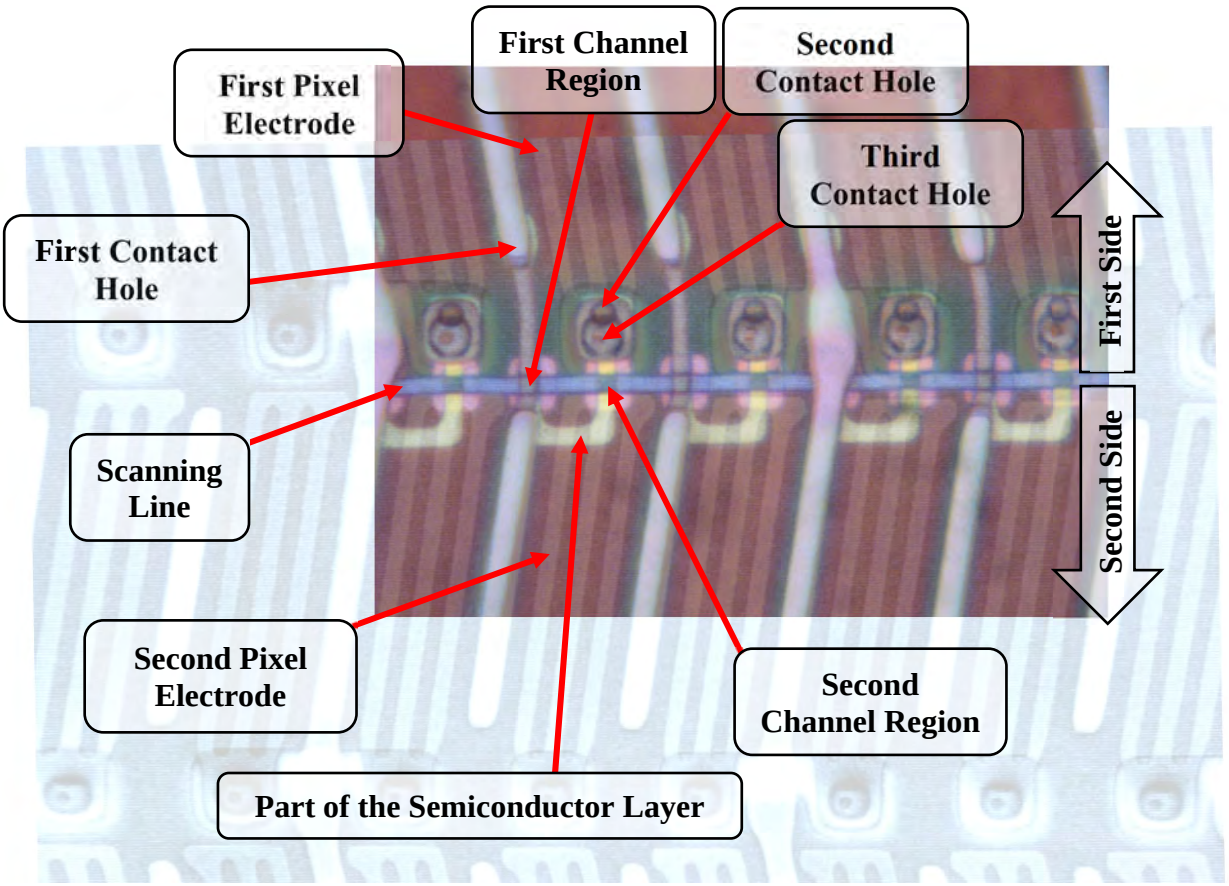
Optical Microscope Image (top) and Scanning Electron Microscope Analysis (bottom two) of TL062FVMC70

145. The TL062FVMC70 has a first pixel electrode above a second insulation film and a common electrode between the organic film and the second insulation film. The source electrode is connected to the pixel electrode via a third contact hole formed in the second insulation film.



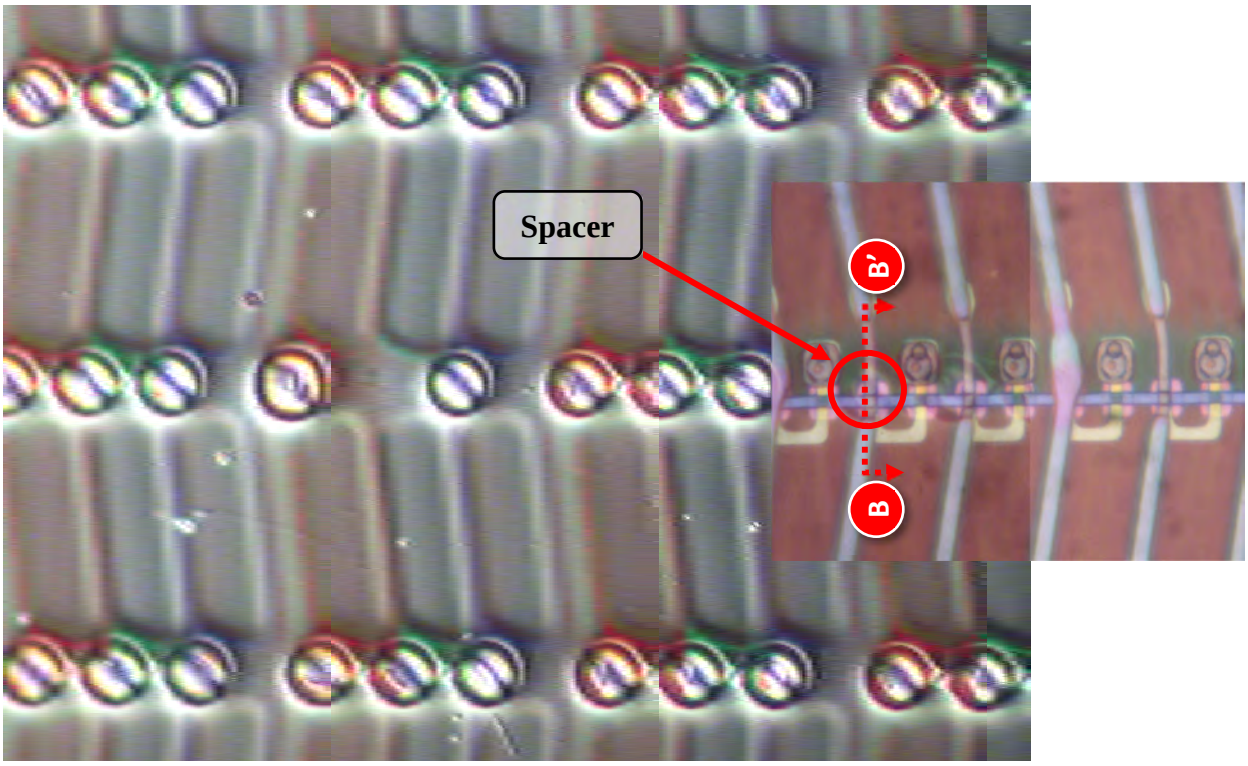
Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70

146. The scanning line of the TL062FVMC70 has a first side where a first pixel electrode, and first, second, and third contact holes are located; and a second side opposite to the first side where a second pixel electrode is located. The semiconductor layer of the TL062FVMC70 is overlapped with the scanning line at a first channel region and a second channel region, and a part of the semiconductor layer between the first channel region and the second channel region is located on the second side of the scanning line and overlapped with the second pixel electrode.

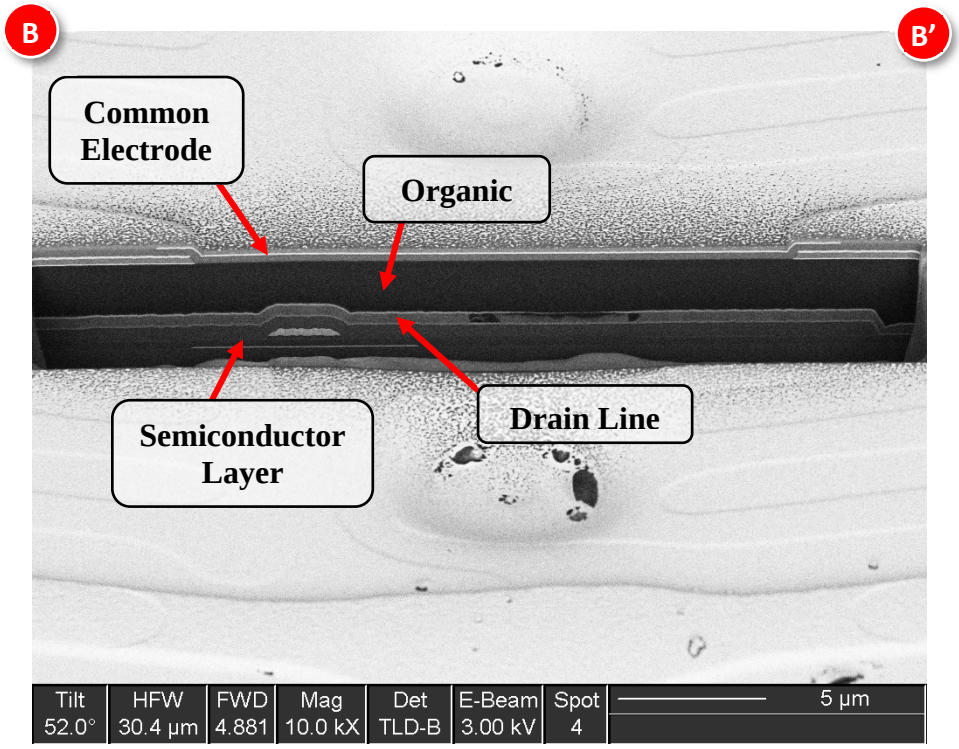


Optical Microscope Image of TL062FVMC70 overlaid with Scanning Electron Microscope Image

147. The spacer of the TL062FVMC70 is overlapped with the semiconductor layer, the drain line, the organic film, and the common electrode.



Interference Contrast Microscope Image of Color Filter Substrate of TL062FVMC70 overlaid with Optical Microscope Image of TFT Substrate



Scanning Electron Microscope Image of TL062FVMC70

148. At a minimum, Tianma has known of the ’034 Patent at least as early as the filing date of the complaint.

149. Upon information and belief, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’034 Patent to directly infringe one or more claims of the ’034 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least the filing date of the complaint, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’034 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories’ standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

150. Upon information and belief, despite having knowledge of the ’034 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’034 Patent, Tianma has nevertheless continued its infringing activities. Tianma’s infringing activities relative to the ’034 Patent have been, and continue to be, willful and deliberate misconduct beyond typical

infringement such that Plaintiffs are entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

151. JDI and PLD have been damaged as a result of Tianma's infringing conduct with regard to the '034 Patent. Tianma is liable to Plaintiffs in an amount that adequately compensates Plaintiffs for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VIII

(INFRINGEMENT OF U.S. PATENT NO. 10,330,989)

152. JDI and PLD re-allege and incorporate by reference the allegations in paragraphs 1-151 above.

153. JDI and PLD are the assignees of the '989 Patent. Plaintiffs have all substantial rights to enforce the '989 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

154. The '989 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

155. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the '989 Patent in this District and elsewhere.

156. For example, Tianma directly infringes at least claim 1 of the '989 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL079QDXP02 incorporated into the Asus ZenPad S 8.0 tablet. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States,

delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’989 Patent. Furthermore, Tianma directly infringes the ’989 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’989 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

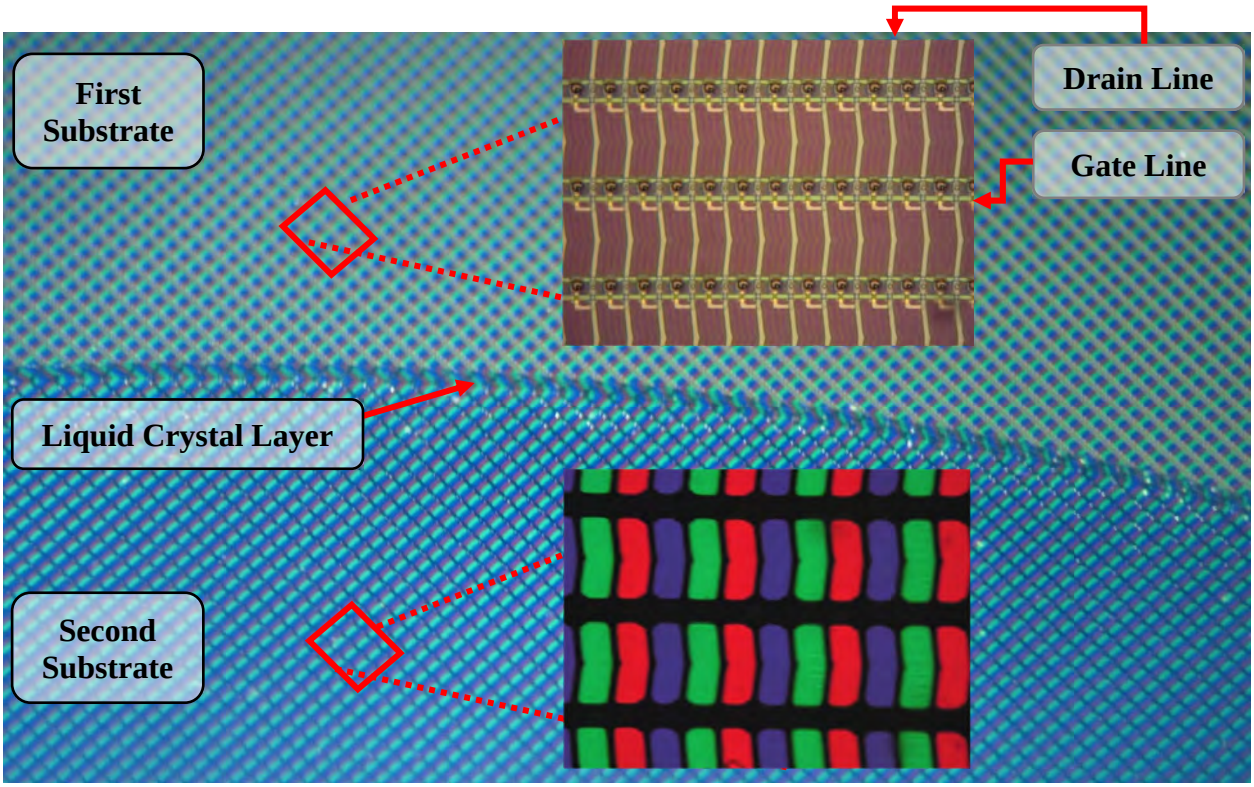
157. Independent claim 1 of the ’989 Patent recites:

> 1. A liquid crystal display device, comprising:
> a first substrate;
> a second substrate;
> a liquid crystal layer between the first substrate and the second substrate, containing liquid crystal molecules;
> a gate line and a drain line;
> a pixel electrode and a counter electrode disposed between the first substrate and the liquid crystal layer;
> a gate insulation layer formed on the gate line; and
> an organic insulation layer disposed between the first substrate and the liquid crystal layer,
> wherein the liquid crystal layer is driven by an electric field generated between the pixel electrode and the counter electrode,
> wherein the pixel electrode is formed between the liquid crystal layer and the organic insulation layer,
> wherein the counter electrode is a planer shape, and the pixel electrode comprises a slit having a first portion, and the first portion is not parallel with the gate line and the drain line,
> wherein the counter electrode is connected to a common layer,

wherein the organic insulation layer is formed between the counter electrode and the first substrate, and
wherein the counter electrode is connected to the common layer via a through hole within the organic insulation layer.

158. The TFT LCD panel model number TL079QDXP02, designed, manufactured, and sold by Tianma and incorporated in the Asus ZenPad S 8.0 tablet infringes at least claim 1 of the '989 Patent.

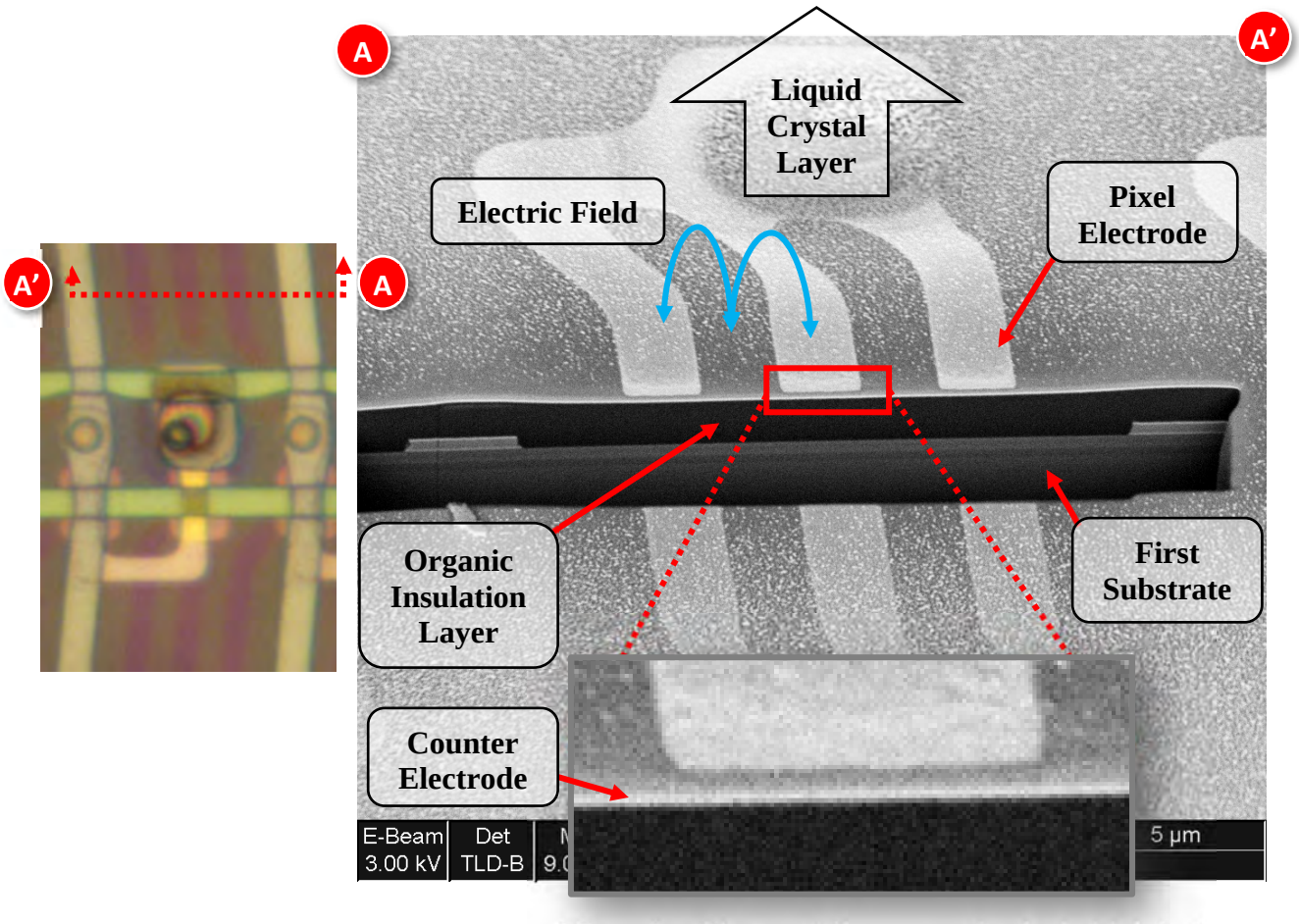
159. The TL079QDXP02 is a liquid crystal display device comprising a first substrate, and a second substrate with a liquid crystal layer containing liquid crystal molecules in between the two substrates. The TL079QDXP02 has a gate line and a drain line.



Optical Microscope Images of TL079QDXP02

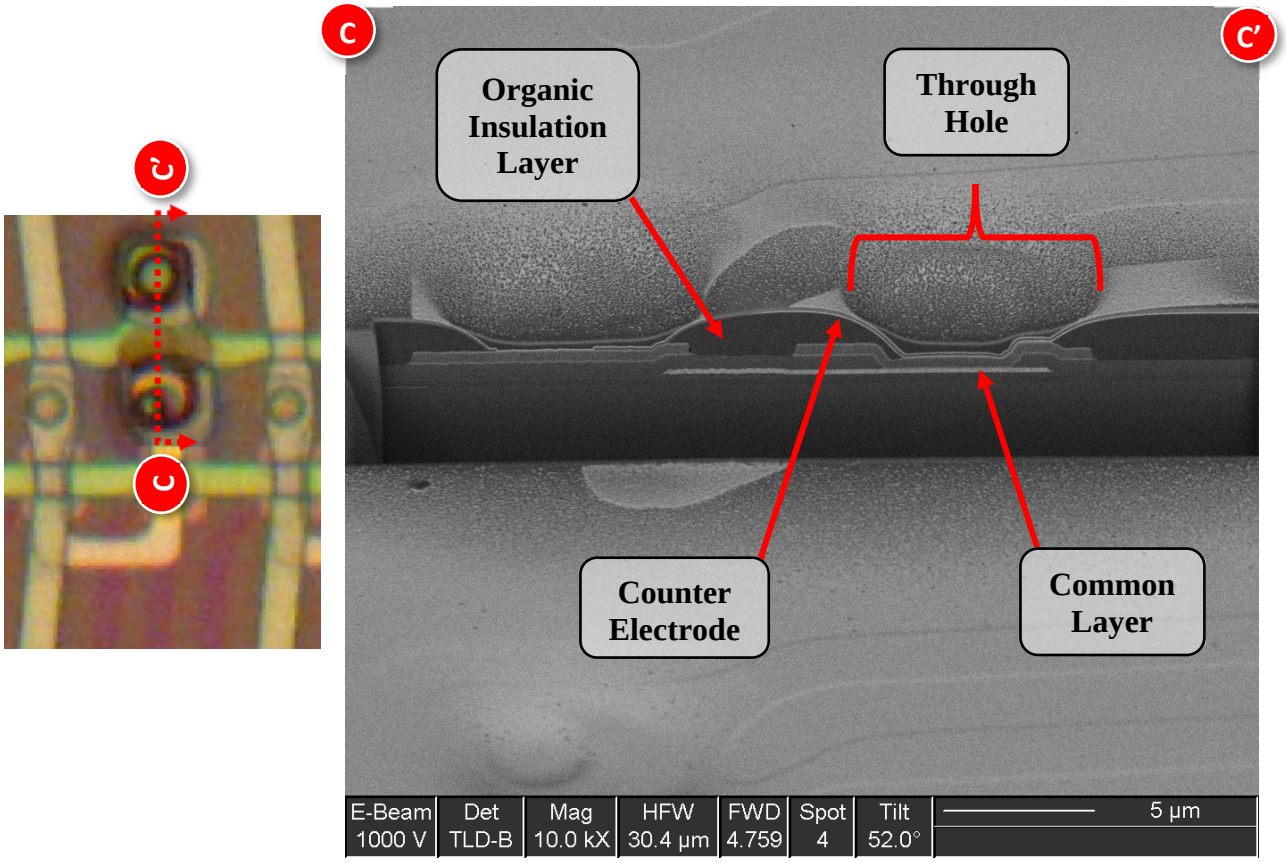
160. The TL079QDXP02 has a planar-shaped counter electrode formed between the first substrate and the liquid crystal layer and an organic insulation layer formed between the counter

electrode and the first substrate. The TL079QDXP02 has a pixel electrode formed between the liquid crystal layer and the organic insulation layer. The liquid crystal layer is driven by an electric field generated between the pixel electrode and the counter electrode.



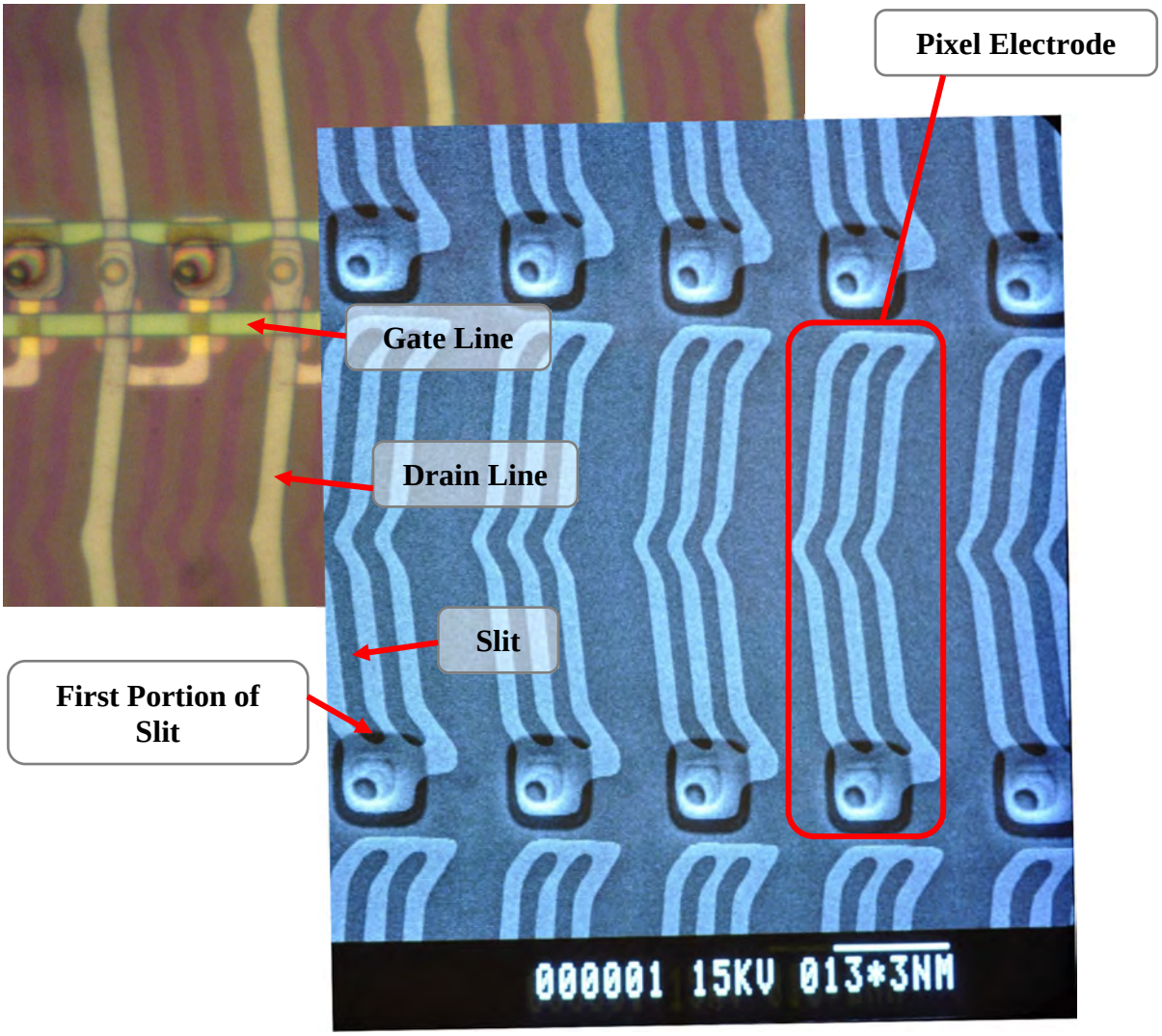
Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL079QDXP02

161. The counter electrode of the TL079QDXP02 is connected to a common layer via a through hole within the organic insulation layer.



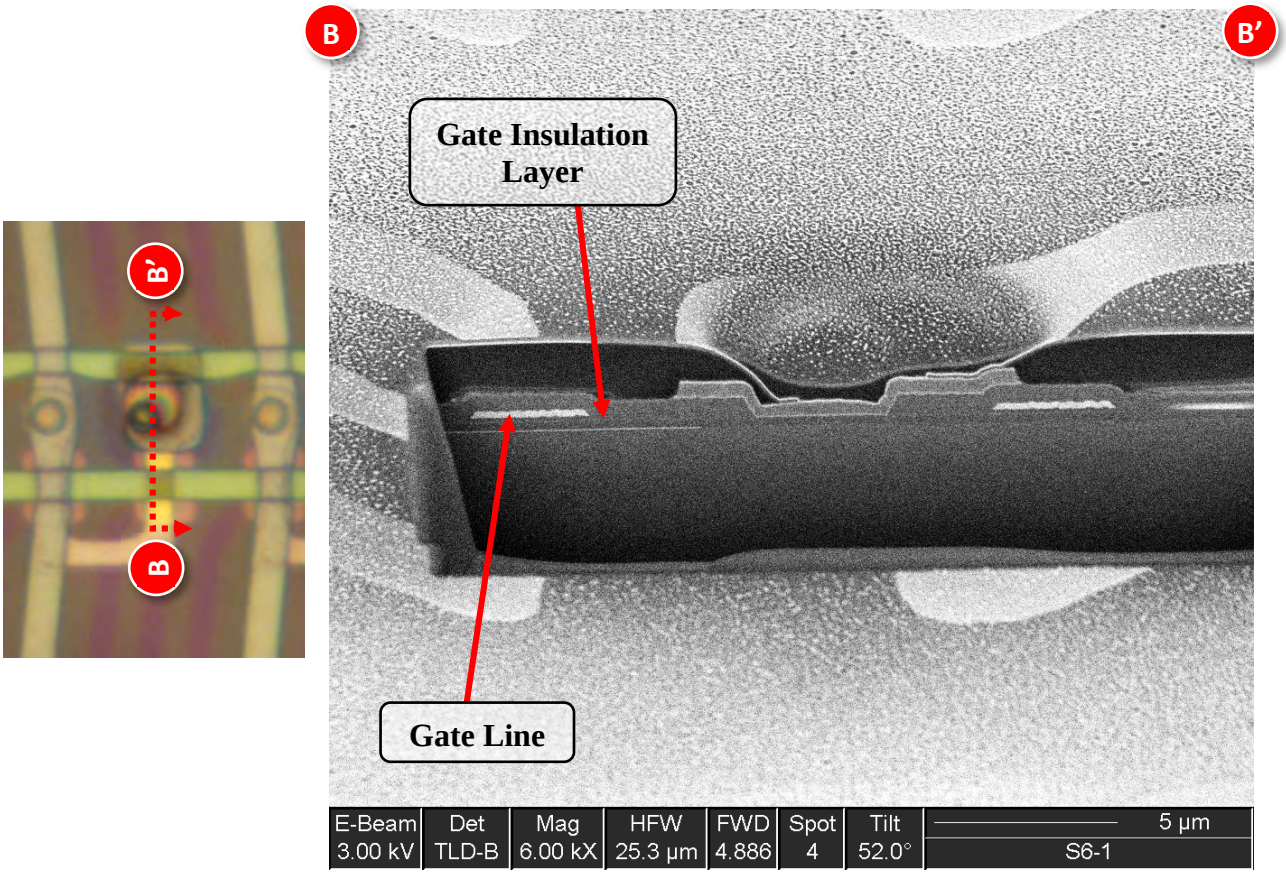
Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL079QDXP02

162. The pixel electrode of the TL079QDXP02 comprises a slit having a first portion, and the first portion is not parallel with the gate line and the drain line.



Optical Microscope Image of TL079QDXP02 overlaid with Scanning Electron Microscope Image

163. A gate insulation layer is formed on the gate line of the TL079QDXP02.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL079QDXP02

164. At a minimum, Tianma has known of the ’989 Patent at least as early as the filing date of the complaint.

165. Upon information and belief, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’989 Patent to directly infringe one or more claims of the ’989 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least the filing date of the complaint, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’989 Patent. Upon information and belief, Tianma intends to cause, and has

taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories' standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

166. Upon information and belief, despite having knowledge of the '989 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '989 Patent, Tianma has nevertheless continued its infringing conduct. Tianma's infringing activities relative to the '989 Patent have been, and continue to be, willful and deliberate misconduct beyond typical infringement such that Plaintiffs are entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

167. JDI and PLD have been damaged as a result of Tianma's infringing conduct with regard to the '989 Patent. Tianma is liable to Plaintiffs in an amount that adequately compensates Plaintiffs for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT IX

(INFRINGEMENT OF U.S. PATENT NO. 7,936,429)

168. JDI and PLD re-alleges and incorporate by reference the allegations in paragraphs 1-167 above.

169. JDI and PLD are the assignees of the ’429 Patent. Plaintiffs have all substantial rights to enforce the ’429 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

170. The ’429 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

171. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the ’429 Patent in this District and elsewhere.

172. At a minimum, Tianma has known of the ’429 Patent at least as early as the filing date of the complaint. In addition, Tianma has known of the ’429 patent since June 17, 2015, when JDI sent Tianma detailed claim charts demonstrating infringement of several products.

173. Tianma directly infringes at least claim 1 of the ’429 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are

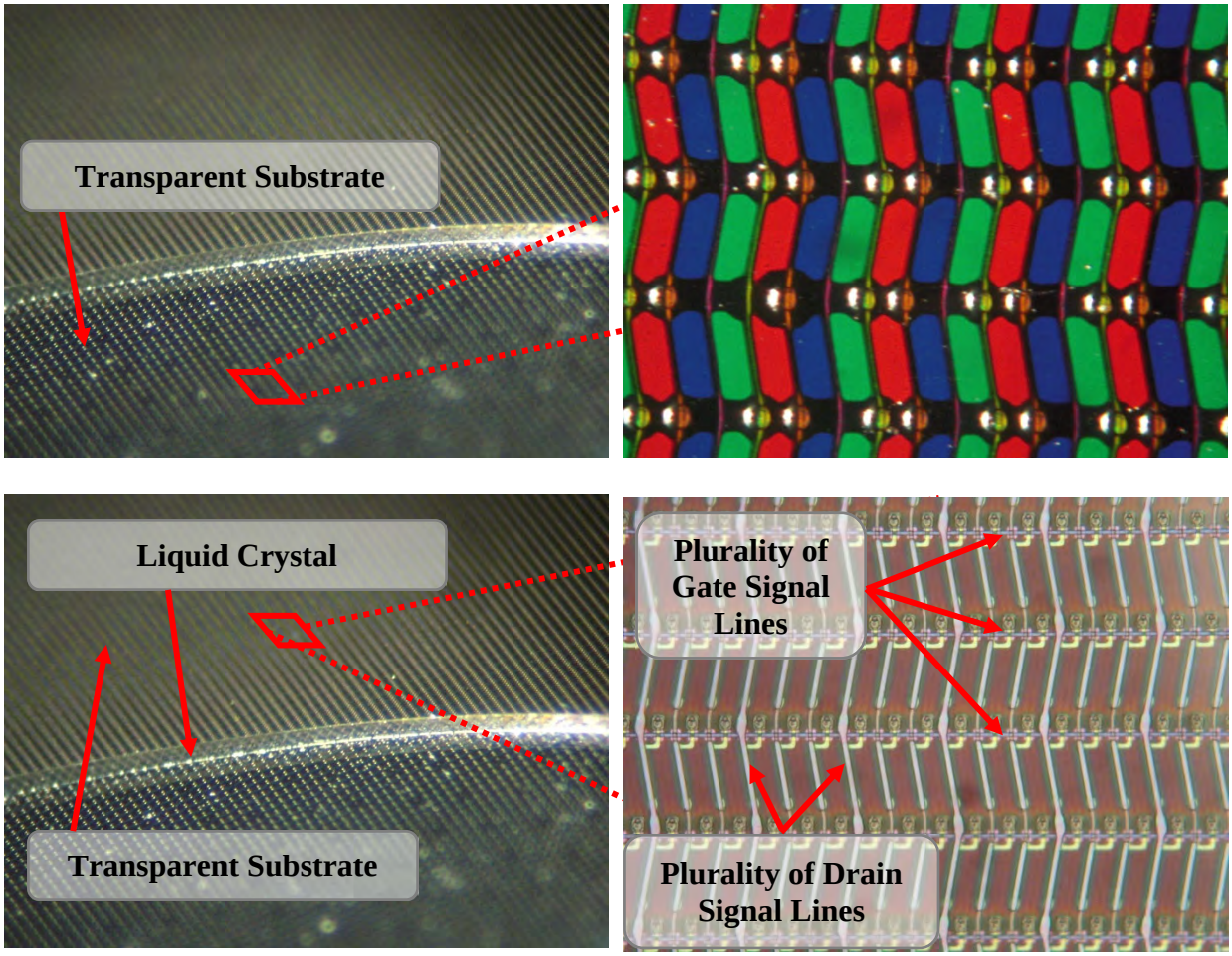
designing those products for sale in the United States, thereby directly infringing the ’429 Patent. Furthermore, Tianma directly infringes the ’429 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’429 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

174. Independent claim 1 of the ’429 Patent recites:

> 1. A liquid crystal display comprising:
> a pair of transparent substrates opposed to each other with liquid crystal therebetween;
> one of the pair of transparent substrates having a plurality of drain signal lines and a plurality of gate signal lines, and a plurality of pixel regions defined by the drain signal lines and the gate signal lines;
> wherein the pixel regions have:
> a TFT element;
> a pixel electrode formed of a transparent electrode having a plurality of slits; and
> a counter electrode formed of a transparent electrode;
> wherein the counter electrode is disposed between the pixel electrode and the one of the pair of transparent substrates in overlapping relationship with the transparent electrode of the pixel electrode and the gate signal line, and the counter electrode is connected with the counter electrode of an adjacent pixel region.

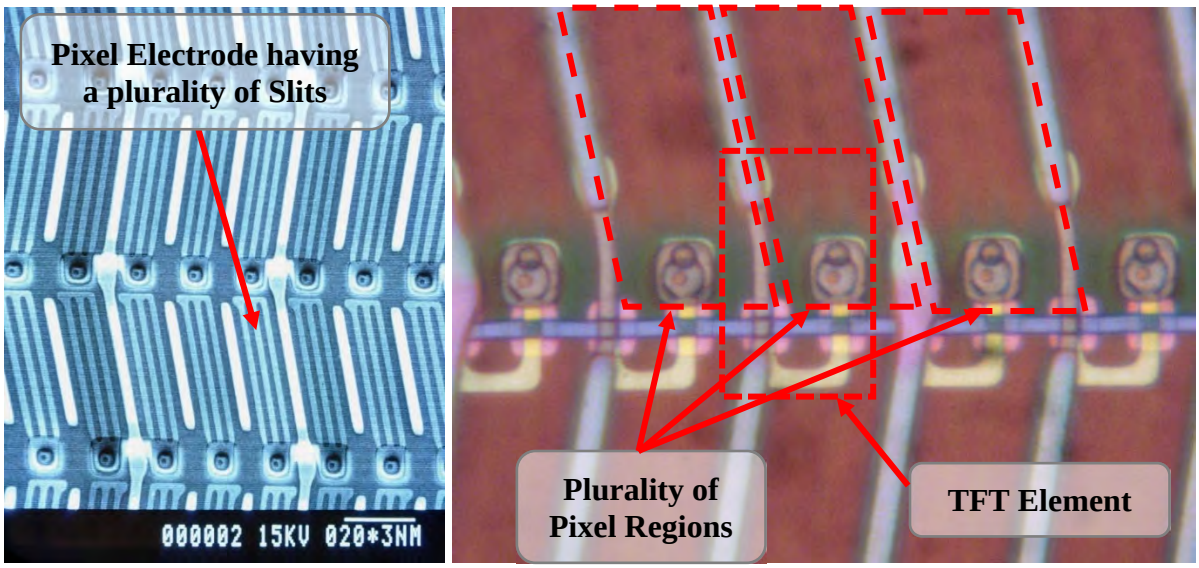
175. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’429 Patent.

176. The TL062FVMC70 has a liquid crystal display comprising: a pair of transparent substrates opposed to each other with liquid crystal therebetween; one of the pair of transparent substrates having a plurality of drain signal lines and a plurality of gate signal lines.



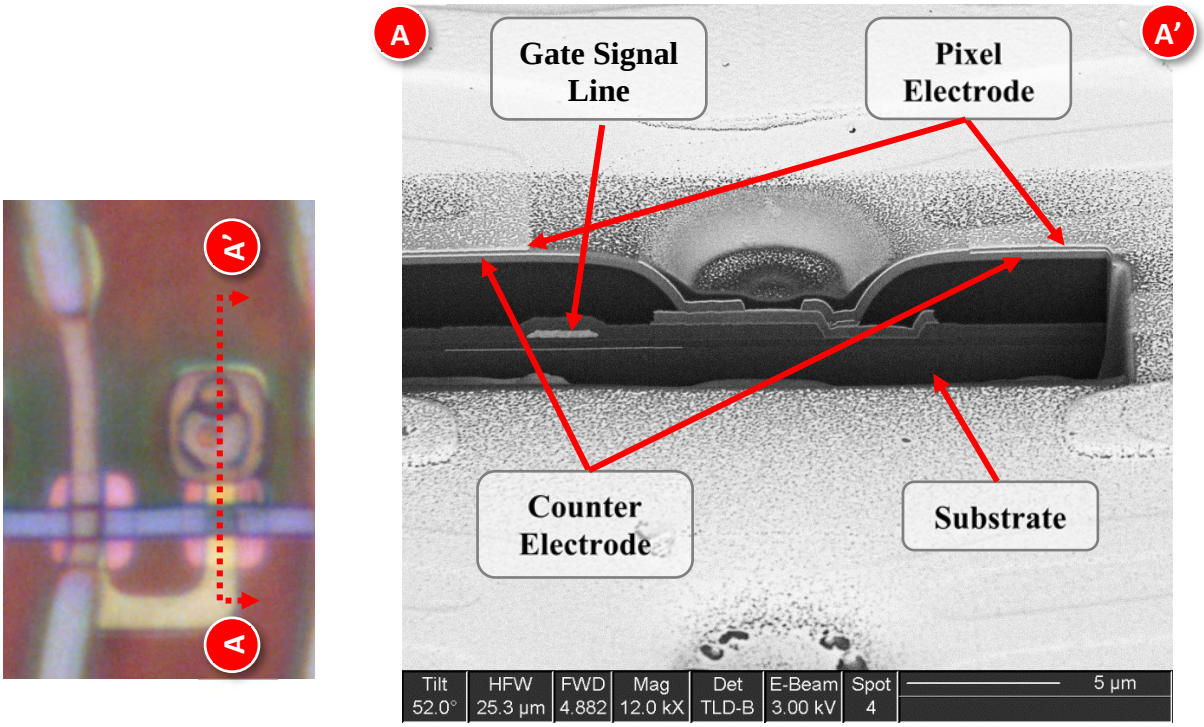
Optical Microscope Images of TL062FVMC70

177. The TL062FVMC70 has a plurality of pixel regions defined by the drain signal lines and the gate signal lines. The pixel regions have a TFT element; a pixel electrode formed of a transparent electrode having a plurality of slits.



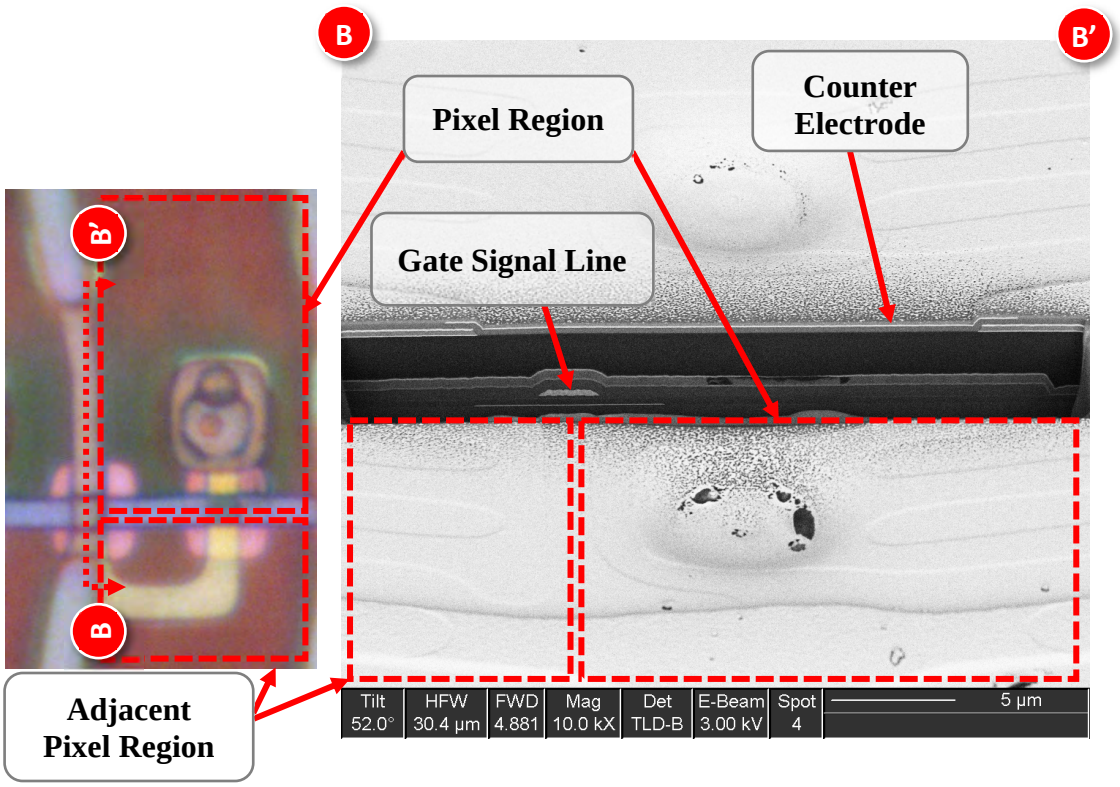
Scanning Electron Microscope Image (left) and Optical Microscope Image (right) of TL062FVMC70

178. The TL062FVMC70 has a counter electrode formed of a transparent electrode; wherein the counter electrode is disposed between the pixel electrode and the one of the pair of transparent substrates in overlapping relationship with the transparent electrode of the pixel electrode and the gate signal line.



Optical Microscope Image (left) and Scanning Electron Microscope Image (right) of TL062FVMC70

179. The TL062FVMC70 has a counter electrode that is connected with the counter electrode of an adjacent pixel region.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL062FVMC70

180. Upon information and belief, since at least June 17, 2015 when Tianma was on notice of its infringement, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’429 Patent to directly infringe one or more claims of the ’429 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least June 17, 2015, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’429 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused Panels, creating established

distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories' standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

181. Upon information and belief, despite having knowledge of the '429 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '429 Patent, Tianma has nevertheless continued its infringing conduct. Tianma's infringing activities relative to the '429 Patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Plaintiffs are entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

182. JDI and PLD have been damaged as a result of Tianma's infringing conduct. Tianma is liable to Plaintiffs in an amount that adequately compensates Plaintiffs for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

PRAYER FOR RELIEF

WHEREFORE, JDI and PLD request the Court grant the following relief:

A. A judgment that Tianma has infringed one or more claims of each of the Asserted Patents and has induced infringement of the Asserted Patents;

B. A judgment that each of the Asserted Patents are valid and enforceable;

C. A permanent injunction enjoining Tianma, its employees, agents, officers, directors, attorneys, successors, affiliates, subsidiaries, and assigns, and all of those in active concert and participation with any of the foregoing persons or entities from infringing, contributing to the infringement of, or inducing infringement of the Asserted Patents;

D. A judgment for an accounting of all damages and to pay damages adequate to compensate JDI and PLD for Tianma's infringement of the Asserted Patents.

E. A judgment that Tianma has willfully infringed the Asserted Patents;

F. A judgment that the damages award be increased up to three times the actual amount assessed, pursuant to 35 U.S.C. § 284;

G. A judgment requiring Tianma to pay Plaintiffs' costs, expenses, and pre-judgment and post-judgment interest for Tianma's infringement of each of the Asserted Patents pursuant to 35 U.S.C. § 284;

H. A judgment finding that this is an exceptional case and awarding Plaintiffs their reasonable attorneys' fees pursuant to 35 U.S.C. § 285; and

I. Such other relief that this Court deems just and proper.

DEMAND FOR JURY TRIAL

In accordance with Rule 38 of the Federal Rules of Civil Procedure and Local Rule CV-38, Plaintiffs respectfully demand a jury trial of all issues triable to a jury in this action.

Dated: August 31, 2020

Respectfully submitted,

/s/ Eric J. Klein
Eric J. Klein
Lead Attorney
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Jeffrey R. Swigart
Texas Bar No. 24102553
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COUNSEL FOR PLAINTIFFS, JAPAN DISPLAY INC. and PANASONIC LIQUID CRYSTAL DISPLAY CO., LTD.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

JAPAN DISPLAY INC., **Plaintiff,** **v.** **TIANMA MICROELECTRONICS CO. LTD.,** **Defendant.**	**CIVIL ACTION NO.** **JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Japan Display Inc. ("JDI" or "Plaintiff") files this complaint for patent infringement ("Complaint") against Tianma Microelectronics Co. Ltd. ("Tianma" or Defendant), and alleges as follows:

THE PARTIES

1. Japan Display Inc. is a corporation organized and existing under the laws of Japan. Its principal place of business is located at Landic 2nd Bldg., 3-7-1, Nishishinbashi, Minato-ku, Tokyo, 105-0003, Japan.

2. JDI engages in research, development, manufacturing, and sales for displays, including liquid crystal displays ("LCDs") with thin film transistor ("TFT") technology ("TFT LCDs"). JDI was formed through the integration of the display businesses of Sony Corporation, Toshiba Corporation, and Hitachi, Ltd. Among other contributions, JDI pioneered TFTs that utilize a low temperature polycrystalline silicon ("LTPS") process, which allows TFT LCD panels to achieve a higher resolution while minimizing power consumption. LTPS is now widely used in TFT LCD panels that are incorporated into consumer and industrial electronic devices, including smartphones, tablets, cameras, game consoles, automotive electronics, and medical equipment.

3. Tianma Microelectronics is a foreign corporation organized and existing under the laws of China. Its principal place of business is located at No. 88, Daxin Road, Tianma Building, Nanshan District, Shenzhen, China.

4. Tianma "focus[es] on medium-/small-sized displays [and is] dedicated to offering [its] clients the world over cutting-edge technologies and products and quality services. At present, the company chiefly serves customers in Mainland China, Taiwan, Europe, America, Japan and South Korea." *See* 2017 *Corporate Social Responsibility Report*, TIANMA MICROELECTRONICS, http://en.tianma.com/UpLoadFile/20180504/b4618db4-5b0f-43f6-9a7a-c6273b07a90a.pdf.

JURISDICTION AND VENUE

5. This is an action for infringement arising under the patent laws of the United States, 35 U.S.C. § 271. Accordingly, this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. Upon information and belief, Tianma is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to its substantial business in this State and District, including: (A) at least part of its infringing activities alleged herein; and (B) regularly doing or soliciting business, engaging in other persistent conduct, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported and services provided to Texas residents vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, customers, subsidiaries, and/or consumers. For example, Tianma has "established manufacturing facilities in Shenzhen, Shanghai, Chengdu, Wuhan, and Xiamen, China as well as in Akita, Japan" and "a global sales and technical support network has been put in place that includes offices in the United States, Germany, Japan, South Korea, Taiwan, Hong Kong etc. to ensure seamless global support to our customers." *See*

http://en.tianma.com/about.shtml. This Court has personal jurisdiction over Tianma, directly or through intermediaries, distributors, importers, customers, subsidiaries, and/or consumers including its U.S. based, wholly-owned subsidiary, Tianma America Inc. ("Tianma America"). Through direction and control of this subsidiary, Tianma has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere within the United States, giving rise to this action and/or has established minimum contacts with Texas such that personal jurisdiction over Tianma would not offend traditional notions of fair play and substantial justice.

7. Tianma maintains a corporate presence in the United States (Tianma America) through which it distributes infringing TFT LCD panels. Tianma America is "a leading provider of small to medium size display solutions to the Americas, utilizing cutting edge technologies from Tianma Microelectronics and Tianma Japan, Ltd. (TMJ), coupled with state-of-the-art manufacturing resources of the Tianma Group, [Tianma America] offers a comprehensive range of LCD products . . . [including] a-Si and LTPS TFT-LCD." *About Us*, TIANMA AMERICA, https://usa.tianma.com/company-services/company-history-roadmap. "Tianma America has responsibility for all sales, marketing and engineering support of the Tianma Group display solutions in the Americas." *Id.* Tianma America identifies approximately 173 unique display panel model numbers for sale on its website. *See Product Search*, TIANMA AMERICA, https://usa.tianma.com/products-technology/product-filter.

8. Tianma America has a "representative" in Texas that provides support to potential customers in Texas regarding Tianma's products: Tristar Group.[1] Tianma America also has four "authorized distribution partners" in the United States, including, Arrow Intelligent Systems in

[1] Tristar Group is located at 5220 Spring Valley Road, #190, Dallas Texas. *See Contact Us*, Tianma America, https://usa.tianma.com/contact (last visited July 15, 2020) (on Tianma America Contact Us site, select the United States and then mouse over Texas).

Centennial, Colorado, Avnet Embedded and Integrated Solutions in Phoenix, Arizona, Edge Electronics, Inc. in Bohemia, NY 11716, and WPG Americas Inc. in San Jose, CA.[2] Upon information and belief, Tianma controls or otherwise directs and authorizes all activities of Tianma America, including Tianma America's using, offering for sale, selling, and/or importing accused products, its components, and/or products containing the same that incorporate the fundamental technologies covered by the asserted patents. Tianma America is authorized to import, sell, or offer for sale the accused products on behalf of its controlling parents. Upon information and belief, Tianma researches, designs, develops, and manufactures the infringing TFT LCD panels and then directs Tianma America to import, offer for sale, and sell the accused products in the United States. Accordingly, Tianma America conducts infringing activities on behalf of Tianma.

9. Upon information and belief, Tianma America's corporate presence in the United States gives Tianma substantially the same business advantages that it would have enjoyed if it conducted its business through its own offices or paid agents in the state. This corporate presence is comprised of three offices including Tianma America's headquarters in Chino, California, an office in Santa Clara, California, and an office in Troy, Michigan. *See Contact Us*, TIANMA AMERICA, https://usa.tianma.com/contact (last visited July 15, 2020). Upon information and belief, Tianma America's Troy, Michigan office is focused on automobile manufacturers. *See id.* (stating that the Troy Michigan office is "Automotive"). Upon information and belief, Tianma America is authorized to sell and offer for sale TFT LCD panels on behalf of Tianma. For example, Tianma America operates within Tianma's "global sales and technical support network [that] has been put in place

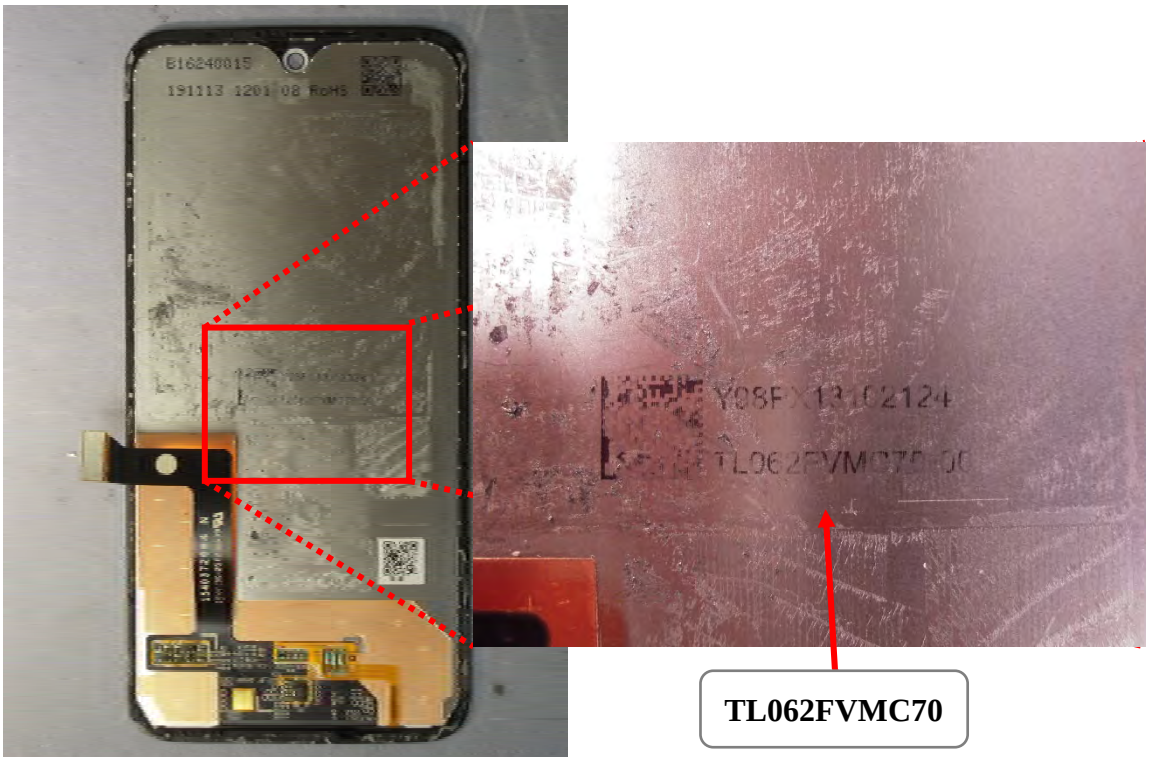
[2] Arrow Intelligent Systems is located at 9201 E. Dry Creek Road, Centennial, CO 80112; Avnet Embedded and Integrated Solutions is located at 2211 South 47th Street, Phoenix, AZ 85034; Edge Electronics, Inc. is located at 75 Orville Drive, Unit 2, Bohemia, NY 11716; and WPG Americas Inc. is located at 5285 Hellyer Avenue, Suite 150, San Jose, CA 95138. *See Authorized Distributors*, TIANMA AMERICA, http://usa.tianma.com/company-services/services-we-provide (last visited July 15, 2020)

that includes offices in the United States, Germany, Japan, South Korea, Taiwan, Hong Kong"… "to ensure seamless global support to our customers." *See About Us*, TIANMA AMERICA, https://usa.tianma.com/company-services/company-history-roadmap. Upon information and belief, Tianma's TFT LCD panels are imported, offered for sale, and sold in the U.S., including in Texas and this District. For example, Tianma's TFT LCD panel model numbers TL062FVMC70, NL1294A5ANA0125439391221, and TL079QDXP02 are utilized in at least the Motorola Moto G7 smartphone, the Asus ZenFone 6 smartphone, and the Asus ZenPad S 8.0 tablet, respectively.

10. Via its alter egos, representatives, authorized distributors, agents, intermediaries, importers, customers, subsidiaries, and/or consumers maintaining a business presence, operating in, and/or residing in the U.S., Tianma has widely distributed and sold in retail stores, both brick and mortar and online, its infringing TFT LCD panels in Texas including within this District.

11. Upon information and belief, Tianma has placed and continues to place infringing TFT LCD panels into the stream of commerce via established distribution channels comprising at least representatives such as Tristar Group, distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc., customers such as Motorola and ASUS, and/or its wholly-owned, U.S.-based subsidiary Tianma America, for the sale of the infringing TFT LCD panels, with the knowledge and/or intent that those infringing TFT LCD panels are imported, used, offered for sale, sold, and continue to be sold in the United States and Texas, including in this District.

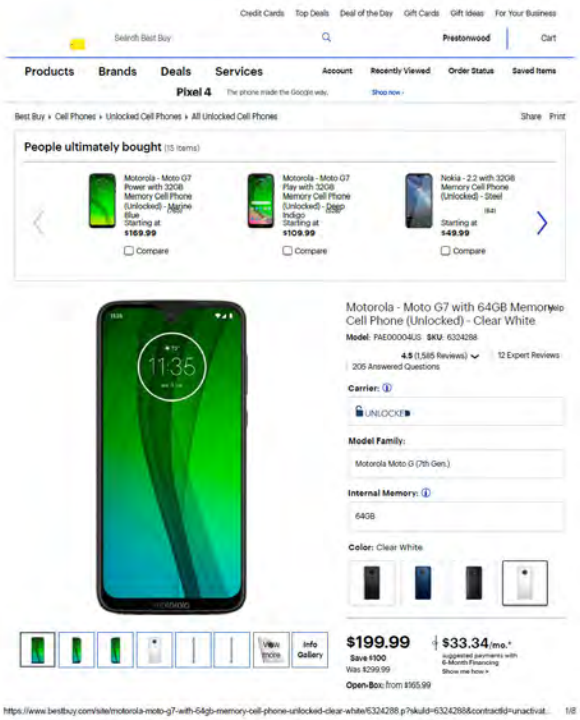
12. For example, the Motorola Moto G7 smartphone utilizes an infringing TFT LCD panel. Upon information and belief, Tianma designed and manufactured a TFT LCD panel with model number TL062FVMC70 for use in the Motorola G7 smartphone.



Tianma's TFT LCD Panel No. in Motorola Moto G7 Smartphone

Motorola Mobility LLC's Landing Page for the Motorola Moto G7 Smartphone

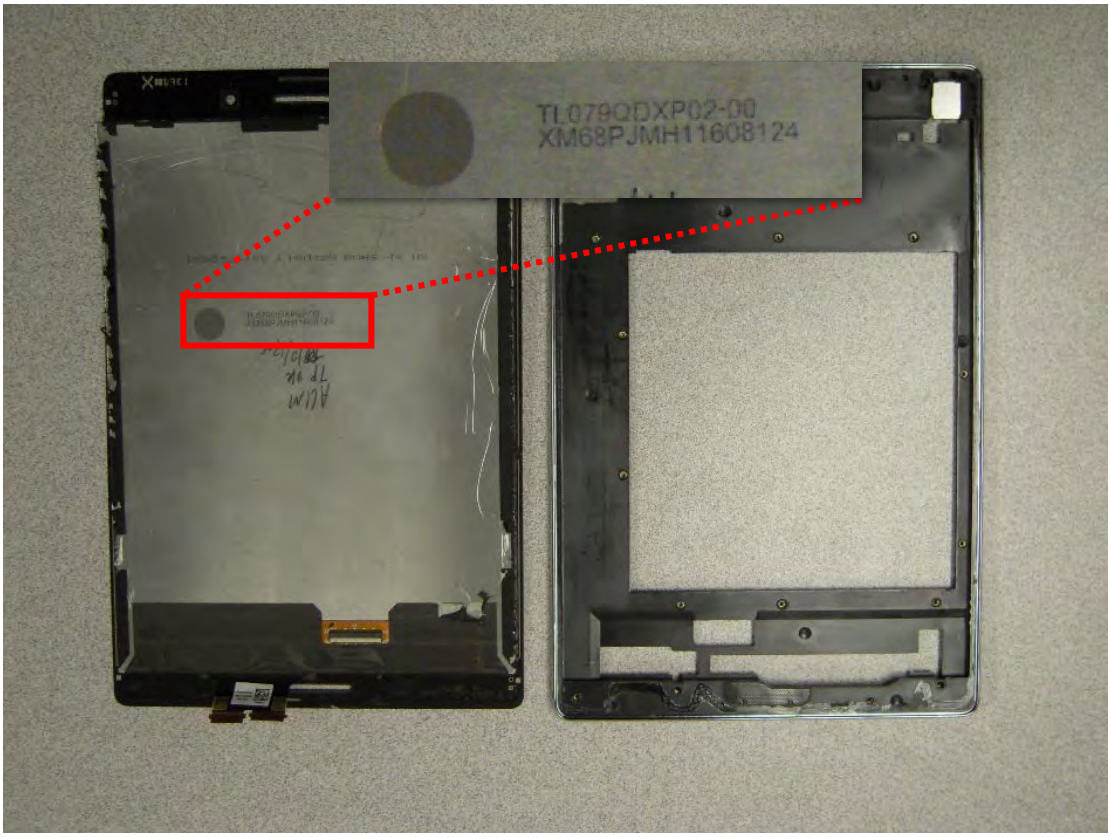
13. Upon information and belief, the Motorola Moto G7 Smartphone, designed and sold by Motorola Mobility LLC, was widely sold and distributed in Texas and in this District. Retailers such as Amazon.com and Best Buy have sold the Motorola Moto G7 Smartphone. *See Motorola Moto G7*, MOTOROLA, https://www.motorola.com/us/smartphones-moto-g7/p.



Best Buy's Landing Page for the Motorola Moto G7 Smartphone

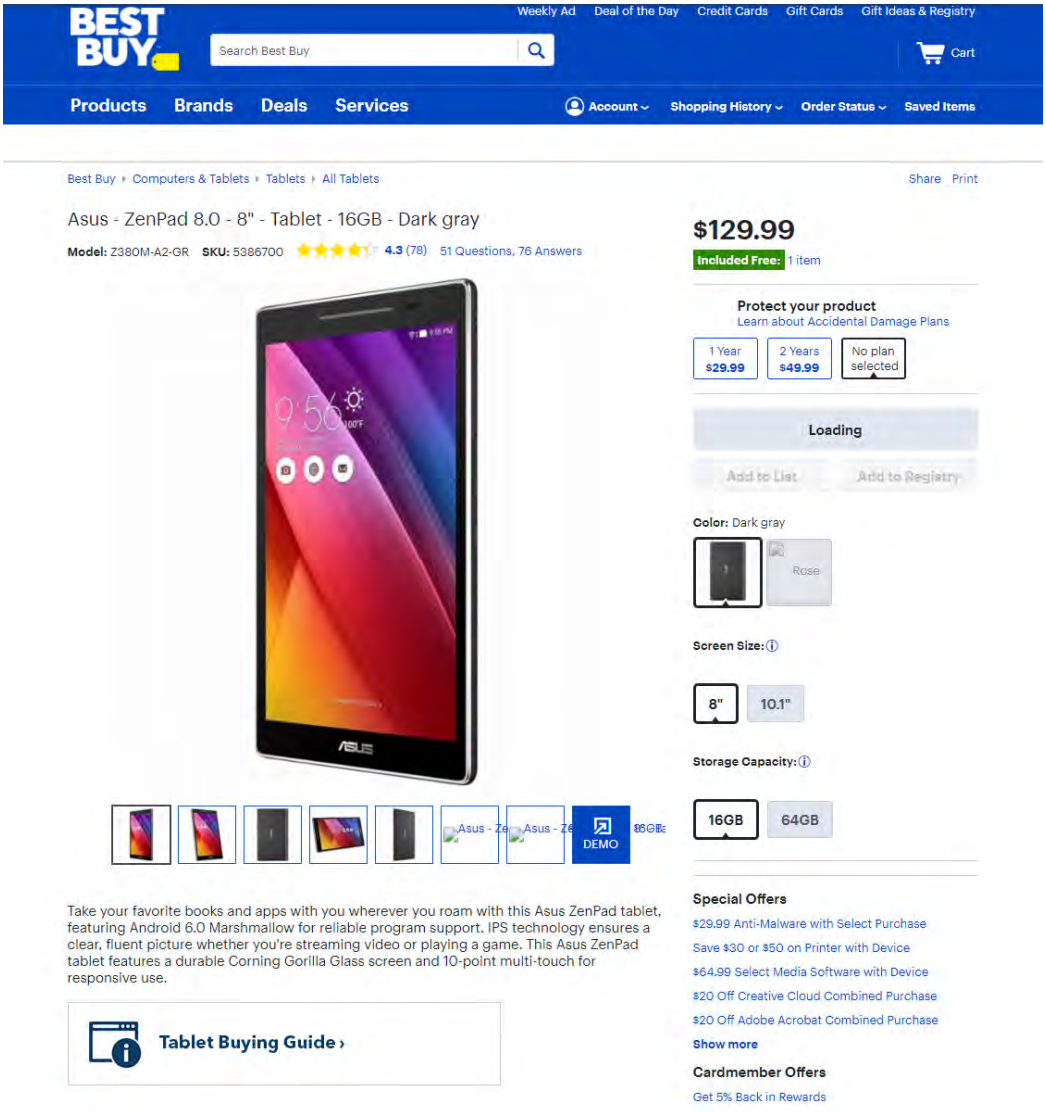
14. The Motorola Moto G7 Smartphone can be purchased through Best Buy's website. *See Motorola Moto G7*, BESTBUY.COM, https://www.bestbuy.com/site/motorola-moto-g7-with-64gb-memory-cell-phone-unlocked-clear-white/6324288.p?skuId=6324288&contractId=unactivat%E2%80%A6.

15. The Asus ZenPad S 8.0 tablet utilizes an infringing TFT LCD panel. Upon information and belief, Tianma designed and manufactured a TFT LCD panel with model number TL079QDXP02 for use in the Asus ZenPad S 8.0 tablet.



Tianma's TFT LCD Panel in Asus ZenPad S 8.0 Tablet

16. Upon information and belief, the Asus ZenPad S 8.0 tablet, manufactured by Asustek Computer Inc. and sold by Asus Computer International, was widely sold and distributed in Texas and in this District. The Asus ZenPad S 8.0 tablet was sold on Best Buy's website , https://www.bestbuy.com/site/asus-zenpad-8-0-8-tablet-16gb-dark-gray/5386700.p?skuId=5386700 (archived at Wayback Machine, https://web.archive.org/web/20180618155158/https://www.bestbuy.com/site/asus-zenpad-8-0-8-tablet-16gb-dark-gray/5386700.p?skuId=5386700, for June 18, 2019).



BestBuy.com Landing Page for the Asus Zenpad S 8.0 Tablet

17. Tianma also maintains commercial websites accessible to the residents of Texas and this District through which Tianma promotes, markets, advertises, and facilitates sales of the infringing TFT LCD panels. *See* http://en.tianma.com/index.shtml.

18. In the alternative, the Court has personal jurisdiction over Tianma under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise under federal law, Tianma is not subject to the jurisdiction of the courts of general jurisdiction of any state, and exercising jurisdiction over Tianma is consistent with the U.S. Constitution.

19. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391 because, among other things, Tianma is not resident in the United States, and thus may be sued in any judicial district, including this one, pursuant to 28 U.S.C. § 1391(c)(3).

THE ASSERTED PATENTS AND TECHNOLOGY

20. The patents-in-suit include JDI's United States Patent Nos. 9,310,654 ("the '654 Patent"), 8,830,409 ("the '409 Patent"), and 9,817,288 ("the '288 Patent") (collectively the "Asserted Patents").

21. On April 12, 2016, the USPTO duly and legally issued U.S. Patent No. 9,310,654 ("the '654 Patent"), titled "Liquid Crystal Device and Electronic Apparatus" to inventors Takao Atarashiya and Hayato Kurasawa. A true and correct copy of the '654 Patent is attached as Exhibit 1 to this Complaint.

22. The '654 Patent is generally directed to the structure of a liquid crystal display device in an electronic apparatus having a high pixel aperture ratio, a high display luminance, and a wide viewing angle. The '654 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the '654 Patent.

23. On September 9, 2014, the USPTO duly and legally issued U.S. Patent No. 8,830,409 ("the '409 Patent") titled "Liquid Crystal Display Device Having Improved Electrostatic Discharge Resistance" to inventors Yasuo Segawa, Masaaki Aota, Tomohide Onogi, and Hiroshi Mastuda. A true and correct copy of the '409 Patent is attached as Exhibit 2 to this Complaint.

24. The '409 Patent is generally directed to the structure of a liquid crystal display device that improves electrostatic discharge resistance. The '409 Patent discloses and specifically claims

novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the ’409 Patent.

25. On November 14, 2017, the USPTO duly and legally issued U.S. Patent No. 9,817,288 (“the ’288 Patent”), titled “Liquid Crystal Display Device” issued to inventor Yasushi Tomioka, Toshimasa Ishigaki, Hidehiro Sonoda, and Sumito Ueta. A true and correct copy of the ’288 Patent is attached as Exhibit 3 to this Complaint.

26. The ’288 Patent is generally directed to the structure of a liquid crystal display device to enable a high-definition screen without an increased thickness. The ’288 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the ’288 Patent.

TIANMA’S INFRINGING PRODUCTS AND ACTIVITIES

27. Tianma designs, manufactures, and sells TFT LCD panels. *See About Tianma*, TIANMA MICROELECTRONICS, http://en.tianma.com/about.shtml. According to Tianma, its “shipments of small and medium size modules kept the leading position among the global panel factories” and its “market share for high-end medical devices, aviation entertainment, navigation and VOIP products ranked first worldwide.” *Id.* Tianma manufactures infringing TFT LCD panels in Asia and sells them worldwide, including in the United States. *See id.* (stating that Tianma has “manufacturing facilities in Shenzhen, Shanghai, Chengdu, Wuhan, and Xiamen, China as well as in Akita, Japan. In addition, a global sales and technical support network has been put in place that includes offices in the United States, Germany, Japan, South Korea, Taiwan, Hong Kong etc. to ensure seamless global support to our customers.”). Tianma makes, uses, sells, offers to sell within the United States or imports to the United States infringing TFT LCD panels through making sales,

marketing to, and providing engineering support to U.S. based customers through its wholly-owned subsidiary, Tianma America. *See About Us*, TIANMA AMERICA, https://usa.tianma.com/company-services/company-history-roadmap (stating that "Tianma America has responsibility for all sales, marketing, and engineering support of the Tianma Group display solutions in the Americas.").

28. The claims of the Asserted Patents cover Tianma's TFT LCD panels, their components, and processes related to the same (referred to herein as the "Accused Panel(s)" or "infringing TFT LCD panels"). The Accused Panels are incorporated and utilized in various consumer devices, including "smart phones, tablet PCs, smart wear, automotive instrumentation, industrial and medical instrumentation, avionic display, home automation, etc." *See* http://en.tianma.com/about.shtml. For example, TL062FVMC70, NL1294A5ANA0125439391221, and TL079QDXP02 are among the infringing TFT LCD panels and are utilized in at least the Motorola Moto G7 smartphone, the Asus ZenFone 6 smartphone, and the Asus ZenPad S 8.0 tablet, respectively.

29. Tianma's customer Motorola Mobility LLC designs, manufactures, and sells the Motorola Moto G7 smartphone, which incorporates Tianma's infringing TFT LCD panels including model number TL062FVMC70. Motorola Mobility LLC is headquartered at 222 W. Merchandise Mart Plaza, Suite 1800 Chicago, Illinois 60654. *See Contact Us*, Motorola Mobility LLC, https://www.motorola.com/us/about/contact. Upon information and belief, Motorola Mobility LLC had on average 8% of the market for all smartphones shipped in the U.S. in 2019. *See US Smartphone Market Share: By Quarter*, COUNTERPOINT, https://www.counterpointresearch.com/us-market-smartphone-share/ (last visited July 31, 2020). Upon information and belief, Motorola Mobility LLC distributes its products, including the Motorola Moto G7 smartphone, across the U.S., including in Texas and this judicial District by direct sales as well as through its retail partners. *See*

Motorola Moto G7, MOTOROLA, https://www.motorola.com/us/smartphones-moto-g7/p (last visited July 31, 2020).

30. Tianma's customer Asustek Computer Inc. designs, manufacturers, and sells the Asus ZenFone 6 smartphone and the Asus ZenPad S 8.0 tablet, which incorporate Tianma's infringing TFT LCD panels with model numbers NL1294A5ANA0125439391221 and TL079QDXP02, respectively. Tianma supplies infringing TFT LCD panels to Asustek Computer, Inc. for its smartphones, notebook PCs and tablet products. *See News and Information*, Tianma America, https://usa.tianma.com/news-information/news/2016/04/11/tianma-to-be-main-supplier-of-panels-for-new-asustek-notebooks. Asus Computer International, is a corporation established under the laws of the State of California, having a principal place of business at 48720 Kato Road, Fremont, CA 94538. Upon information and belief, Asus Computer International is a wholly owned subsidiary of Asustek Computer, Inc. responsible for the sales and distribution of Asustek Computer, Inc.'s smartphones, notebook PCs, and tablets in the United States. *See Asustek Computer Inc. and Subsidiaries Consolidated Financial Statements With Independent Auditors' Review Report Thereon September 30, 2019 and 2018*, https://www.asus.com/event/Investor/Content/attachment_en/2019_Q3_Finacial_Report.pdf, at pg. 14 (last visited July 31, 2020). Asus Computer International distributes its devices, including the Asus ZenFone 6 smartphone and the Asus ZenPad S 8.0 tablet, in the U.S., including in Texas and this District by direct sales as well as through its retail partners. *See id.* (stating that Asus Computer International's main business activity is "selling of 3C products in North America) (last visited July 31, 2020).

COUNT I

(INFRINGEMENT OF U.S. PATENT NO. 9,310,654)

31. JDI re-alleges and incorporates by reference the allegations in paragraphs 1-30 above.

32. JDI is the assignee of the ’654 Patent. JDI has all substantial rights to enforce the ’654 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

33. The ’654 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

34. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the ’654 Patent in this District and elsewhere.

35. For example, Tianma directly infringes at least claim 1 of the ’654 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL079QDXP02 incorporated into the Asus ZenPad S 8.0 tablet. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’654 Patent. Furthermore, Tianma directly infringes the ’654 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United

States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’654 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

36. Independent claim 1 of the ’654 Patent recites:

> 1. A liquid crystal device, comprising:
> a first substrate and a second substrate that are disposed to face each other, the first substrate including a plurality of data lines and a plurality of scan lines which intersect each other;
> a liquid crystal layer that is sandwiched between the first substrate and the second substrate;
> a first electrode that is provided on a liquid crystal layer side of the first substrate;
> an insulating layer that is provided on the liquid crystal layer side of the first electrode;
> a second electrode that is provided on the liquid crystal layer side of the insulating layer; and
> a light shielding film configured to overlap with at least one of the data lines or at least one of the scan lines which is at least bent in plan view, the light shielding film being provided on the second substrate,
> wherein:
> sub-pixels are formed at regions surrounded by the data lines and the scan lines;
> the second electrode has a plurality of linear electrodes that are disposed with gaps therebetween;
> each of the plurality of linear electrodes extends in a long-axis direction of the sub-pixels, and at least one of the linear electrodes or at least one of the gaps has at least one bent portion, the bent portion provided in a central portion of the respective sub-pixels;
> the bent portion has such a shape that both sides thereof are inclined in opposite directions with respect to the long-axis direction of the sub-pixels; and
> the data lines or the scan lines are bent in an extending direction of the linear electrodes having the bent portion,
> wherein the first and second electrodes are a combination of either

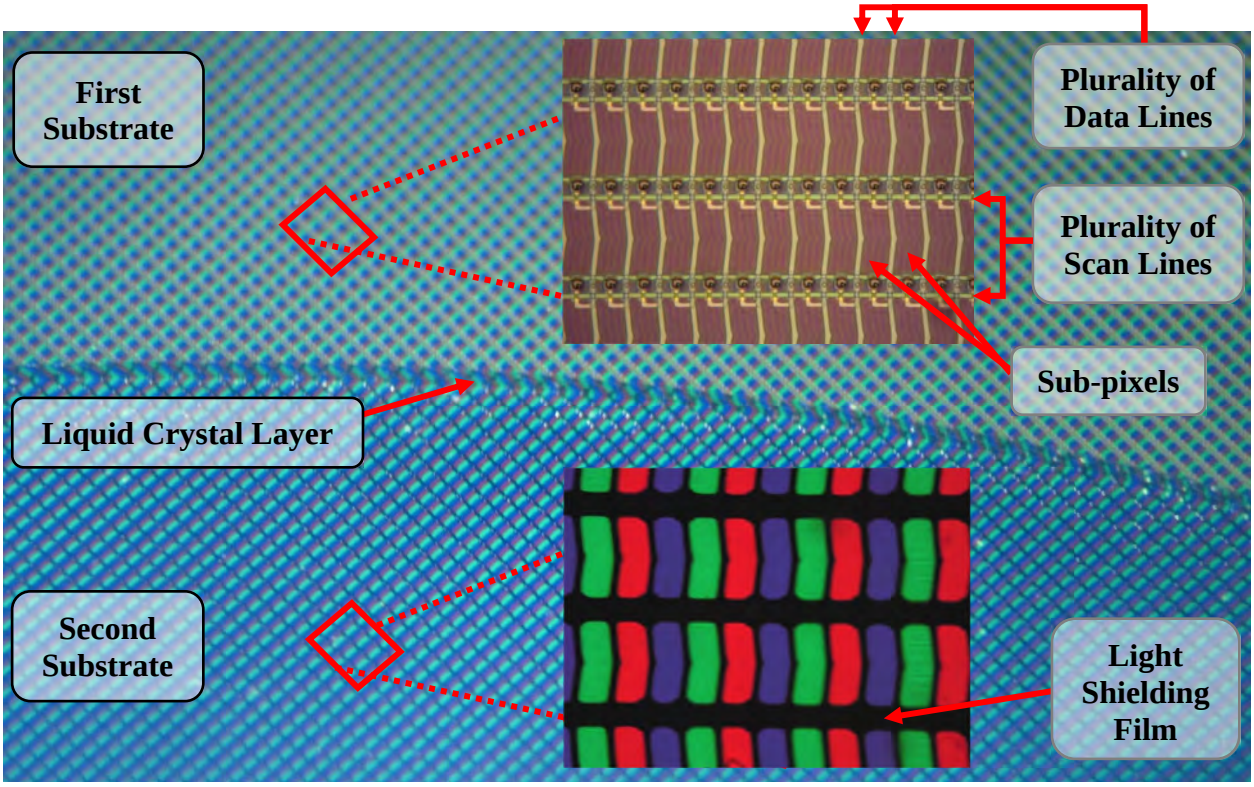
a pixel electrode as the second electrode including the linear electrodes and gaps, and that is provided over a common electrode as the first electrode, or

a common electrode as the second electrode including the linear electrodes and gaps, and that is provided over a pixel electrode as the first electrode, and

wherein the light shielding film is configured to overlap with the second electrode which is bent in plan view.

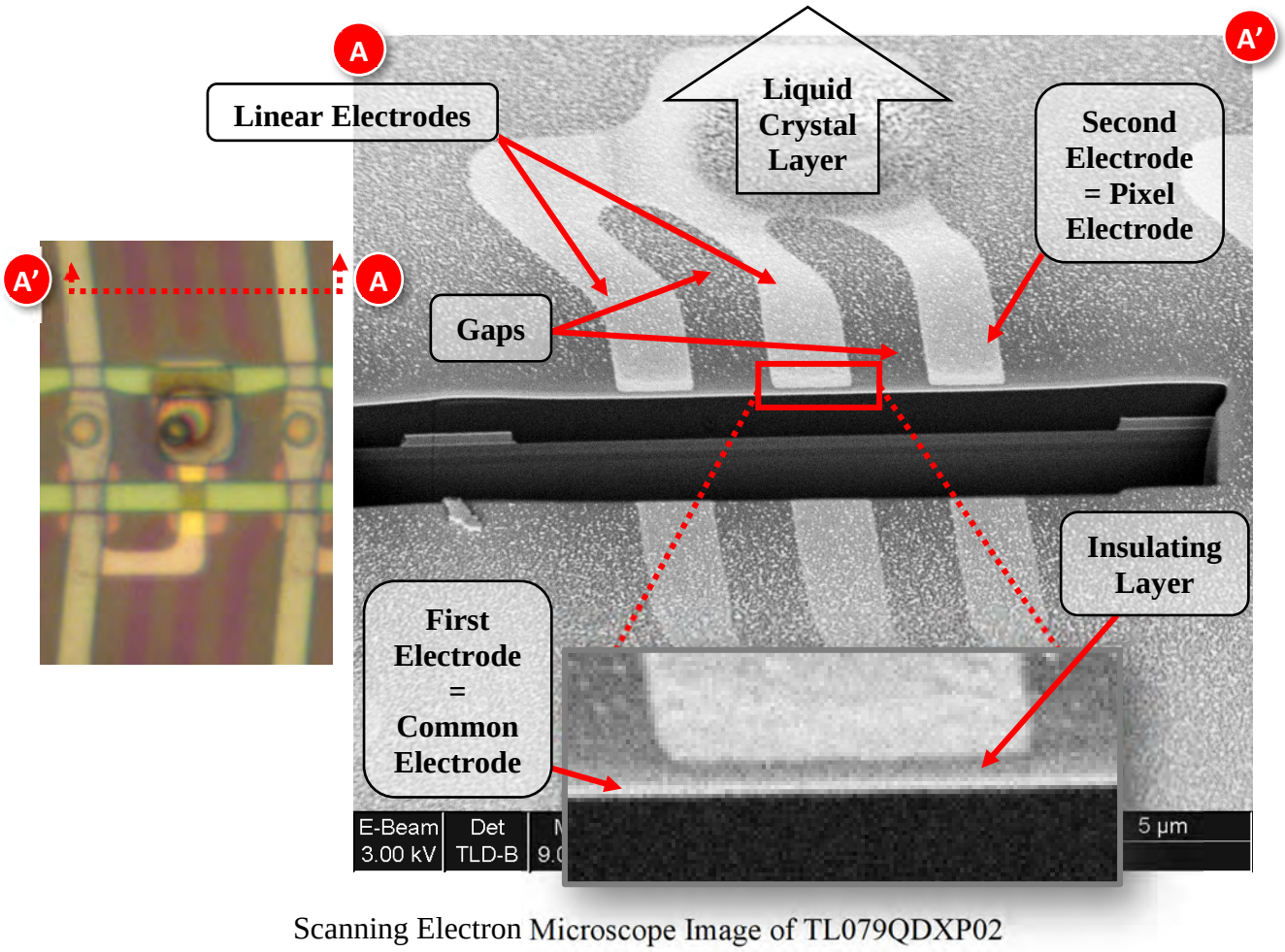
37. The TFT LCD panel model number TL079QDXP02, designed, manufactured, and sold by Tianma and incorporated in the Asus ZenPad S 8.0 tablet infringes at least claim 1 of the '654 Patent.

38. The TL079QDXP02 is a liquid crystal device comprising a first substrate that includes a plurality of intersecting data lines and scan lines, and a second substrate that includes a light shielding film configured to overlap the data lines and scan lines. A liquid crystal layer is in between the two substrates. The TL079QDXP02 has sub-pixels formed at regions surrounded by the data lines and the scan lines.



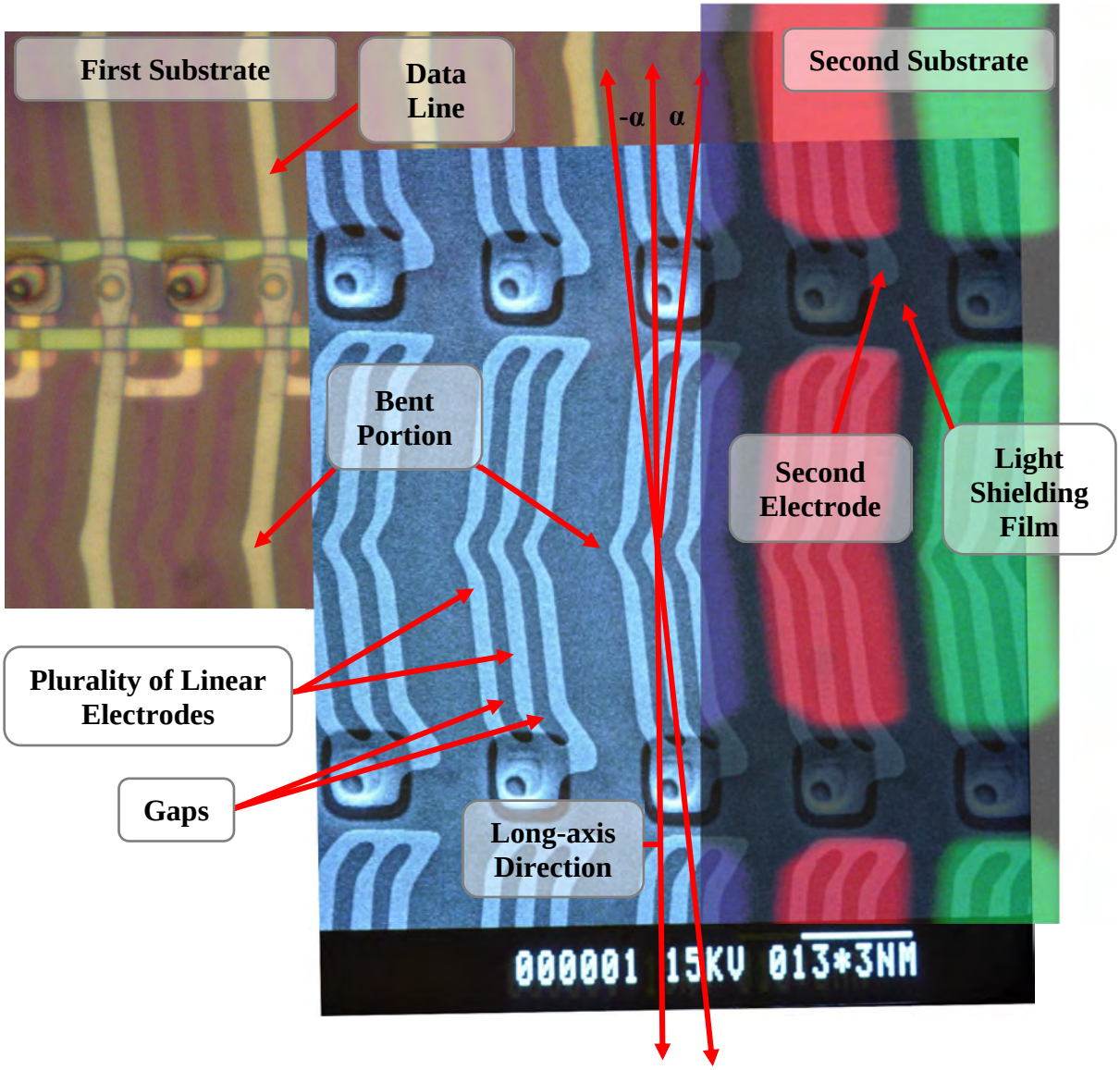
Optical Microscope Images of TL079QDXP02

39. The TL079QDXP02 has a first electrode, a second electrode, and an insulating layer in between. The first electrode is a common electrode. The second electrode is a pixel electrode having a plurality of linear electrodes that are disposed with gaps therebetween and extend in a long-axis direction of the sub-pixels.



Scanning Electron Microscope Image of TL079QDXP02

40. The linear electrodes and the gaps of the TL079QDXP02 are bent in a central portion of the respective sub-pixels in such a shape that both sides thereof are inclined in opposite directions with respect to the long-axis direction of the sub-pixels. The data lines are also bent in an extending direction of the linear electrodes having the bent portion. The light shielding film is configured to overlap with the second electrode which is bent in plan view.



Optical Microscope Image of TFT Substrate overlaid with Scanning Electron Microscope Image of TFT Substrate overlaid with Optical Microscope Image of Color Filter Substrate of TL079QDXP02

41. At a minimum, Tianma has known of the ’654 Patent at least as early as the filing date of the complaint.

42. Upon information and belief, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’654 Patent to directly infringe one or more claims of the ’654 Patent by using, offering for sale,

selling, and/or importing the Accused Panels. Since at least the filing date of the complaint, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’654 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories’ standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

43. Upon information and belief, despite having knowledge of the ’654 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’654 Patent, Tianma has nevertheless continued its infringing conduct. Tianma’s infringing activities relative to the ’654 Patent have been, and continue to be, willful and deliberate misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

44. JDI has been damaged as a result of Tianma’s infringing conduct with regard to the ’654 Patent. Tianma is liable to JDI in an amount that adequately compensates JDI for Tianma’s infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II

(INFRINGEMENT OF U.S. PATENT NO. 8,830,409)

45. JDI re-alleges and incorporates by reference the allegations in paragraphs 1-44 above.

46. JDI is the assignee of the ’409 Patent. JDI has all substantial rights to enforce the ’409 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

47. The ’409 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

48. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the ’409 Patent in this District and elsewhere.

49. At a minimum, Tianma has known of the ’409 Patent at least as early as the filing date of the complaint.

50. Tianma directly infringes at least claim 1 of the ’409 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’409 Patent. Furthermore, Tianma directly infringes the ’409 Patent through its direct involvement in the

activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’409 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

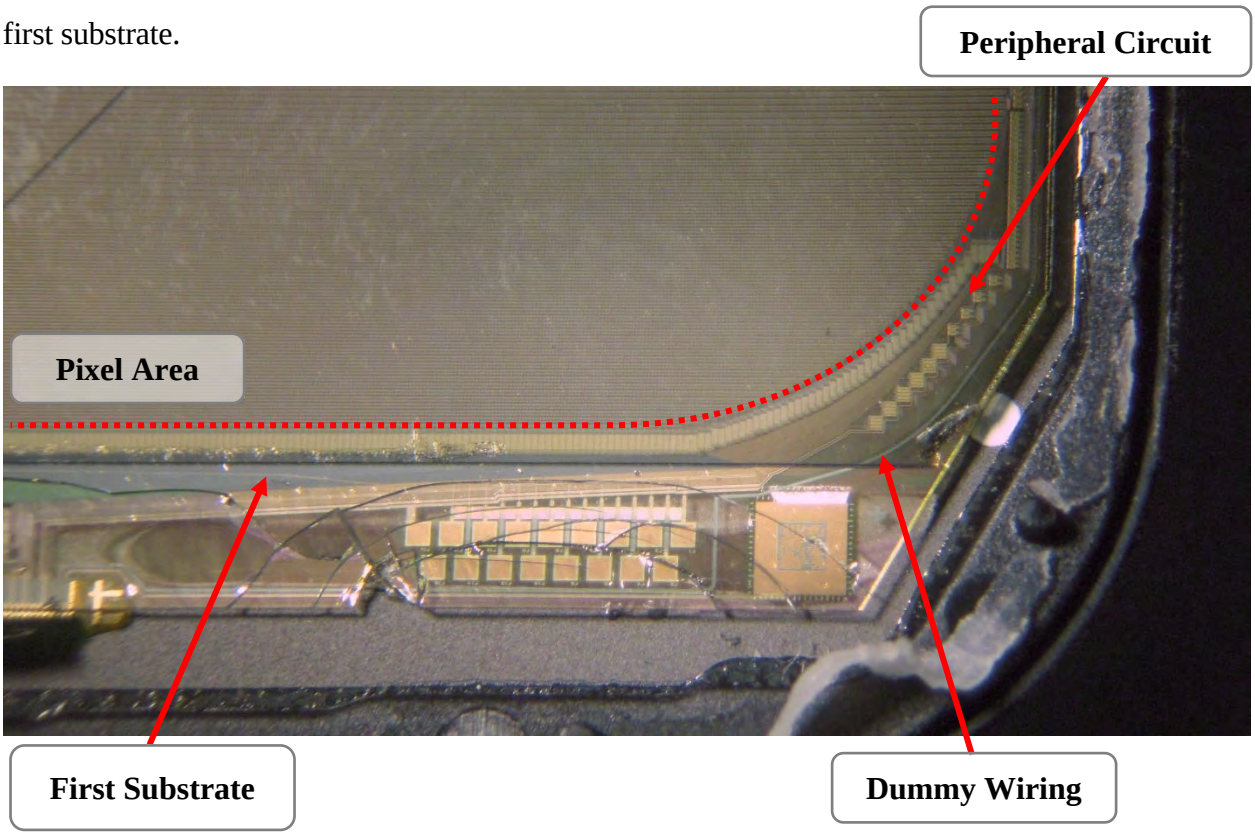
51. Independent claim 1 of the ’409 Patent recites:

> 1. A liquid crystal display device comprising:
> a first substrate having a side and including pixel electrodes, a peripheral circuit, at least one common electrode, and a dummy wiring, the peripheral circuit and the dummy wiring being provided outside a pixel area in which the pixel electrodes are arranged, the peripheral circuit being arranged along the side of the first substrate;
> a second substrate that includes a translucent conductive film provided at an opposite side of the second substrate to a side where the liquid crystal is present; and
> liquid crystal through which the second substrate is opposed to the first substrate,
> wherein the peripheral circuit includes a common wiring supplying a common electric potential to the at least one common electrode, the common wiring being separate from the dummy wiring,
> the dummy wiring is located close to an outermost edge of the first substrate,
> the dummy wiring is made of a continuous metal layer surrounding the pixel area and peripheral circuit to ground the static electricity, the dummy wiring is located between the peripheral circuit and the outermost edge of the side at which the peripheral circuit is positioned and is not electrically connected to the peripheral circuit, the dummy wiring is connected to a ground potential outside the first substrate and the dummy wiring surrounds the peripheral circuit on at least three sides of the first substrate, and
> wherein the dummy wiring is provided to discharge electric potential rise on the first substrate that occurs due to coupling

with electric potential rise of the translucent conductive film on the second substrate.

52. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’409 Patent.

53. The TL062FVMC70 has a liquid crystal display device comprising: a first substrate having a side and including pixel electrodes, a peripheral circuit, at least one common electrode, and a dummy wiring, the peripheral circuit and the dummy wiring being provided outside a pixel area in which the pixel electrodes are arranged, the peripheral circuit being arranged along the side of the first substrate.



Optical Microscope Image of TL062FVMC70

54. The TL062FVMC70 has pixel electrodes.

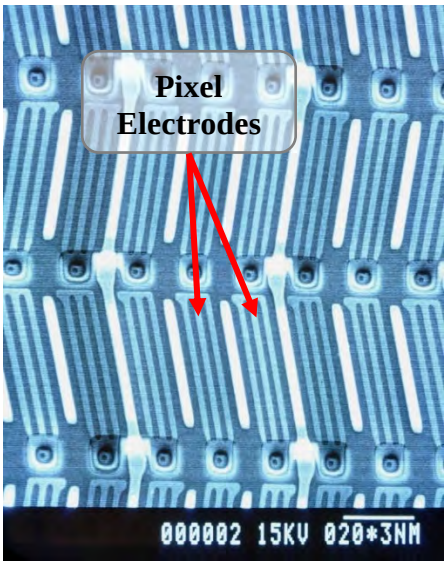
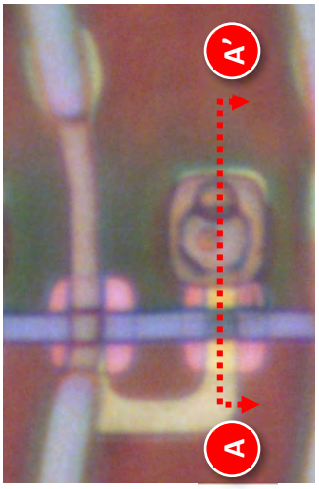


Image from Scanning Electron Microscope Analysis of TL062FVMC70

55. The TL062FVMC70 has at least one common electrode.



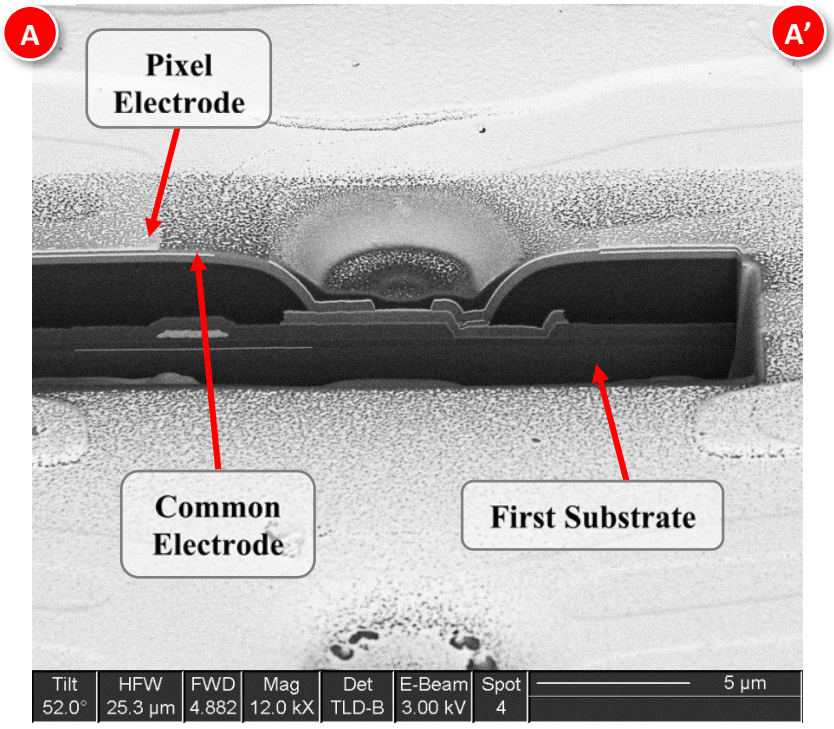
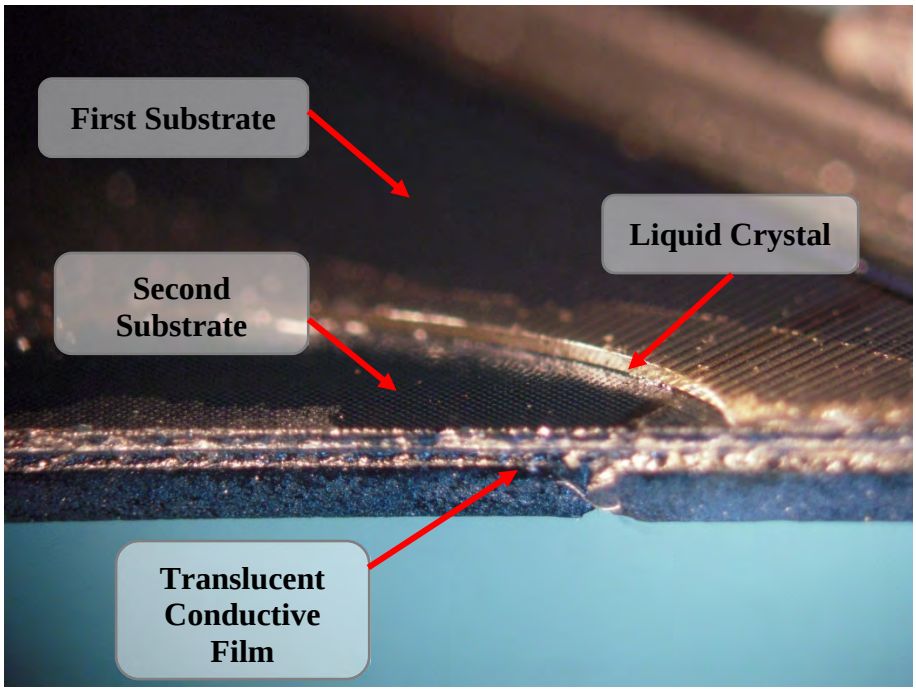


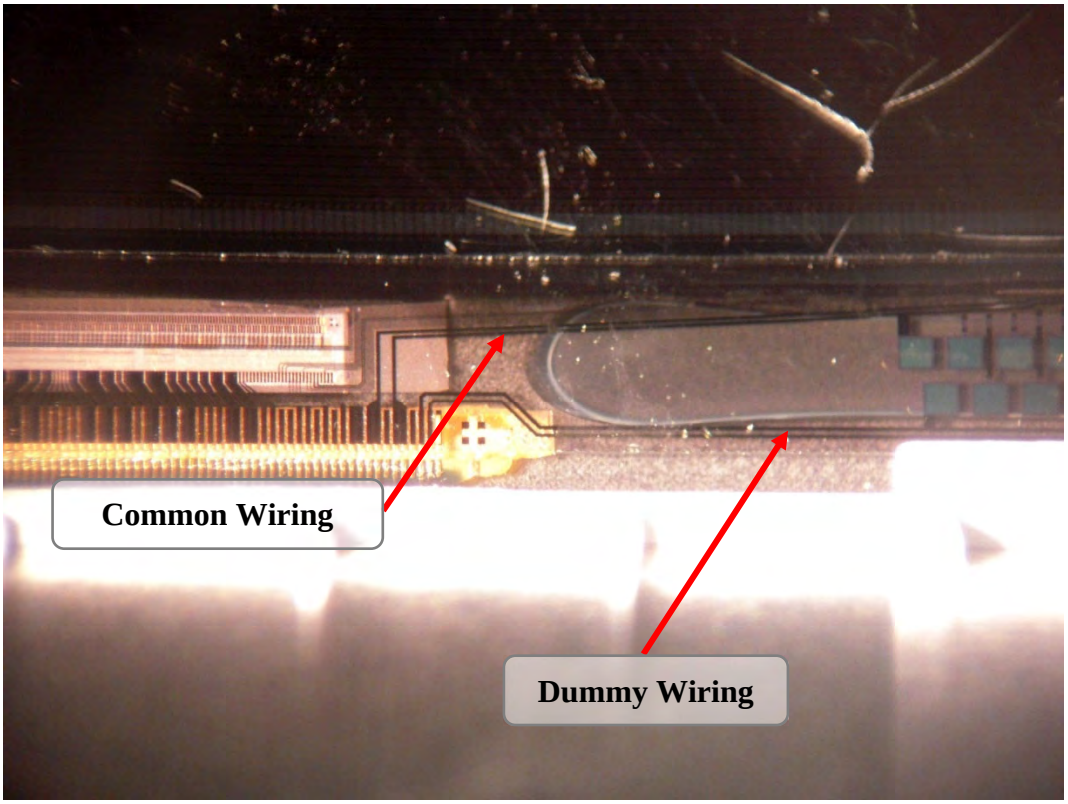
Image from Scanning Electron Microscope Analysis of TL062FVMC70

56. The TL062FVMC70 has a second substrate that includes a translucent conductive film provided at an opposite side of the second substrate to a side where the liquid crystal is present, and liquid crystal through which the second substrate is opposed to the first substrate.



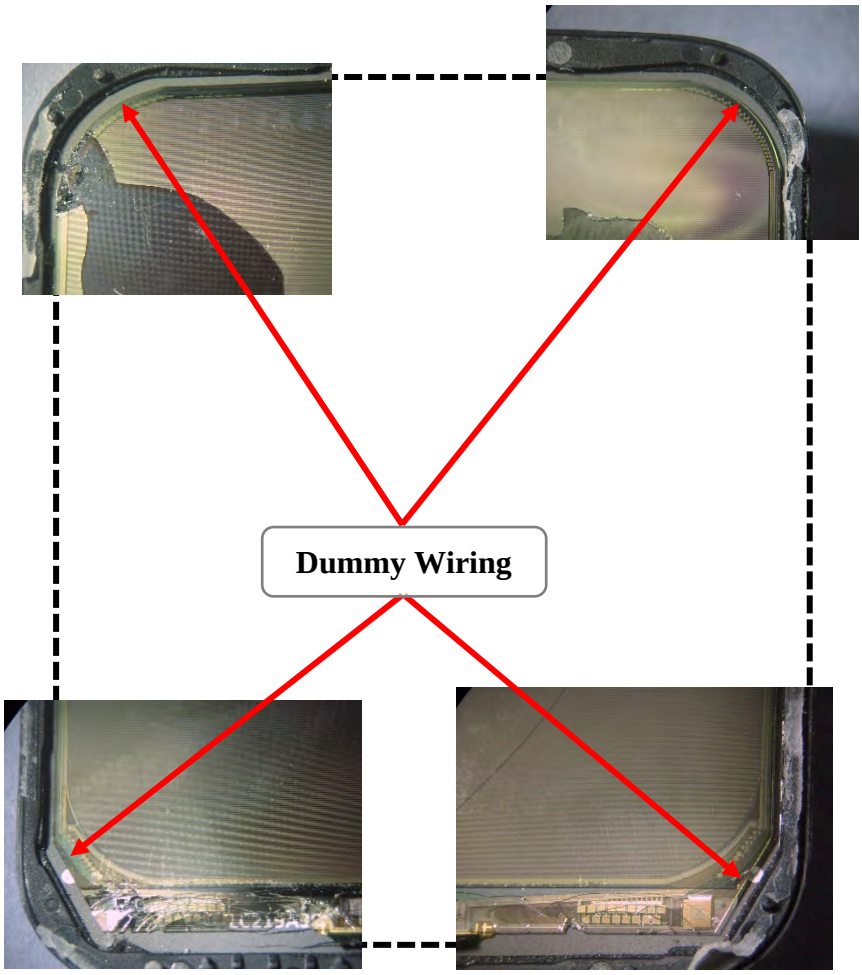
Optical Microscope Image of TL062FVMC70

57. The peripheral circuit of the TL062FVMC70 includes a common wiring supplying a common electric potential to the at least one common electrode, the common wiring being separate from the dummy wiring.



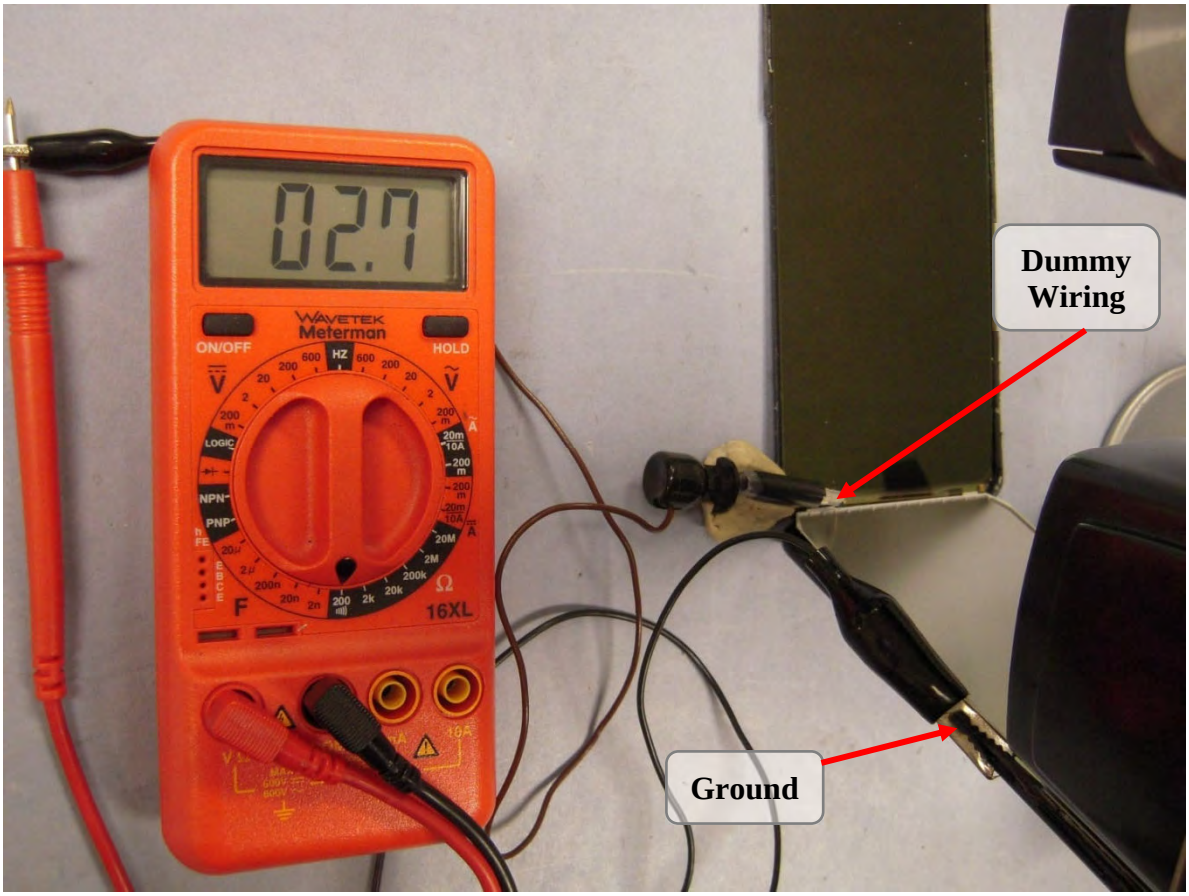
Optical Microscope Image of TL062FVMC70

58. The dummy wiring of the TL062FVMC70 is located close to an outermost edge of the first substrate surrounding the pixel area and peripheral circuit to ground the static electricity. Upon information and belief, the dummy wiring is made of a continuous metal layer.



Optical Microscope Images of TL062FVMC70

59. The dummy wiring of the TL062FVMC70 is located between the peripheral circuit and the outermost edge of the side at which the peripheral circuit is positioned and is not electrically connected to the peripheral circuit, the dummy wiring is connected to a ground potential outside the first substrate and the dummy wiring surrounds the peripheral circuit on at least three sides of the first substrate, and wherein the dummy wiring is provided to discharge electric potential rise on the first substrate that occurs due to coupling with electric potential rise of the translucent conductive film on the second substrate.



Ground Potential Analysis of TL062FVMC70

60. Upon information and belief, the dummy wiring of the TL062FVMC70 is provided to discharge electric potential rise on the first substrate that occurs due to coupling with electric potential rise of the translucent conductive film on the second substrate.

61. Upon information and belief, since at least the filing of this complaint Tianma was on notice of its infringement, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’409 Patent to directly infringe one or more claims of the ’409 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least when notice was provided as of the filing of this complaint, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced

acts constitute infringement of the ’409 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, inter alia, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories’ standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

62. Upon information and belief, despite having knowledge of the ’409 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’409 Patent, Tianma has nevertheless continued its infringing conduct. Tianma’s infringing activities relative to the ’409 Patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

63. JDI has been damaged as a result of Tianma’s infringing conduct. Tianma is liable to JDI in an amount that adequately compensates JDI for Tianma’s infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III

(INFRINGEMENT OF U.S. PATENT NO. 9,817,288)

64. JDI re-alleges and incorporates by reference the allegations in paragraphs 1-63 above.

65. JDI is the assignee of the ’288 Patent. JDI has all substantial rights to enforce the ’288 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

66. The ’288 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

67. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the ’288 Patent in this District and elsewhere.

68. For example, Tianma directly infringes at least claim 1 of the ’288 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone and the NL1294A5ANA0125439391221 incorporated into the Asus ZenFone 6. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’288 Patent. Furthermore, Tianma directly infringes the ’288 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused

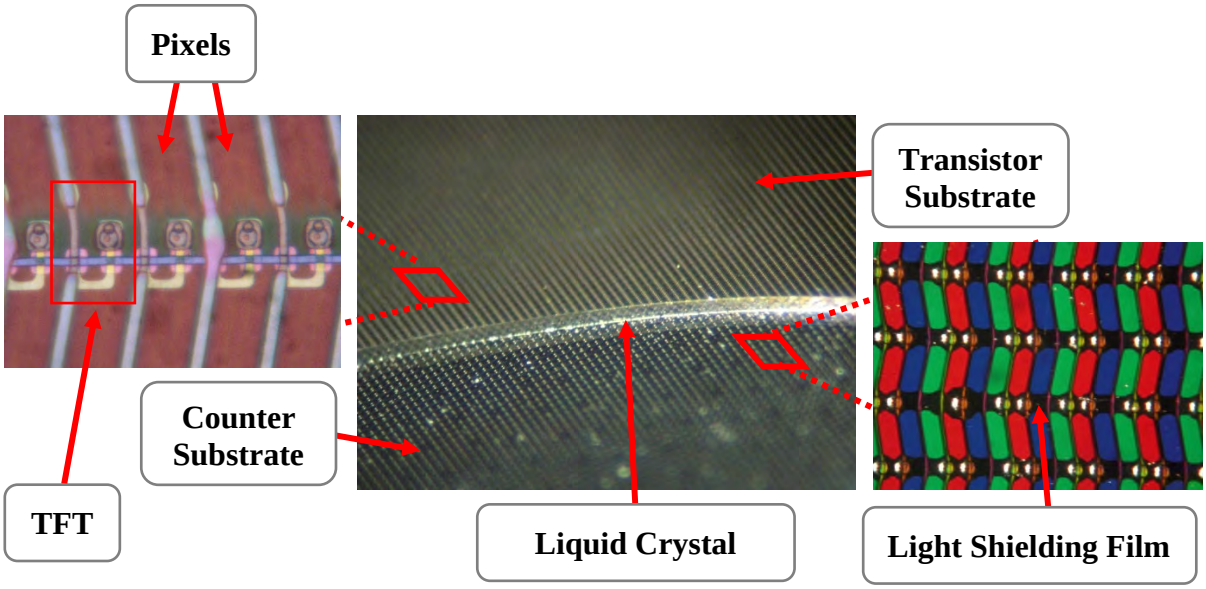
Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’288 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

69. Independent claim 1 of the ’288 Patent recites:

> 1. A liquid crystal display device comprising:
> a transistor substrate having pixels each including,
> a thin film transistor,
> an organic insulating film formed on the thin film transistor,
> a common electrode formed on the organic insulating film,
> an interlayer insulating film formed so as to cover the common electrode,
> a pixel electrode formed on the interlayer insulating film,
> a source electrode of the thin film transistor
> a counter substrate having a light shielding film, and
> liquid crystal sandwiched between the transistor substrate and the counter substrate,
> wherein the organic insulating film and the interlayer insulating film have a through-hole,
> wherein the source electrode electrically connects to the pixel electrode via the through-hole, and
> wherein the pixel electrode covers part of a side wall of the through-hole but does not cover the remaining part of the side wall of the through-hole.

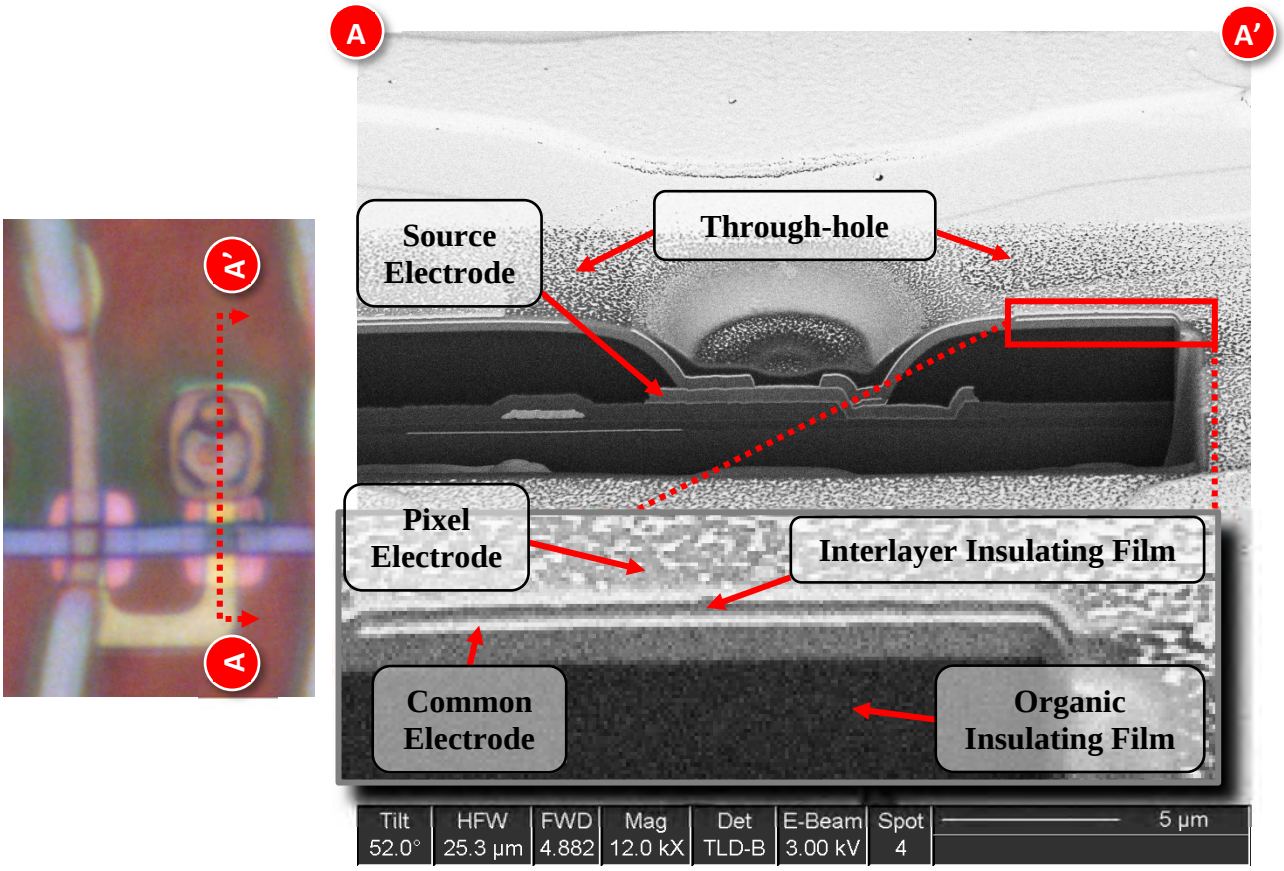
70. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’288 Patent.

71. The TL062FVMC70 is a liquid crystal display device comprising a transistor substrate and a counter substrate with a liquid crystal sandwiched in between. The transistor substrate has pixels that are controlled by TFTs, and the counter substrate has a light shielding film.



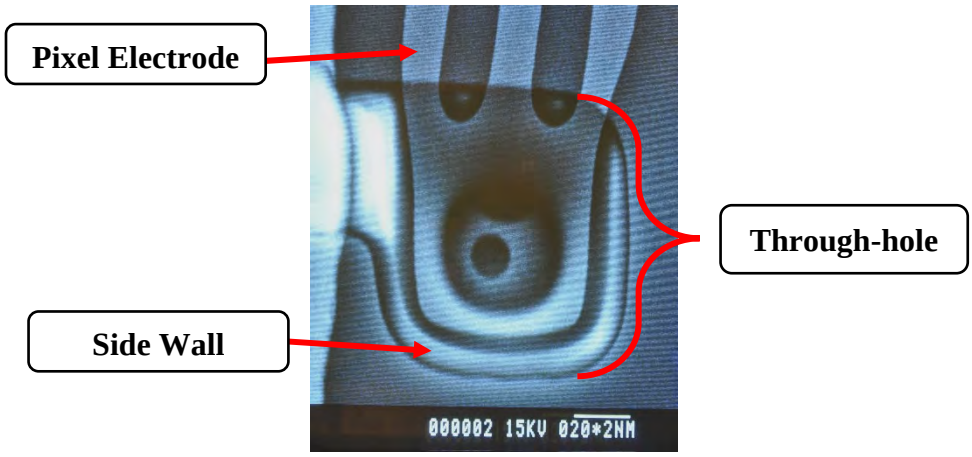
Optical Microscope Images of TL062FVMC70

72. The TL062FVMC70 has pixel electrode formed on an interlayer insulating film, which is formed on the common electrode. The common electrode is formed on an organic insulating film. The TL062FVMC70 also has a source electrode which connects to the pixel electrode via a through-hole in the organic insulating film and the interlayer insulating film.



Scanning Electron Microscope Image of TL062FVMC70

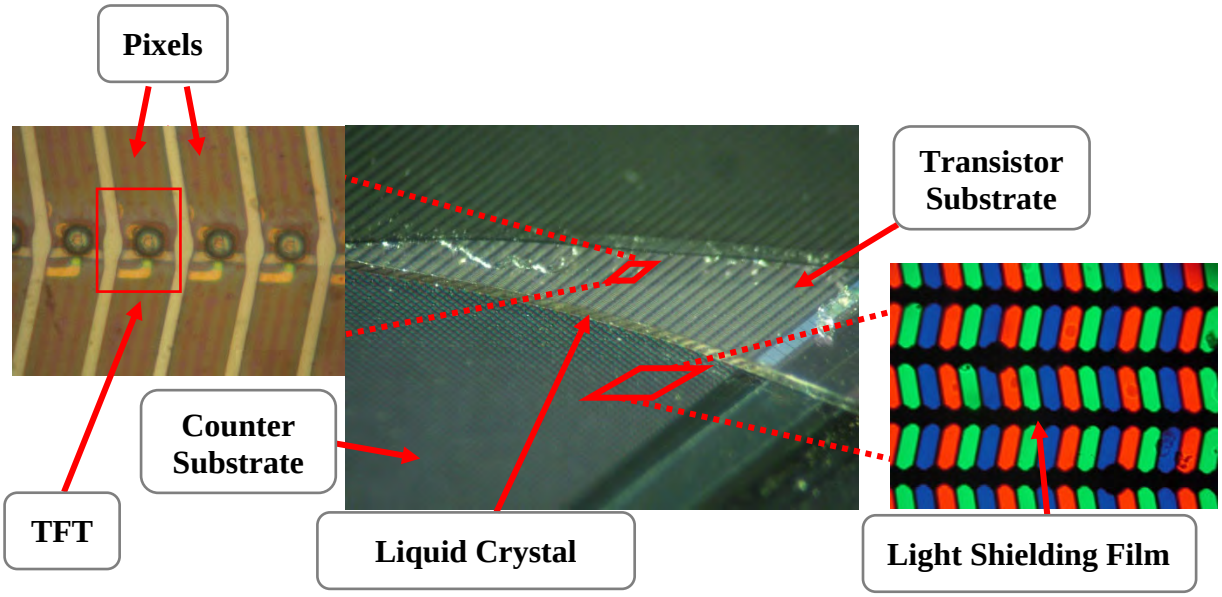
73. The pixel electrode of the TL062FVMC70 covers part of a side wall of the through-hole but does not cover the remaining part of the side wall of the through-hole.



Scanning Electron Microscope Image of TL062FVMC70

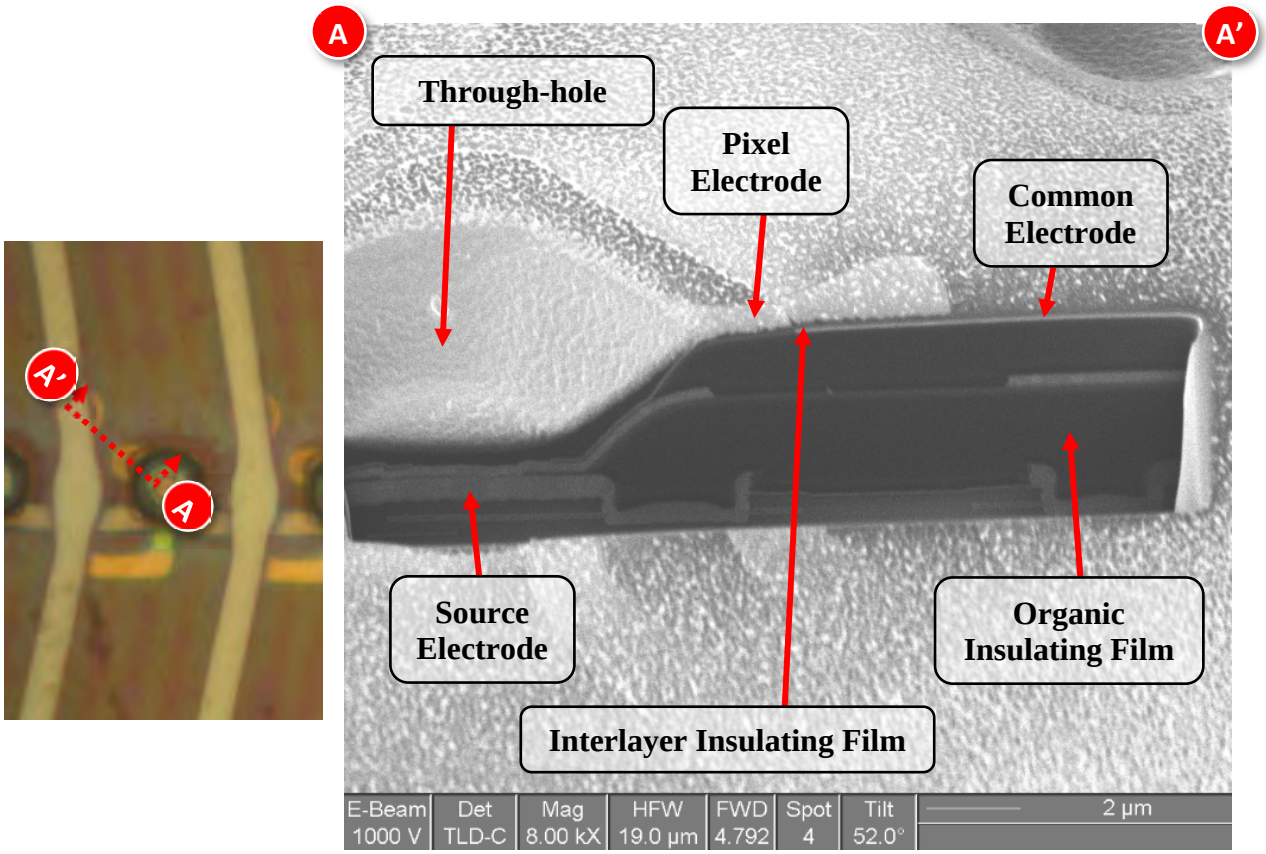
74. The TFT LCD panel model number NL1294A5ANA0125439391221, designed, manufactured, and sold by Tianma and incorporated in the Asus ZenFone 6 smartphone infringes at least claim 1 of the ’288 Patent.

75. The NL1294A5ANA0125439391221 is a liquid crystal display device comprising a transistor substrate and a counter substrate with a liquid crystal sandwiched in between. The transistor substrate has pixels that are controlled by TFTs, and the counter substrate has a light shielding film.



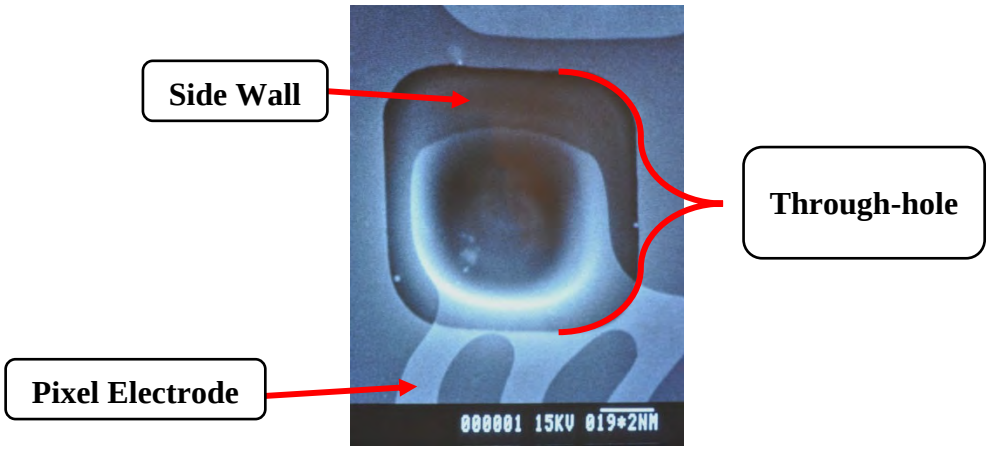
Optical Microscope Images of NL1294A5ANA0125439391221

76. The NL1294A5ANA0125439391221 has pixel electrode formed on an interlayer insulating film, which is formed on the common electrode. The common electrode is formed on an organic insulating film. The NL1294A5ANA0125439391221 also has a source electrode which connects to the pixel electrode via a through-hole in the organic insulating film and the interlayer insulating film.



Scanning Electron Microscope Image of NL1294A5ANA0125439391221

77. The pixel electrode of the NL1294A5ANA0125439391221 covers part of a side wall of the through-hole but does not cover the remaining part of the side wall of the through-hole.



Scanning Electron Microscope Image of NL1294A5ANA0125439391221

78. At a minimum, Tianma has known of the ’288 Patent at least as early as the filing date of the complaint.

79. Upon information and belief, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’288 Patent to directly infringe one or more claims of the ’288 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least the filing date of the complaint, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’288 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories’ standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

80. Upon information and belief, despite having knowledge of the ’288 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’288 Patent, Tianma has nevertheless continued its infringing conduct. Tianma’s infringing activities relative to the ’288 Patent have been, and continue to be, willful and deliberate misconduct beyond typical

infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

81. JDI has been damaged as a result of Tianma's infringing conduct with regard to the '288 Patent. Tianma is liable to JDI in an amount that adequately compensates JDI for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

PRAYER FOR RELIEF

WHEREFORE, JDI requests the Court grant the following relief:

A. A judgment that Tianma has infringed one or more claims of each of the Asserted Patents and has induced infringement of the Asserted Patents;

B. A judgment that each of the Asserted Patents are valid and enforceable;

C. A permanent injunction enjoining Tianma, its employees, agents, officers, directors, attorneys, successors, affiliates, subsidiaries, and assigns, and all of those in active concert and participation with any of the foregoing persons or entities from infringing, contributing to the infringement of, or inducing infringement of the Asserted Patents;

D. A judgment for an accounting of all damages and to pay damages adequate to compensate JDI for Tianma's infringement of the Asserted Patents.

E. A judgment that Tianma has willfully infringed the Asserted Patents;

F. A judgment that the damages award be increased up to three times the actual amount assessed, pursuant to 35 U.S.C. § 284;

G. A judgment requiring Tianma to pay JDI costs, expenses, and pre-judgment and post-judgment interest for Tianma's infringement of each of the Asserted Patents pursuant to 35 U.S.C. § 284;

H. A judgment finding that this is an exceptional case and awarding JDI its reasonable attorneys' fees pursuant to 35 U.S.C. § 285; and

I. Such other relief that this Court deems just and proper.

DEMAND FOR JURY TRIAL

In accordance with Rule 38 of the Federal Rules of Civil Procedure and Local Rule CV-38, JDI respectfully demands a jury trial of all issues triable to a jury in this action.

Dated: August 31, 2020

Respectfully submitted,

/s/ Eric J. Klein
Eric J. Klein
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COUNSEL FOR PLAINTIFF JAPAN DISPLAY INC.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

JAPAN DISPLAY INC., **Plaintiff,** **v.** **TIANMA MICROELECTRONICS CO. LTD.,** **Defendant.**	**CIVIL ACTION NO.** **JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Japan Display Inc. ("JDI" or "Plaintiff") files this complaint for patent infringement ("Complaint") against Tianma Microelectronics Co. Ltd. ("Tianma" or Defendant), and alleges as follows:

THE PARTIES

1. Japan Display Inc. is a corporation organized and existing under the laws of Japan. Its principal place of business is located at Landic 2nd Bldg., 3-7-1, Nishishinbashi, Minato-ku, Tokyo, 105-0003, Japan.

2. JDI engages in research, development, manufacturing, and sales for displays, including liquid crystal displays ("LCDs") with thin film transistor ("TFT") technology ("TFT LCDs"). JDI was formed through the integration of the display businesses of Sony Corporation, Toshiba Corporation, and Hitachi, Ltd. Among other contributions, JDI pioneered TFTs that utilize a low temperature polycrystalline silicon ("LTPS") process, which allows TFT LCD panels to achieve a higher resolution while minimizing power consumption. LTPS is now widely used in TFT LCD panels that are incorporated into consumer and industrial electronic devices, including smartphones, tablets, cameras, game consoles, automotive electronics, and medical equipment.

3. Tianma Microelectronics is a foreign corporation organized and existing under the laws of China. Its principal place of business is located at No. 88, Daxin Road, Tianma Building, Nanshan District, Shenzhen, China.

4. Tianma "focus[es] on medium-/small-sized displays [and is] dedicated to offering [its] clients the world over cutting-edge technologies and products and quality services. At present, the company chiefly serves customers in Mainland China, Taiwan, Europe, America, Japan and South Korea." *See* 2017 *Corporate Social Responsibility Report*, TIANMA MICROELECTRONICS, http://en.tianma.com/UpLoadFile/20180504/b4618db4-5b0f-43f6-9a7a-c6273b07a90a.pdf.

JURISDICTION AND VENUE

5. This is an action for infringement arising under the patent laws of the United States, 35 U.S.C. § 271. Accordingly, this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. Upon information and belief, Tianma is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to its substantial business in this State and District, including: (A) at least part of its infringing activities alleged herein; and (B) regularly doing or soliciting business, engaging in other persistent conduct, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported and services provided to Texas residents vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, customers, subsidiaries, and/or consumers. For example, Tianma has "established manufacturing facilities in Shenzhen, Shanghai, Chengdu, Wuhan, and Xiamen, China as well as in Akita, Japan" and "a global sales and technical support network has been put in place that includes offices in the United States, Germany, Japan, South Korea, Taiwan, Hong Kong etc. to ensure seamless global support to our customers." *See*

http://en.tianma.com/about.shtml. This Court has personal jurisdiction over Tianma, directly or through intermediaries, distributors, importers, customers, subsidiaries, and/or consumers including its U.S. based, wholly-owned subsidiary, Tianma America Inc. ("Tianma America"). Through direction and control of this subsidiary, Tianma has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere within the United States, giving rise to this action and/or has established minimum contacts with Texas such that personal jurisdiction over Tianma would not offend traditional notions of fair play and substantial justice.

7. Tianma maintains a corporate presence in the United States (Tianma America) through which it distributes infringing TFT LCD panels. Tianma America is "a leading provider of small to medium size display solutions to the Americas, utilizing cutting edge technologies from Tianma Microelectronics and Tianma Japan, Ltd. (TMJ), coupled with state-of-the-art manufacturing resources of the Tianma Group, [Tianma America] offers a comprehensive range of LCD products . . . [including] a-Si and LTPS TFT-LCD." *About Us*, TIANMA AMERICA, https://usa.tianma.com/company-services/company-history-roadmap. "Tianma America has responsibility for all sales, marketing and engineering support of the Tianma Group display solutions in the Americas." *Id.* Tianma America identifies approximately 173 unique display panel model numbers for sale on its website. *See Product Search*, TIANMA AMERICA, https://usa.tianma.com/products-technology/product-filter.

8. Tianma America has a "representative" in Texas that provides support to potential customers in Texas regarding Tianma's products: Tristar Group.[1] Tianma America also has four "authorized distribution partners" in the United States, including, Arrow Intelligent Systems in

[1] Tristar Group is located at 5220 Spring Valley Road, #190, Dallas Texas. *See Contact Us*, Tianma America, https://usa.tianma.com/contact (last visited July 15, 2020) (on Tianma America Contact Us site, select the United States and then mouse over Texas).

Centennial, Colorado, Avnet Embedded and Integrated Solutions in Phoenix, Arizona, Edge Electronics, Inc. in Bohemia, NY 11716, and WPG Americas Inc. in San Jose, CA.[2] Upon information and belief, Tianma controls or otherwise directs and authorizes all activities of Tianma America, including Tianma America's using, offering for sale, selling, and/or importing accused products, its components, and/or products containing the same that incorporate the fundamental technologies covered by the asserted patents. Tianma America is authorized to import, sell, or offer for sale the accused products on behalf of its controlling parents. Upon information and belief, Tianma researches, designs, develops, and manufactures the infringing TFT LCD panels and then directs Tianma America to import, offer for sale, and sell the accused products in the United States. Accordingly, Tianma America conducts infringing activities on behalf of Tianma.

9. Upon information and belief, Tianma America's corporate presence in the United States gives Tianma substantially the same business advantages that it would have enjoyed if it conducted its business through its own offices or paid agents in the state. This corporate presence is comprised of three offices including Tianma America's headquarters in Chino, California, an office in Santa Clara, California, and an office in Troy, Michigan. *See Contact Us*, TIANMA AMERICA, https://usa.tianma.com/contact (last visited July 15, 2020). Upon information and belief, Tianma America's Troy, Michigan office is focused on automobile manufacturers. *See id.* (stating that the Troy Michigan office is "Automotive"). Upon information and belief, Tianma America is authorized to sell and offer for sale TFT LCD panels on behalf of Tianma. For example, Tianma America operates within Tianma's "global sales and technical support network [that] has been put in place

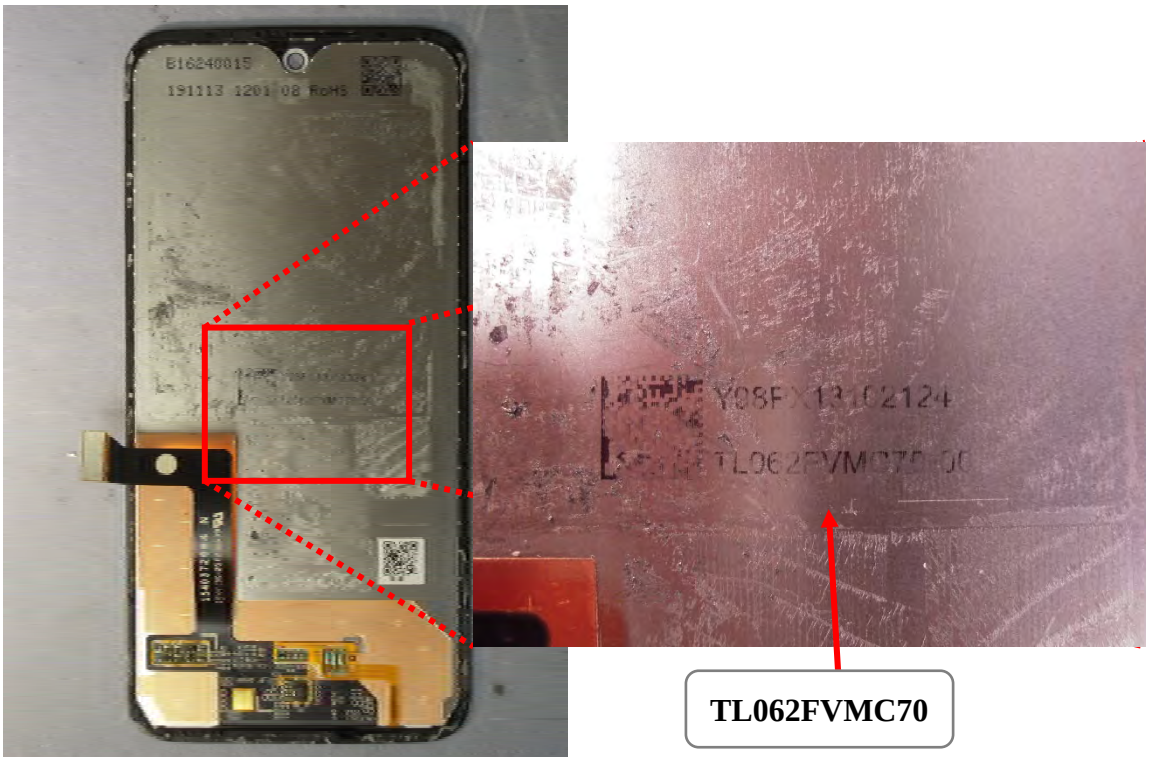
[2] Arrow Intelligent Systems is located at 9201 E. Dry Creek Road, Centennial, CO 80112; Avnet Embedded and Integrated Solutions is located at 2211 South 47th Street, Phoenix, AZ 85034; Edge Electronics, Inc. is located at 75 Orville Drive, Unit 2, Bohemia, NY 11716; and WPG Americas Inc. is located at 5285 Hellyer Avenue, Suite 150, San Jose, CA 95138. *See Authorized Distributors*, TIANMA AMERICA, http://usa.tianma.com/company-services/services-we-provide (last visited July 15, 2020)

that includes offices in the United States, Germany, Japan, South Korea, Taiwan, Hong Kong"… "to ensure seamless global support to our customers." *See About Us*, TIANMA AMERICA, https://usa.tianma.com/company-services/company-history-roadmap. Upon information and belief, Tianma's TFT LCD panels are imported, offered for sale, and sold in the U.S., including in Texas and this District. For example, Tianma's TFT LCD panel model numbers TL062FVMC70, TM062JDSC03, TL079QDXP02, and TM070RDHP03 are utilized in at least the Motorola Moto G7 smartphone, the Motorola Moto G7 Power smartphone, and the Asus ZenPad S 8.0 tablet, and the Mazda 3 sedan, respectively.

10. Via its alter egos, representatives, authorized distributors, agents, intermediaries, importers, customers, subsidiaries, and/or consumers maintaining a business presence, operating in, and/or residing in the U.S., Tianma has widely distributed and sold in retail stores, both brick and mortar and online, its infringing TFT LCD panels in Texas including within this District.

11. Upon information and belief, Tianma has placed and continues to place infringing TFT LCD panels into the stream of commerce via established distribution channels comprising at least representatives such as Tristar Group, distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc., customers such as Motorola, ASUS, and Mazda, and/or its wholly-owned, U.S.-based subsidiary Tianma America, for the sale of the infringing TFT LCD panels, with the knowledge and/or intent that those infringing TFT LCD panels are imported, used, offered for sale, sold, and continue to be sold in the United States and Texas, including in this District.

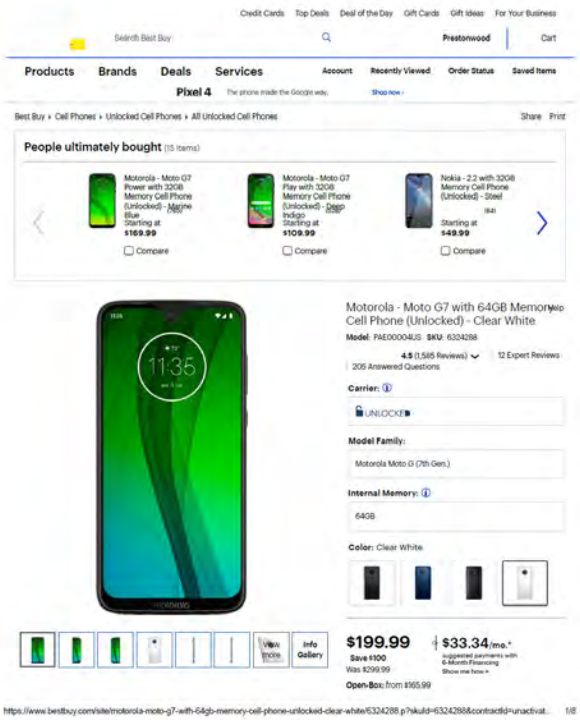
12. For example, the Motorola Moto G7 smartphone utilizes an infringing TFT LCD panel. Upon information and belief, Tianma designed and manufactured a TFT LCD panel with model number TL062FVMC70 for use in the Motorola G7 smartphone.



Tianma's TFT LCD Panel No. in Motorola Moto G7 Smartphone

Motorola Mobility LLC's Landing Page for the Motorola Moto G7 Smartphone

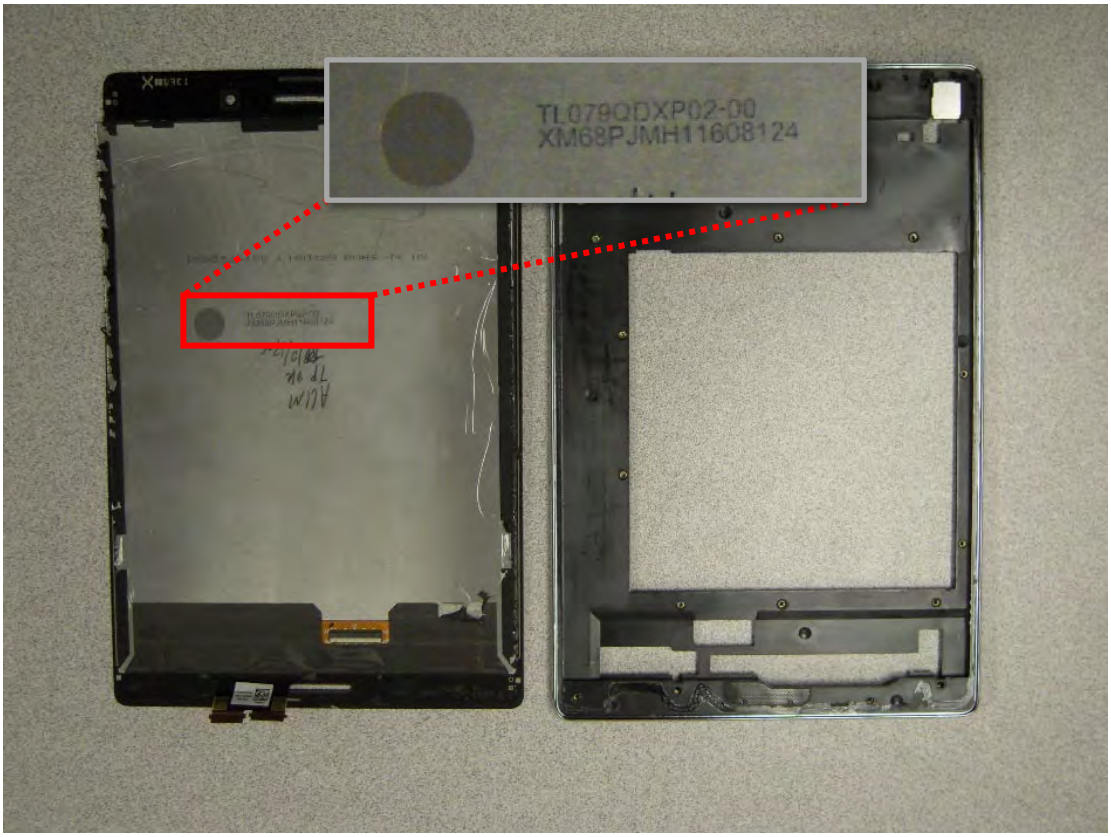
13. Upon information and belief, the Motorola Moto G7 Smartphone, designed and sold by Motorola Mobility LLC, was widely sold and distributed in Texas and in this District. Retailers such as Amazon.com and Best Buy have sold the Motorola Moto G7 Smartphone. *See Motorola Moto G7*, MOTOROLA, https://www.motorola.com/us/smartphones-moto-g7/p.



Best Buy's Landing Page for the Motorola Moto G7 Smartphone

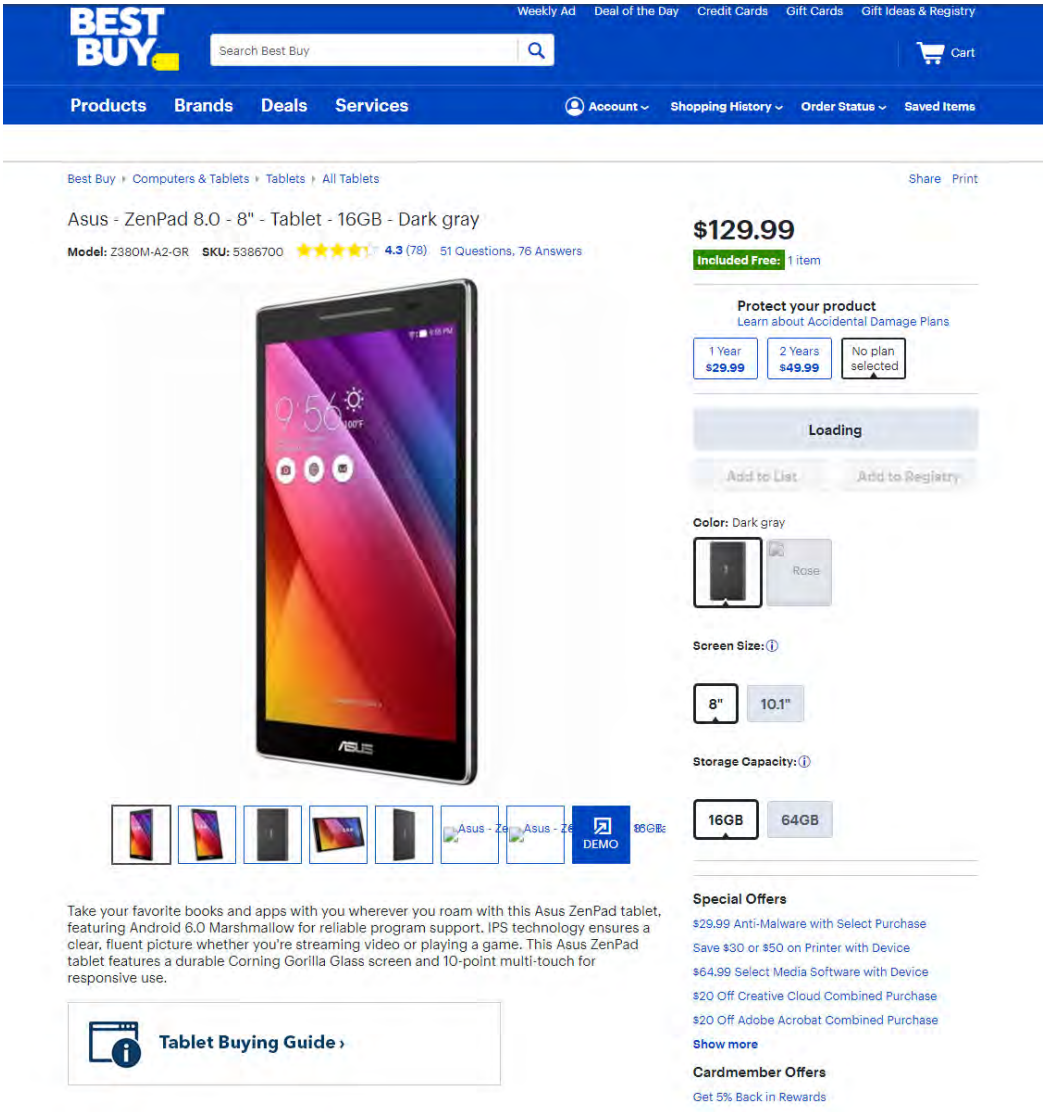
14. The Motorola Moto G7 Smartphone can be purchased through Best Buy's website. *See Motorola Moto G7*, BESTBUY.COM, https://www.bestbuy.com/site/motorola-moto-g7-with-64gb-memory-cell-phone-unlocked-clear-white/6324288.p?skuId=6324288&contractId=unactivat%E2%80%A6.

15. The Asus ZenPad S 8.0 tablet utilizes an infringing TFT LCD panel. Upon information and belief, Tianma designed and manufactured a TFT LCD panel with model number TL079QDXP02 for use in the Asus ZenPad S 8.0 tablet.



Tianma's TFT LCD Panel in Asus ZenPad S 8.0 Tablet

16. Upon information and belief, the Asus ZenPad S 8.0 tablet, manufactured by Asustek Computer Inc. and sold by Asus Computer International, was widely sold and distributed in Texas and in this District. The Asus ZenPad S 8.0 tablet was sold on Best Buy's website , https://www.bestbuy.com/site/asus-zenpad-8-0-8-tablet-16gb-dark-gray/5386700.p?skuId=5386700 (archived at Wayback Machine, https://web.archive.org/web/20180618155158/https://www.bestbuy.com/site/asus-zenpad-8-0-8-tablet-16gb-dark-gray/5386700.p?skuId=5386700, for June 18, 2019).



BestBuy.com Landing Page for the Asus Zenpad S 8.0 Tablet

17. Tianma also maintains commercial websites accessible to the residents of Texas and this District through which Tianma promotes, markets, advertises, and facilitates sales of the infringing TFT LCD panels. *See* http://en.tianma.com/index.shtml.

18. In the alternative, the Court has personal jurisdiction over Tianma under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise under federal law, Tianma is not subject to the jurisdiction of the courts of general jurisdiction of any state, and exercising jurisdiction over Tianma is consistent with the U.S. Constitution.

19. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391 because, among other things, Tianma is not resident in the United States, and thus may be sued in any judicial district, including this one, pursuant to 28 U.S.C. § 1391(c)(3).

THE ASSERTED PATENTS AND TECHNOLOGY

20. The patents-in-suit include JDI's United States Patent Nos. 7,636,142 ("the '142 Patent"), 7,385,665 ("the '665 Patent"), and 9,939,698 ("the '698 Patent"), (collectively the "Asserted Patents").

21. On December 22, 2009, the USPTO duly and legally issued U.S. Patent No. 7,636,142 ("the '142 Patent"), titled "Liquid Crystal Display Device" to inventors Masaaki Aota, Yasuo Segawa, and Tomohide Onogi. A true and correct copy of the '142 Patent is attached as Exhibit 1 to this Complaint.

22. The '142 Patent is generally directed to the structure of a liquid crystal display with an electric field opening part formed in an upper electrode, a window-shaped opening part formed in the lower electrode, and a portion of the electric field opening part overlaps the window-shaped opening part. The '142 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the '142 Patent.

23. On June 10, 2008, the USPTO duly and legally issued U.S. Patent No. 7,385,665 ("the '665 Patent") titled "Display Device" to inventor Tomohiro Matsumoto. A true and correct copy of the '665 Patent is attached as Exhibit 2 to this Complaint.

24. The '665 Patent is generally directed to the structure of a liquid crystal display device which enables reduction in size of a picture-frame-shaped region and prevents defective connection of a flexible board. The '665 Patent discloses and specifically claims novel and non-obvious subject

matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the ’665 Patent.

25. On April 10, 2018, the USPTO duly and legally issued U.S. Patent No. 9,939,698 (“the ’698 Patent”), titled “Liquid Crystal Display Device” issued to Yasushi Tomioka, Toshimasa Ishigaki, Hidehiro Sonoda, and Sumito Ueta. A true and correct copy of the ’698 Patent is attached as Exhibit 3 to this Complaint.

26. The ’698 Patent is generally directed to the structure of a liquid crystal display device to enable a high-definition screen without an increased thickness by arranging the TFT, the through-hole, and other components in the same area. The ’698 Patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional liquid crystal displays that were available as of the priority date of the application that became the ’698 Patent.

TIANMA’S INFRINGING PRODUCTS AND ACTIVITIES

27. Tianma designs, manufactures, and sells TFT LCD panels. *See About Tianma*, TIANMA MICROELECTRONICS, http://en.tianma.com/about.shtml. According to Tianma, its “shipments of small and medium size modules kept the leading position among the global panel factories” and its “market share for high-end medical devices, aviation entertainment, navigation and VOIP products ranked first worldwide.” *Id.* Tianma manufactures infringing TFT LCD panels in Asia and sells them worldwide, including in the United States. *See id.* (stating that Tianma has “manufacturing facilities in Shenzhen, Shanghai, Chengdu, Wuhan, and Xiamen, China as well as in Akita, Japan. In addition, a global sales and technical support network has been put in place that includes offices in the United States, Germany, Japan, South Korea, Taiwan, Hong Kong etc. to ensure seamless global support to our customers.”). Tianma makes, uses, sells, offers to sell within the United States or imports to the United States infringing TFT LCD panels through making sales,

marketing to, and providing engineering support to U.S. based customers through its wholly-owned subsidiary, Tianma America. *See About Us*, TIANMA AMERICA, https://usa.tianma.com/company-services/company-history-roadmap (stating that "Tianma America has responsibility for all sales, marketing, and engineering support of the Tianma Group display solutions in the Americas.").

28. The claims of the Asserted Patents cover Tianma's TFT LCD panels, their components, and processes related to the same (referred to herein as the "Accused Panel(s)" or "infringing TFT LCD panels"). The Accused Panels are incorporated and utilized in various consumer devices, including "smart phones, tablet PCs, smart wear, automotive instrumentation, industrial and medical instrumentation, avionic display, home automation, etc." *See* http://en.tianma.com/about.shtml. For example, TL062FVMC70, TM062JDSC03, TL079QDXP02, and TM070RDHP03 are among the infringing TFT LCD panels and are utilized in at least the Motorola Moto G7 smartphone, the Motorola Moto G7 Power smartphone, the Asus ZenPad S 8.0 tablet, and the Mazda 3, respectively.

29. Tianma's customer Motorola Mobility LLC designs, manufactures, and sells the Motorola Moto G7 smartphone and Moto G7 Power smartphone, which incorporates Tianma's infringing TFT LCD panels with model numbers TL062FVMC70 and TM062JDSC03, respectively. Motorola Mobility LLC is headquartered at 222 W. Merchandise Mart Plaza, Suite 1800 Chicago, Illinois 60654. *See Contact Us*, Motorola Mobility LLC, https://www.motorola.com/us/about/contact. Upon information and belief, Motorola Mobility LLC had on average 8% of the market for all smartphones shipped in the U.S. in 2019. *See US Smartphone Market Share: By Quarter*, COUNTERPOINT, https://www.counterpointresearch.com/us-market-smartphone-share/ (last visited July 31, 2020). Upon information and belief, Motorola Mobility LLC distributes its products, including the Motorola Moto G7 smartphone, across the U.S.,

including in Texas and this judicial District by direct sales as well as through its retail partners. *See Motorola Moto G7*, MOTOROLA, https://www.motorola.com/us/smartphones-moto-g7/p (last visited July 31, 2020).

30. Tianma's customer Asustek Computer Inc. designs, manufacturers, and sells the Asus ZenPad S 8.0 tablet, which incorporates Tianma's infringing TFT LCD panels with model number TL079QDXP02. Tianma supplies infringing TFT LCD panels to Asustek Computer, Inc. for its smartphones, notebook PCs and tablet products. *See News and Information*, Tianma America, https://usa.tianma.com/news-information/news/2016/04/11/tianma-to-be-main-supplier-of-panels-for-new-asustek-notebooks. Asus Computer International, is a corporation established under the laws of the State of California, having a principal place of business at 48720 Kato Road, Fremont, CA 94538. Upon information and belief, Asus Computer International is a wholly owned subsidiary of Asustek Computer, Inc. responsible for the sales and distribution of Asustek Computer, Inc.'s smartphones, notebook PCs, and tablets in the United States. *See Asustek Computer Inc. and Subsidiaries Consolidated Financial Statements With Independent Auditors' Review Report Thereon September 30, 2019 and 2018*, https://www.asus.com/event/Investor/Content/attachment_en/2019_Q3_Finacial_Report.pdf, at p. 14 (last visited July 31, 2020). Asus Computer International distributes its devices, including the Asus ZenPad S 8.0 tablet, in the U.S., including in Texas and this District by direct sales as well as through its retail partners. *See id.* (stating that Asus Computer International's main business activity is "selling of 3C products in North America) (last visited July 31, 2020).

31. Tianma's customer Mazda Motor Corporation designs, manufacturers, and sells the Mazda 3 automobile, which incorporates infringing TFT LCD panels with model number TM070RDHP03. Mazda Motor of America, Inc. is a corporation having a principal place of

business in Irvine, California. Upon information and belief, Mazda Motor of America, Inc. is a subsidiary of Mazda Motor Corporation responsible for the sales and distribution of Mazda Motor Corporation's automobiles in the United States. Upon information and belief, Mazda Motor of America distributes its automobiles, including the Mazda 3, in the U.S., including in Texas and this District through its dealership network. *See, e.g.*, Velocity Mazda (1930 W SW Loop 323, Tyler, TX) and El Dorado Mazda (2150 N Central Expy, McKinney, TX).

COUNT I

(INFRINGEMENT OF U.S. PATENT NO. 7,636,142)

32. JDI re-alleges and incorporates by reference the allegations in paragraphs 1-31 above.

33. JDI is the assignee of the '142 Patent. JDI has all substantial rights to enforce the '142 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

34. The '142 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

35. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the '142 Patent in this District and elsewhere.

36. At a minimum, Tianma has known of the '142 Patent at least as early as the filing date of the complaint.

37. Tianma directly infringes at least claim 1 of the '142 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone. Furthermore,

upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the '142 Patent. Furthermore, Tianma directly infringes the '142 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the '142 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America's infringing acts and receives a direct financial benefit from Tianma America's infringement.

38. Independent claim 1 of the '142 Patent recites:

> 1. A liquid crystal display device comprising:
> an upper electrode and a lower electrode interposing an insulation layer therebetween,
> wherein an electric field opening part for passing an electric field is formed in the upper electrode and liquid crystal molecules are driven by applying a voltage between the lower electrode and the upper electrode,
> wherein an upper electrode wiring and the upper electrode which interpose an interlayer insulation film therebetween, together is disposed below the lower electrode,
> wherein a window-shaped opening part formed by partially removing the lower electrode for connecting the upper electrode wiring and the upper electrode, and
> wherein one end portion of the electric field opening part in the longitudinal direction around the window-shaped opening part is disposed to be overlapped with the window-shaped opening part in a plan view.

39. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’142 Patent.

40. The TL062FVMC70 has a liquid crystal display device comprising an upper electrode and a lower electrode interposing an insulation layer therebetween.

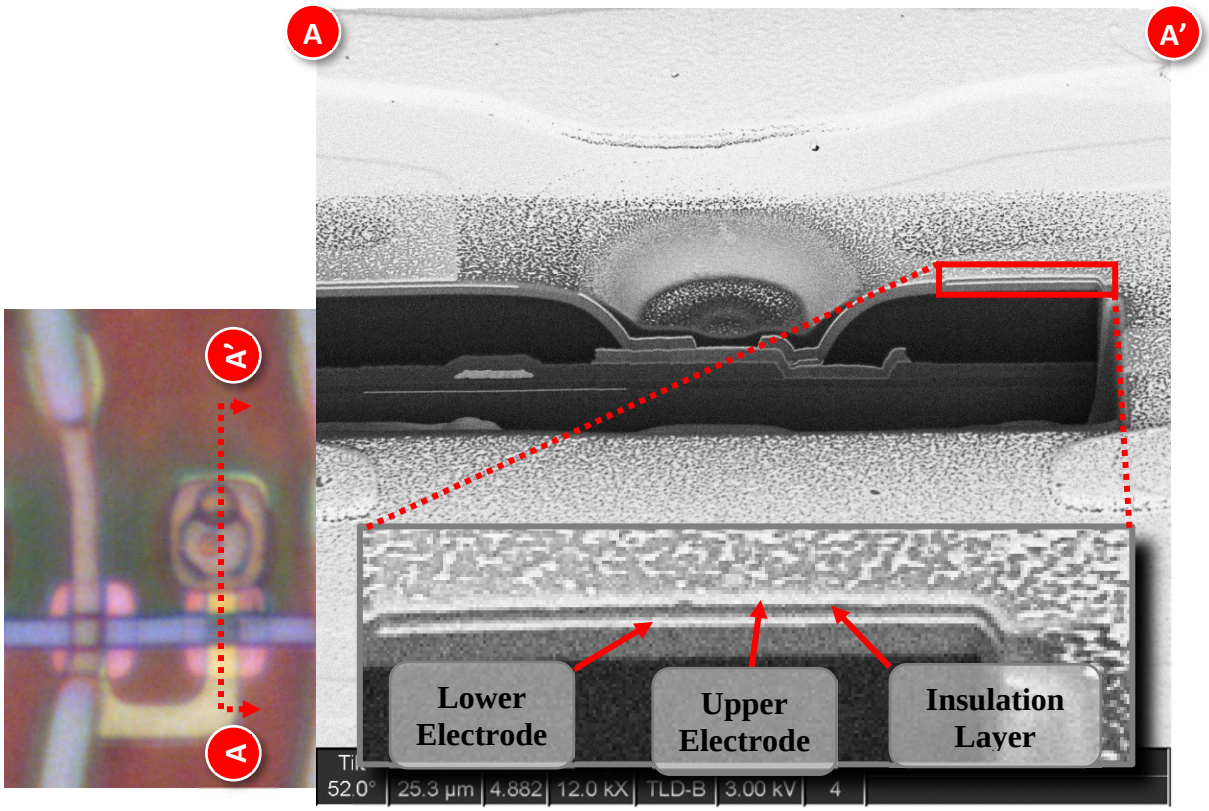
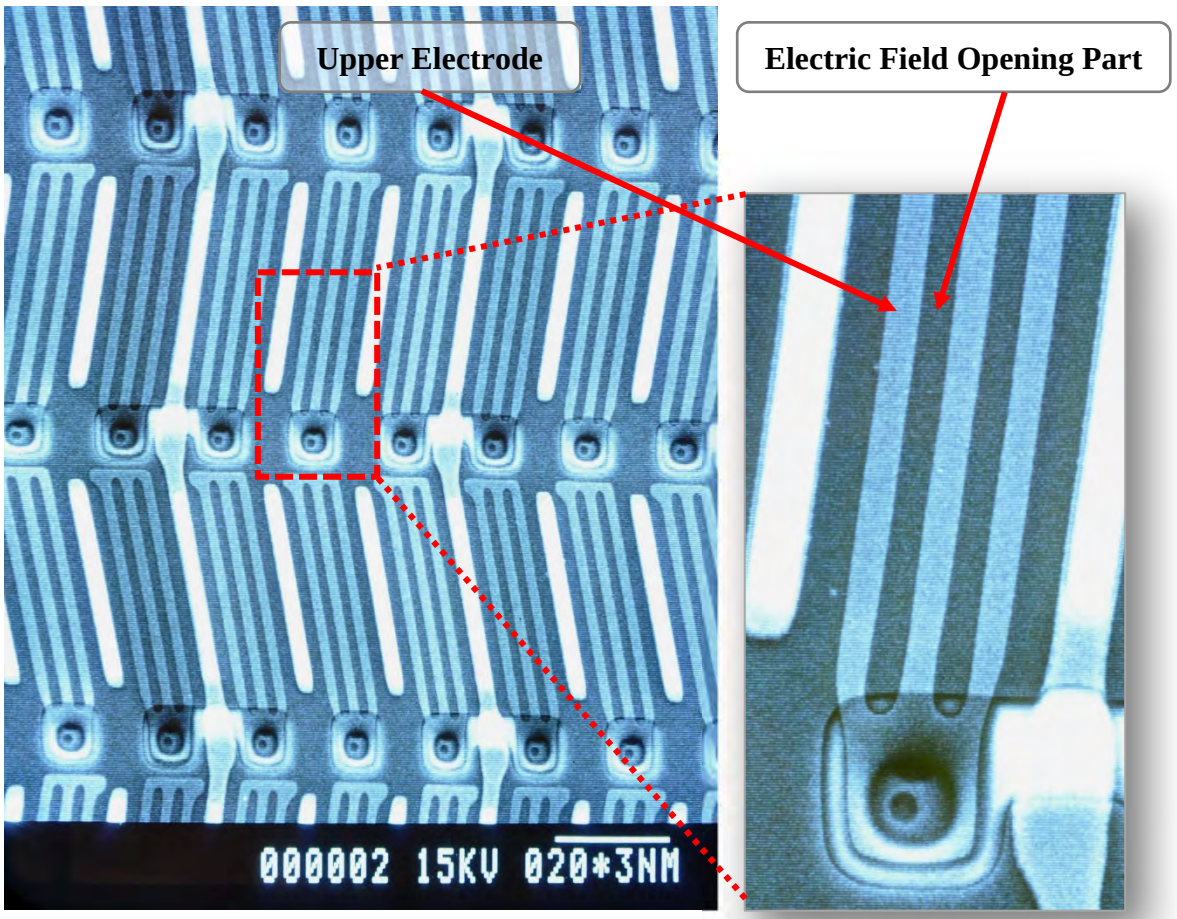


Image from Scanning Electron Microscope Analysis of TL062FVMC70

41. The TL062FVMC70 has an electric field opening part for passing an electric field and is formed in the upper electrode, and liquid crystal molecules are driven by applying a voltage between the lower electrode and the upper electrode.



Images from Scanning Electron Microscope Analysis of TL062FVMC70

42. The TL062FVMC70 has an upper electrode wiring and the upper electrode which interpose an interlayer insulation film therebetween, together is disposed below the lower electrode.

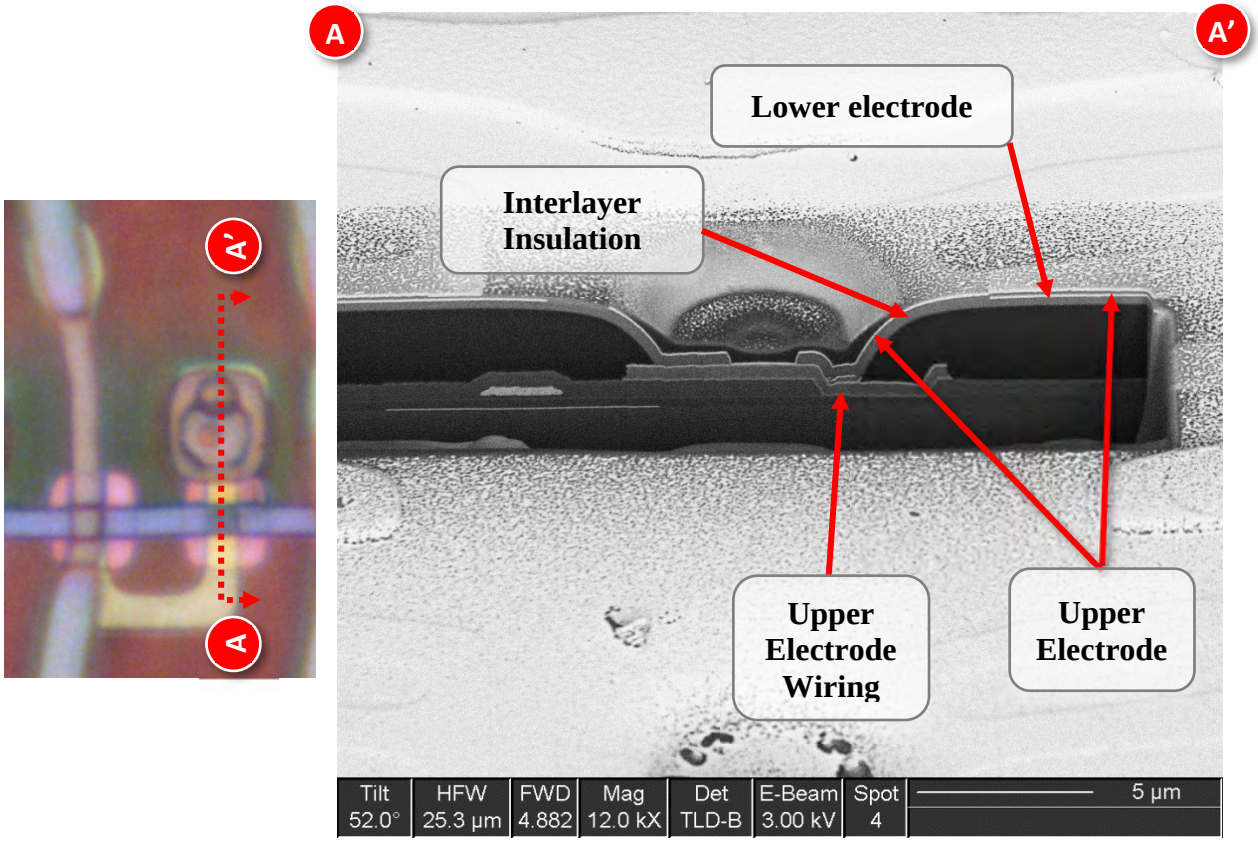
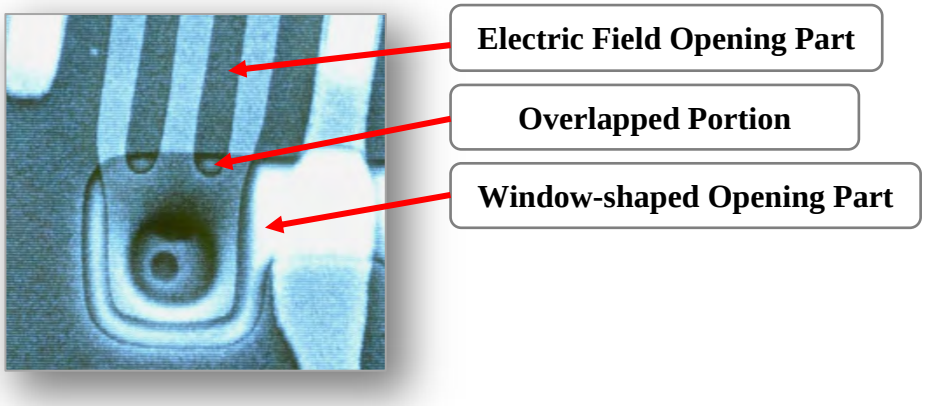
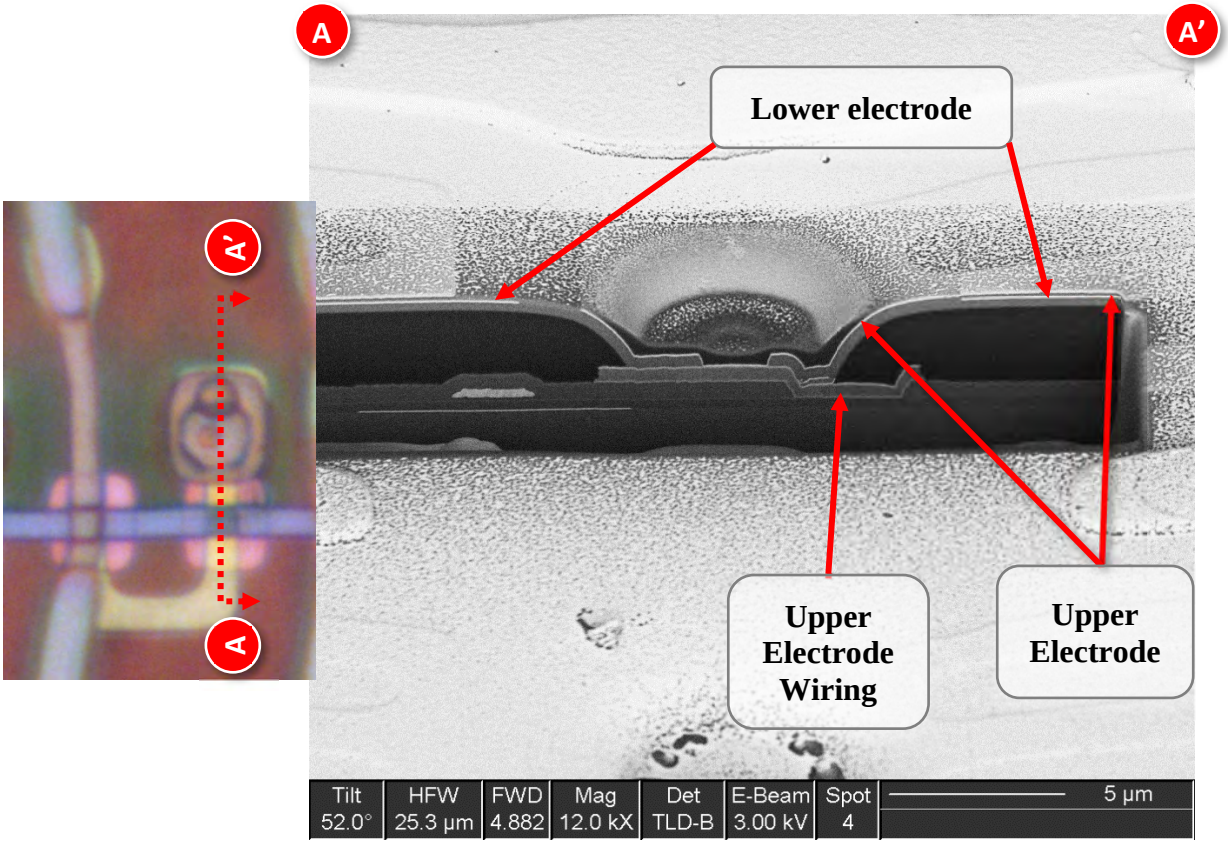


Image from Scanning Electron Microscope Analysis of TL062FVMC70

43. The TL062FVMC70 has a window-shaped opening part formed by partially removing the lower electrode for connecting the upper electrode wiring and the upper electrode, and wherein one end portion of the electric field opening part in the longitudinal direction around the window-shaped opening part is disposed to be overlapped with the window-shaped opening part in a plan view.





Images from Scanning Electron Microscope Analysis of TL062FVMC70

44. Upon information and belief, since at least the filing of this complaint Tianma was on notice of its infringement, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused

Panels that include or are made using all of the limitations of one or more claims of the ’142 Patent to directly infringe one or more claims of the ’142 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least when notice was provided as of the filing of this complaint, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’142 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, inter alia, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories’ standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

45. Upon information and belief, despite having knowledge of the ’142 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’142 Patent, Tianma has nevertheless continued its infringing conduct. Tianma’s infringing activities relative to the ’142 Patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

46. JDI has been damaged as a result of Tianma’s infringing conduct. Tianma is liable to JDI in an amount that adequately compensates JDI for Tianma’s infringement, which, by law,

cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II

(INFRINGEMENT OF U.S. PATENT NO. 7,385,665)

47. JDI re-alleges and incorporates by reference the allegations in paragraphs 1-46 above.

48. JDI is the assignee of the ’665 Patent. JDI has all substantial rights to enforce the ’665 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

49. The ’665 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

50. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the ’665 Patent in this District and elsewhere.

51. For example, Tianma directly infringes at least claim 1 of the ’665 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TM062JDSC03 incorporated into the Motorola Moto G7 Power smartphone and TM070RDHP03 incorporated into the Mazda 3 sedan. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’665 Patent. Furthermore, Tianma directly

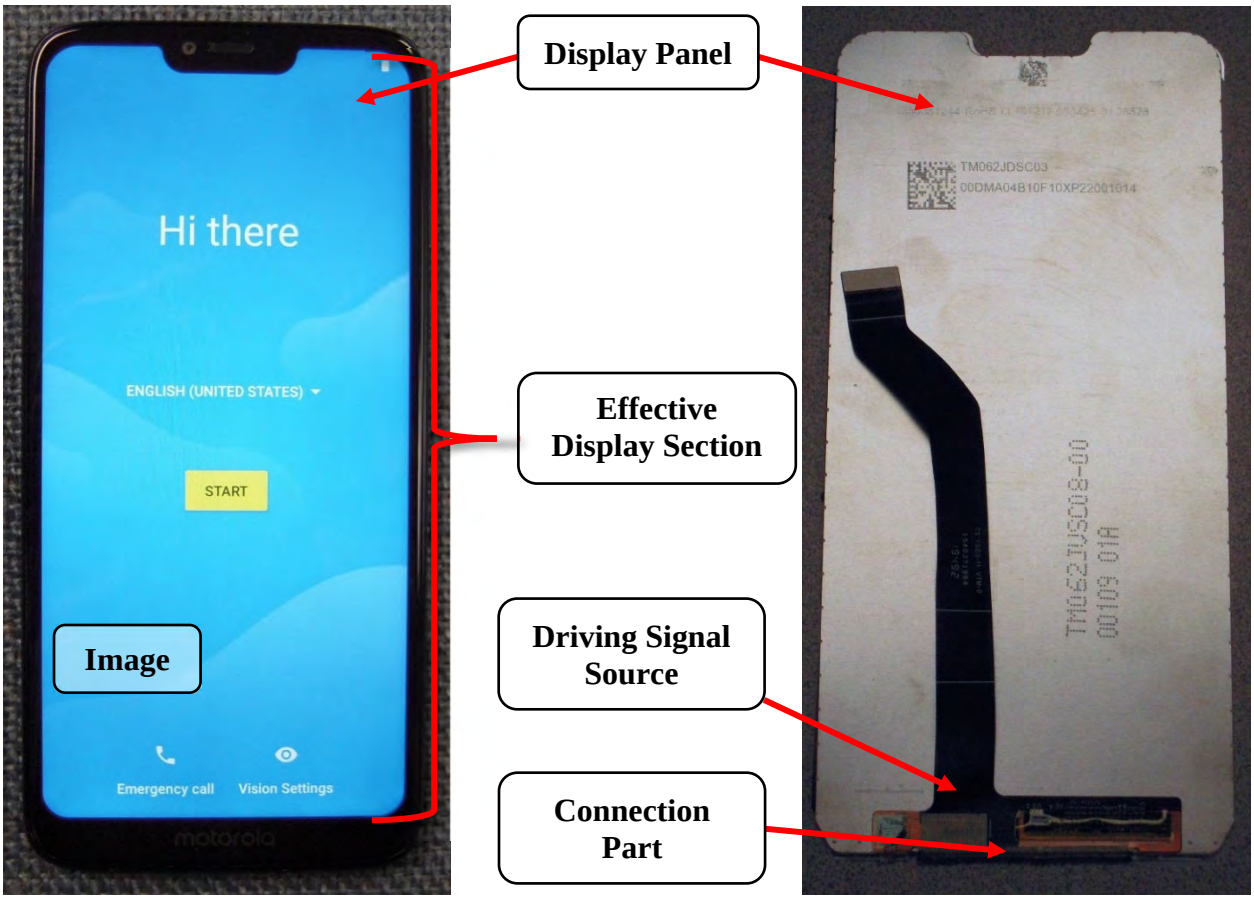
infringes the ’665 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’665 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

52. Independent claim 1 of the ’665 Patent recites:

> 1. A display device comprising:
> a display panel which includes an effective display section on which an image is displayed;
> a driving signal source which supplies a driving signal to the effective display section;
> a connection part at which the display panel and the driving signal source are connected; and
> a plurality of connection wiring lines which connect the connection part and the effective display section,
> the connection part comprising:
> a first connection section including at least two connection pad groups which are composed of connection pads that are connected to the effective display section via the connection wiring lines, and a dummy pad group which is disposed between the at least two connection pad groups and is composed of dummy pads; and
> a second connection section including connection terminal groups which are composed of connection terminals corresponding to the connection pads, and a dummy terminal group which is composed of dummy terminals corresponding to the dummy pads.

53. The TFT LCD panel model number TM062JDSC03, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 Power smartphone infringes at least claim 1 of the ’665 Patent.

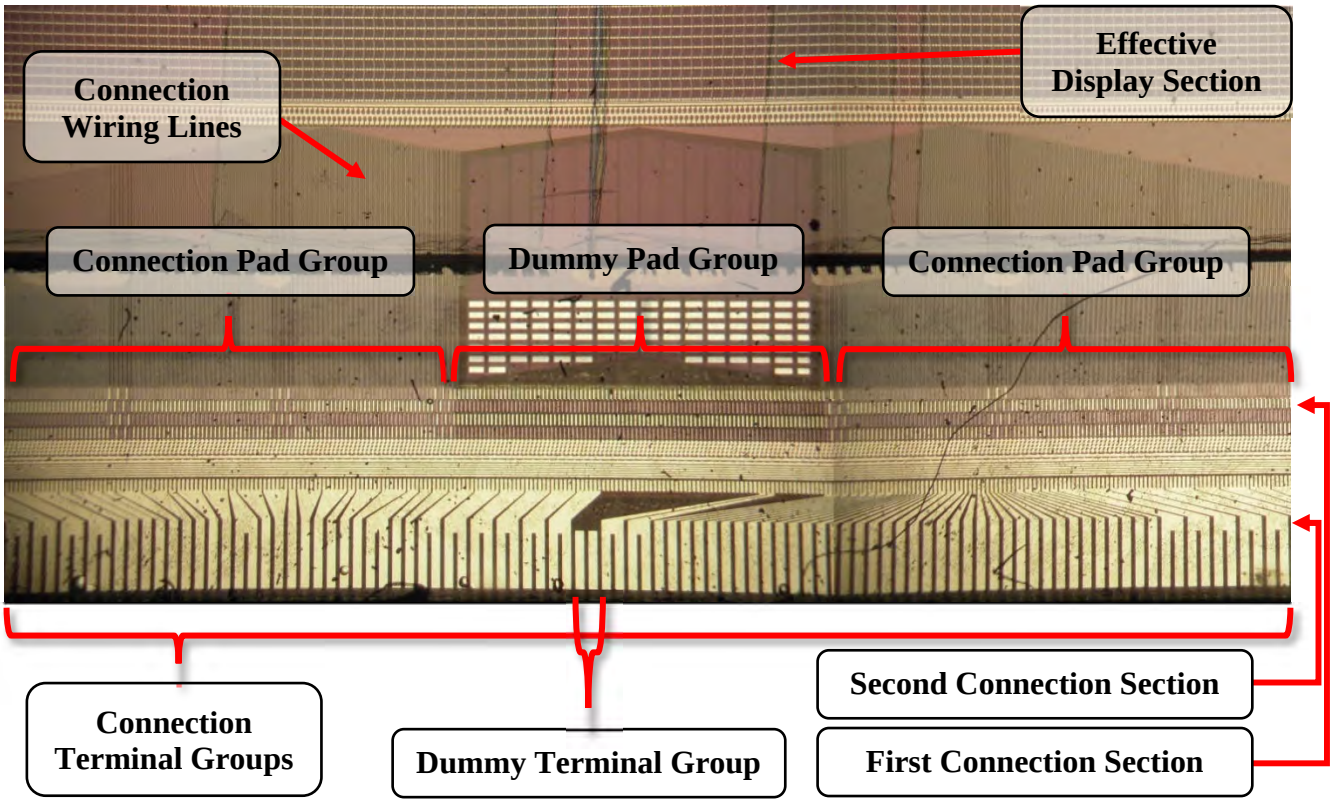
54. The TM062JDSC03 is a display panel with an effective display section that displays an image. The TM062JDSC03 has a connection part that connects the display panel and a driving signal source, which supplies a driving signal to the effective display section.



Optical Microscope Images of TM062JDSC03

55. The TM062JDSC03 has a plurality of connection wiring lines which connect the connection part and the effective display section. The connection part of the TM062JDSC03 includes a first connection section including at least two connection pad groups with connection pads that are connected to the effective display section via the connection wiring lines and a dummy pad group which is disposed between the at least two connection pad groups. The connection part of the TM062JDSC03 also includes a second connection section including connection terminal groups

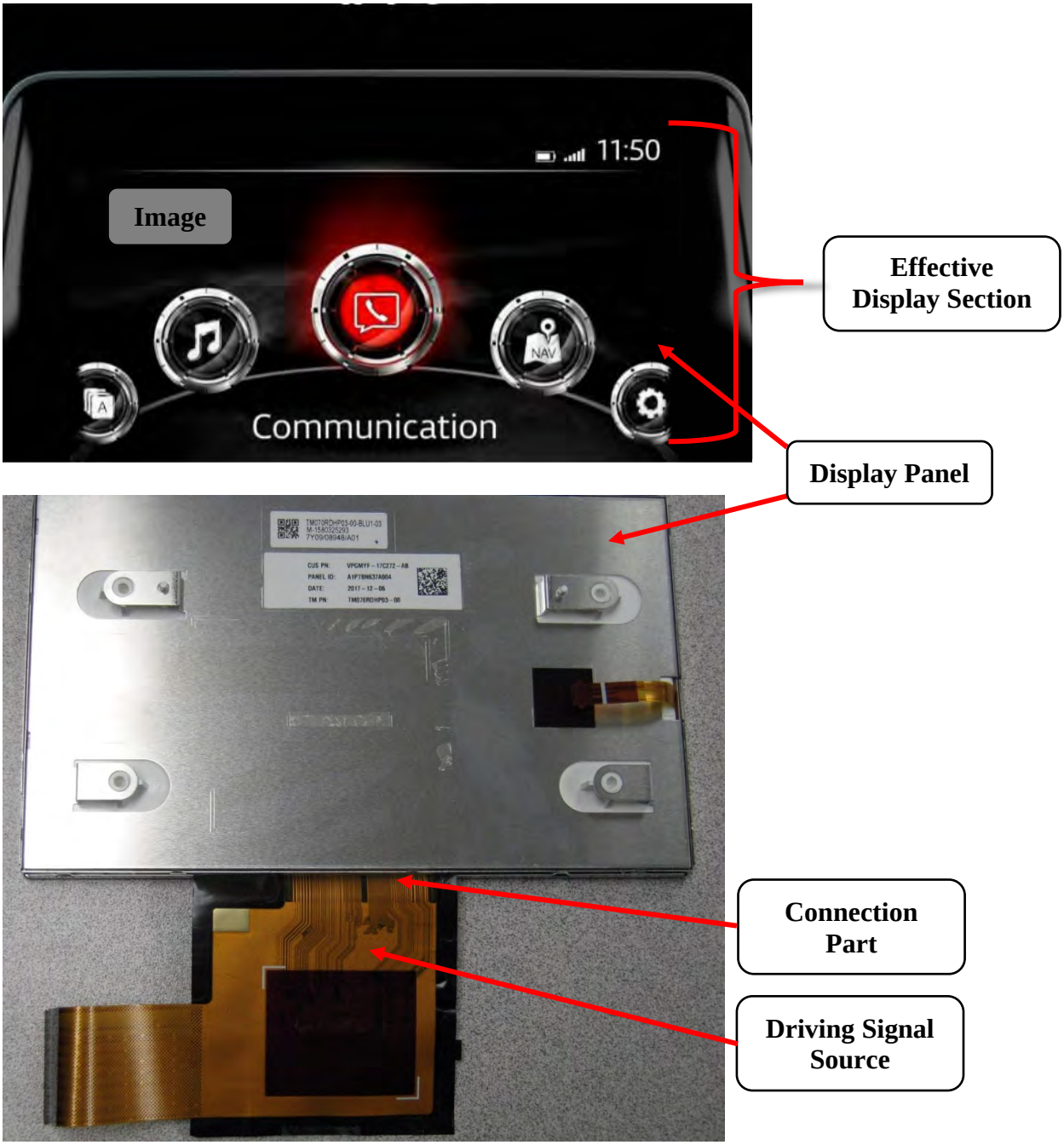
which are composed of connection terminals corresponding to the connection pads, and a dummy terminal group which is composed of dummy terminals corresponding to the dummy pads.



Optical Microscope Image of TM062JDSC03

56. The TFT LCD panel model number TM070RDHP03, designed, manufactured, and sold by Tianma and incorporated in the Mazda 3 sedan infringes at least claim 1 of the ’665 Patent.

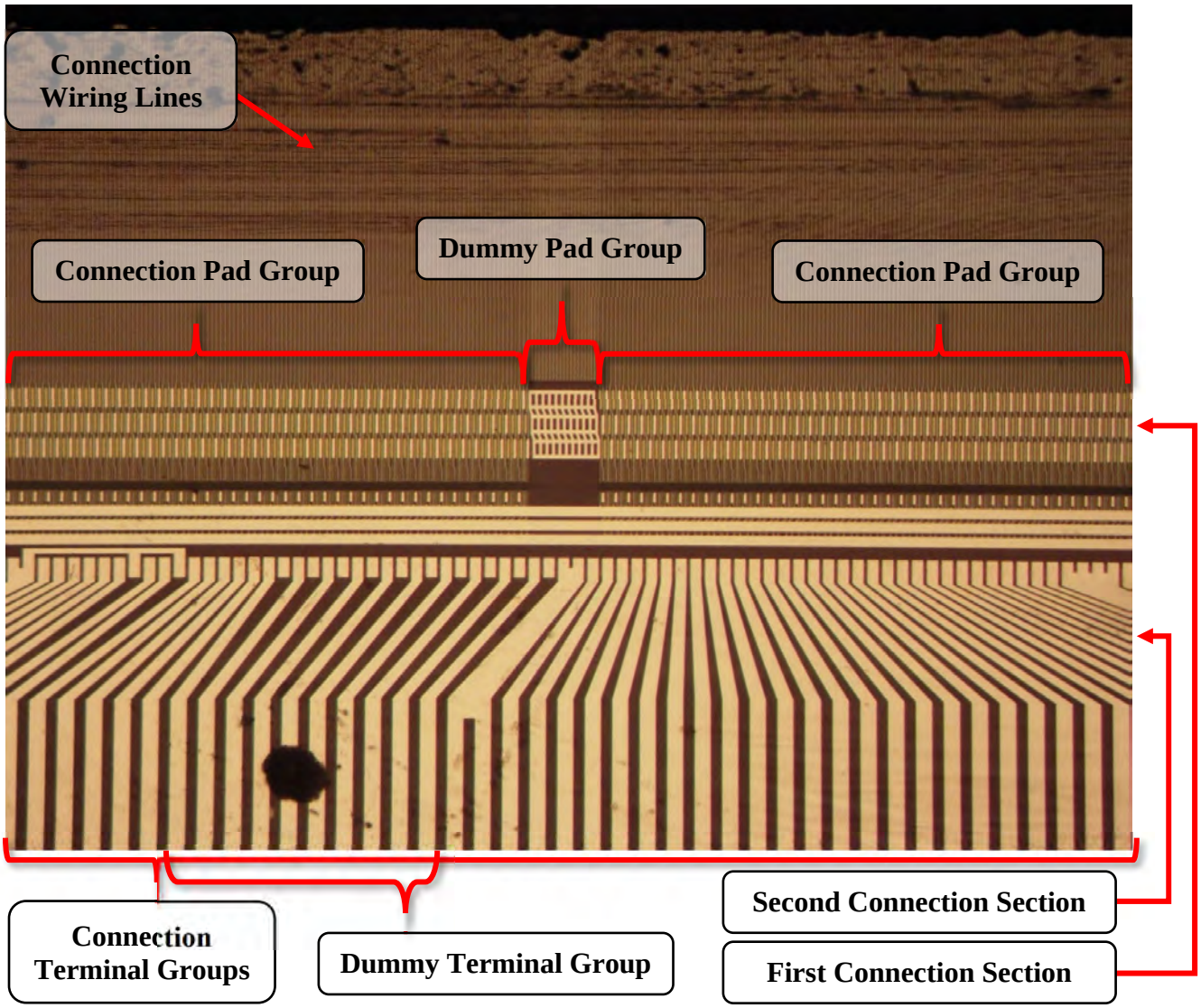
57. The TM070RDHP03 is a display panel with an effective display section that displays an image. The TM070RDHP03 has a connection part that connects the display panel and a driving signal source, which supplies a driving signal to the effective display section.



Optical Microscope Images of TM070RDHP03

58. The TM070RDHP03 has a plurality of connection wiring lines which connect the connection part and the effective display section. The connection part of the TM070RDHP03 includes a first connection section including at least two connection pad groups with connection pads that are connected to the effective display section via the connection wiring lines and a dummy pad

group which is disposed between the at least two connection pad groups. The connection part of the TM070RDHP03 also includes a second connection section including connection terminal groups which are composed of connection terminals corresponding to the connection pads, and a dummy terminal group which is composed of dummy terminals corresponding to the dummy pads.



Optical Microscope Image of TM070RDHP03

59. At a minimum, Tianma has known of the ’665 Patent at least as early as the filing date of the complaint.

60. Upon information and belief, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the '665 Patent to directly infringe one or more claims of the '665 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least the filing date of the complaint, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '665 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories' standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

61. Upon information and belief, despite having knowledge of the '665 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '665 Patent, Tianma has nevertheless continued its infringing conduct. Tianma's infringing activities relative to the '665 Patent have been, and continue to be willful and deliberate misconduct beyond typical

infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

62. JDI has been damaged as a result of Tianma's infringing conduct with regard to the '665 Patent. Tianma is liable to JDI in an amount that adequately compensates JDI for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III

(INFRINGEMENT OF U.S. PATENT NO. 9,939,698)

63. JDI re-alleges and incorporates by reference the allegations in paragraphs 1-62 above.

64. JDI is the assignee of the '698 Patent. JDI has all substantial rights to enforce the '698 Patent, including the right to exclude others and to sue and recover damages for past and future infringement.

65. The '698 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

66. Tianma has infringed and continues to infringe directly and/or indirectly (by inducing infringement), either literally or under the doctrine of equivalents, one or more claims of the '698 Patent in this District and elsewhere.

67. For example, Tianma directly infringes at least claim 1 of the '698 Patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, TFT LCD panels, including without limitation the TL062FVMC70 incorporated into the Motorola Moto G7 smartphone and the TL079QDXP02 incorporated into the Asus ZenPad S 8.0 tablet. Furthermore, upon information and belief, Tianma sells and makes Accused Panels outside of the United States, delivers the Accused

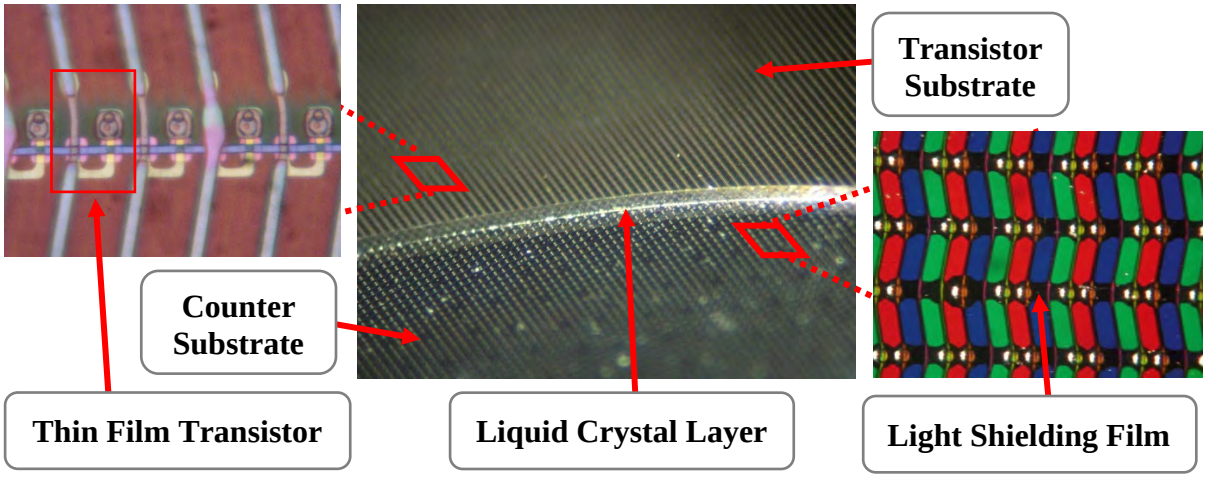
Panels to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Panels outside of the United States, Tianma does so intending and/or knowing that the Accused Panels are destined for the United States and/or are designing those products for sale in the United States, thereby directly infringing the ’698 Patent. Furthermore, Tianma directly infringes the ’698 Patent through its direct involvement in the activities of its subsidiaries, including Tianma America, including by selling and offering for sale the Accused Panels directly to Tianma America and importing the Accused Panels into the United States for Tianma America. Upon information and belief, Tianma America conducts activities that constitutes direct infringement of the ’698 Patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Panels. Tianma is vicariously liable for this infringing conduct of Tianma America as Tianma has the right and ability to control Tianma America’s infringing acts and receives a direct financial benefit from Tianma America’s infringement.

68. Independent claim 1 of the ’698 Patent recites:

> 1. A liquid crystal display device comprising:
> a transistor substrate including;
> a thin film transistor having a source electrode,
> an organic insulating film formed on the thin film transistor and having a through hole which has a side wall,
> a common electrode formed on the organic insulating film,
> an interlayer insulating film formed on the common electrode, and
> a pixel electrode formed on the interlayer insulating film and electrically connected to the source electrode via the through-hole,
> a counter substrate having a light shielding film, and
> a liquid crystal layer sandwiched between the transistor substrate and the counter substrate,
> wherein the pixel electrode covers the side wall of the through-hole, and
> wherein the pixel electrode has a slit including a first end, and the first end is overlapped with the side wall.

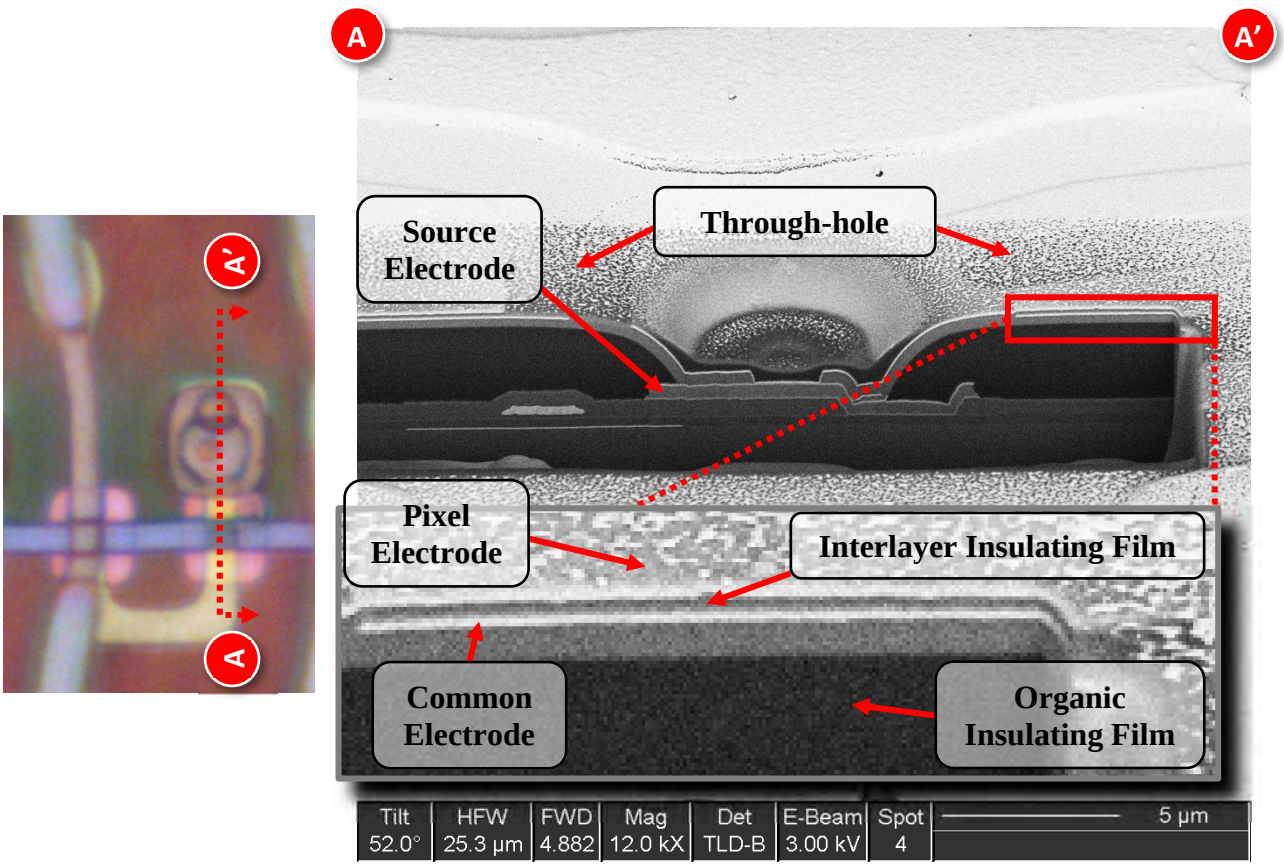
69. The TFT LCD panel model number TL062FVMC70, designed, manufactured, and sold by Tianma and incorporated in the Motorola Moto G7 smartphone infringes at least claim 1 of the ’698 Patent.

70. The TL062FVMC70 is a liquid crystal display device comprising a transistor substrate and a counter substrate with a liquid crystal layer sandwiched in between. The transistor substrate has a thin film transistor, and the counter substrate has a light shielding film.



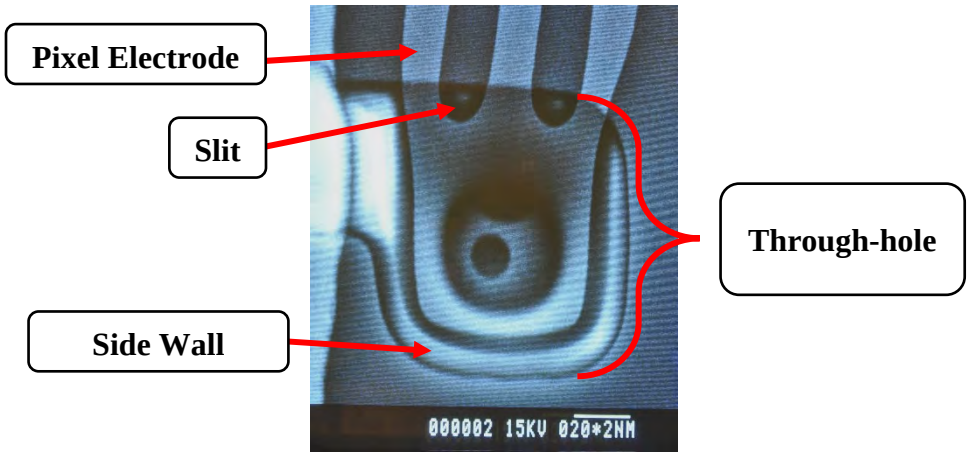
Optical Microscope Images of TL062FVMC70

71. The TL062FVMC70 has pixel electrode formed on an interlayer insulating film, which is formed on the common electrode. The common electrode is formed on an organic insulating film. The pixel electrode is electrically connected to a source electrode of the thin film transistor via a through-hole in the organic insulating film.



Scanning Electron Microscope Image of TL062FVMC70

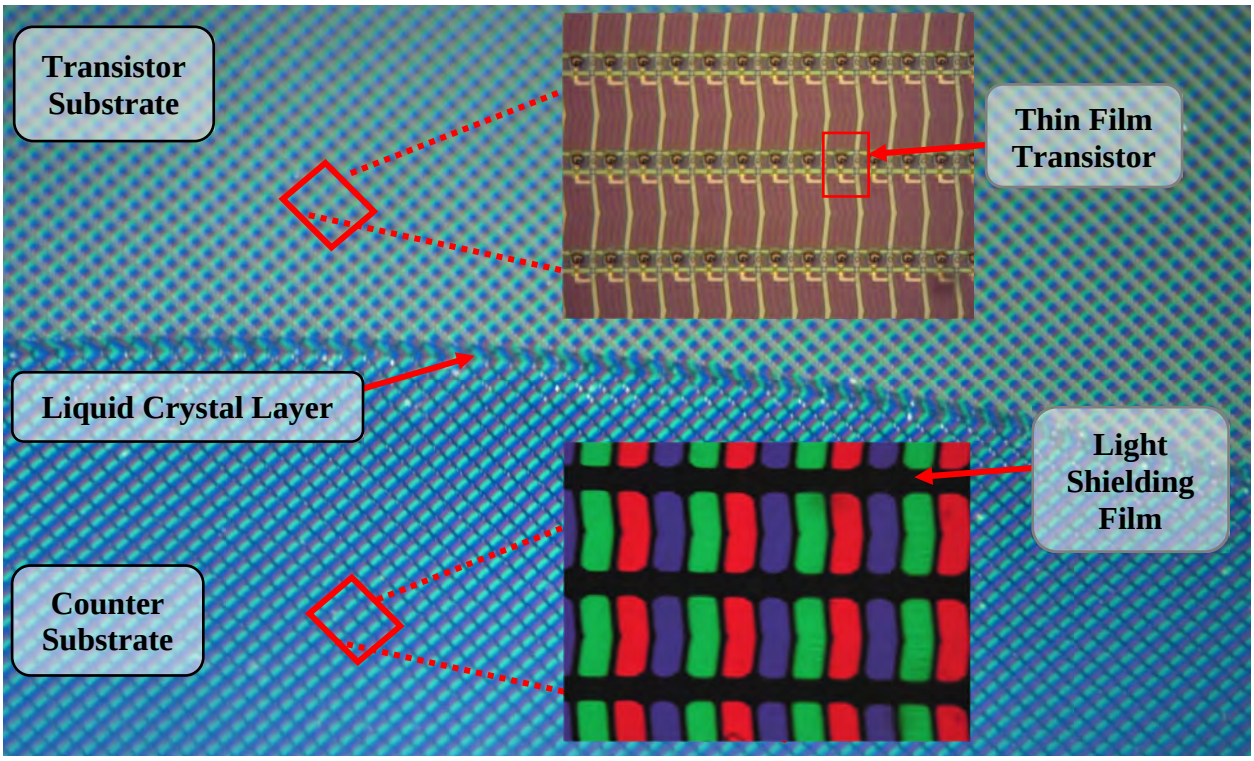
72. The pixel electrode of the TL062FVMC70 covers a side wall of the through-hole. The pixel electrode also has a slit that is overlapped with the side wall.



Scanning Electron Microscope Image of TL062FVMC70

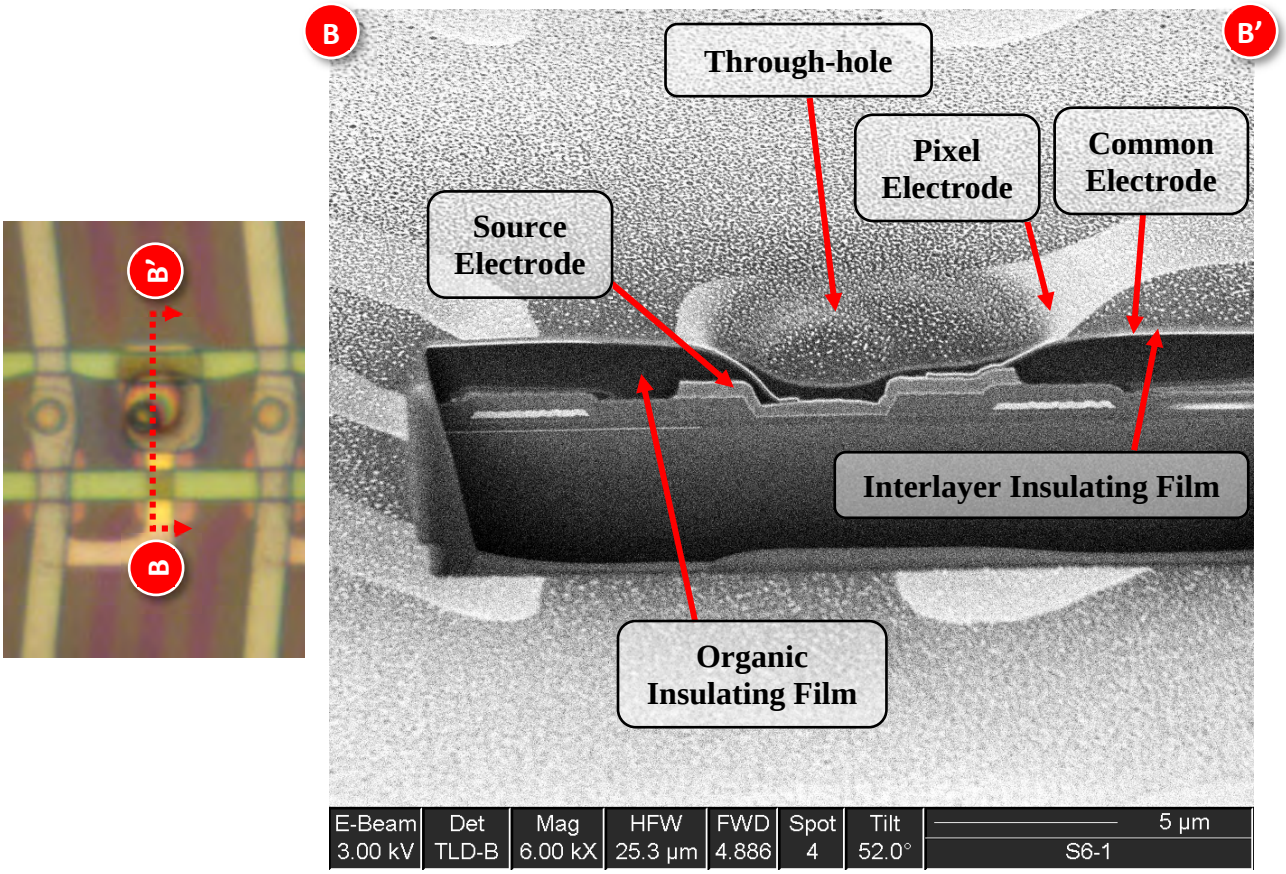
73. The TFT LCD panel model number TL079QDXP02, designed, manufactured, and sold by Tianma and incorporated in the Asus ZenPad S 8.0 tablet infringes at least claim 1 of the ’698 Patent.

74. The TL079QDXP02 is a liquid crystal display device comprising a transistor substrate and a counter substrate with a liquid crystal layer sandwiched in between. The transistor substrate has a thin film transistor, and the counter substrate has a light shielding film.



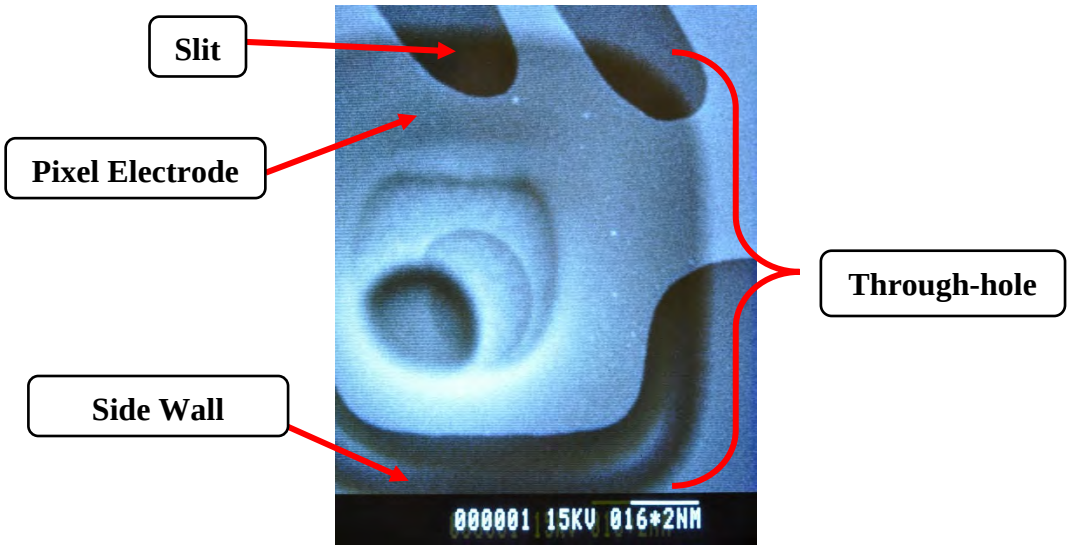
Optical Microscope Images of TL079QDXP02

75. The TL079QDXP02 has pixel electrode formed on an interlayer insulating film, which is formed on the common electrode. The common electrode is formed on an organic insulating film. The pixel electrode is electrically connected to a source electrode of the thin film transistor via a through-hole in the organic insulating film.



Optical Microscope Image (left) and Scanning Electron Microscope Analysis (right) of TL079QDXP02

76. The pixel electrode of the TL079QDXP02 covers a side wall of the through-hole. The pixel electrode also has a slit that is overlapped with the side wall.



Scanning Electron Microscope Image of TL079QDXP02

77. At a minimum, Tianma has known of the ’698 Patent at least as early as the filing date of the complaint.

78. Upon information and belief, Tianma has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Panels that include or are made using all of the limitations of one or more claims of the ’698 Patent to directly infringe one or more claims of the ’698 Patent by using, offering for sale, selling, and/or importing the Accused Panels. Since at least the filing date of the complaint, Tianma has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’698 Patent. Upon information and belief, Tianma intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, *inter alia*, creating advertisements that promote the infringing use of the Accused Panels, creating established distribution channels for the Accused Panels into and within the United States, manufacturing the Accused Panels which are combined with other products that must conform with U.S. laws and regulations (e.g., Federal Communications Commission and Underwriter Laboratories’ standards), distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers in the United States through Tianma America, representatives such as Tristar Group, and distributors such as Arrow Intelligent Systems, Avnet Embedded and Integrated Solutions, Edge Electronics, Inc., and WPG Americas Inc.

79. Upon information and belief, despite having knowledge of the ’698 Patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’698 Patent, Tianma has nevertheless continued its infringing conduct. Tianma’s infringing activities relative to the ’698 Patent have been, and continue to be, willful and deliberate misconduct beyond typical

infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

80. JDI has been damaged as a result of Tianma's infringing conduct with regard to the '698 Patent. Tianma is liable to JDI in an amount that adequately compensates JDI for Tianma's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

PRAYER FOR RELIEF

WHEREFORE, JDI requests the Court grant the following relief:

A. A judgment that Tianma has infringed one or more claims of each of the Asserted Patents and has induced infringement of the Asserted Patents;

B. A judgment that each of the Asserted Patents are valid and enforceable;

C. A permanent injunction enjoining Tianma, its employees, agents, officers, directors, attorneys, successors, affiliates, subsidiaries, and assigns, and all of those in active concert and participation with any of the foregoing persons or entities from infringing, contributing to the infringement of, or inducing infringement of the Asserted Patents;

D. A judgment for an accounting of all damages and to pay damages adequate to compensate JDI for Tianma's infringement of the Asserted Patents.

E. A judgment that Tianma has willfully infringed the Asserted Patents;

F. A judgment that the damages award be increased up to three times the actual amount assessed, pursuant to 35 U.S.C. § 284;

G. A judgment requiring Tianma to pay JDI costs, expenses, and pre-judgment and post-judgment interest for Tianma's infringement of each of the Asserted Patents pursuant to 35 U.S.C. § 284;

H. A judgment finding that this is an exceptional case and awarding JDI its reasonable attorneys' fees pursuant to 35 U.S.C. § 285; and

I. Such other relief that this Court deems just and proper.

DEMAND FOR JURY TRIAL

In accordance with Rule 38 of the Federal Rules of Civil Procedure and Local Rule CV-38, JDI respectfully demands a jury trial of all issues triable to a jury in this action.

Dated: August 31, 2020

Respectfully submitted,

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