

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

TIANMA MICROELECTRONICS CO.,
LTD., *and*
SHANGHAI TIANMA
MICROELECTRONICS CO., LTD.,

Plaintiffs,

V.

LG DISPLAY CO., LTD., *and*
LG DISPLAY AMERICA, Inc.,

Defendants.

Abstract

C.A. No. 1:25-cv-2021

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiffs Tianma Microelectronics Co., Ltd. and Shanghai Tianma Microelectronics Co., Ltd. (collectively, “Tianma”) bring this action for patent infringement of U.S. Patent Nos. 8,785,925, 10,234,971, 10,770,525, and 12,293,691 (Asserted Patents) against Defendants LG Display Co., Ltd. (LG Display) and LG Display America, Inc. (LG Display America), and allege as follows:

INTRODUCTION

1. Tianma is a technology success story that has transformed the global display industry. Founded in 1983 in Shenzhen, China, Tianma began as a pioneer when the industry was dominated by bulky CRT monitors and basic LCD panels. At the time, display technology was limited to simple monochrome screens, touch functionality was virtually nonexistent in consumer devices, and the concept of high-resolution mobile displays was decades away. The technological barriers confronting Tianma in creating sophisticated, miniaturized display solutions were enormous.

2. To deliver on its vision, Tianma focused on researching, developing, manufacturing, and selling innovative display solutions, specializing in advanced display panel technologies, including Thin-Film Transistor Liquid Crystal Displays (TFT-LCD) and Active Matrix Organic Light Emitting Diode (AMOLED) displays.¹ The company reimagined display technology by developing advanced manufacturing processes that created high-resolution, energy-efficient displays for increasingly compact devices. TFT-LCD technology provides sharp image quality and energy efficiency. AMOLED technology delivers vibrant colors, deep blacks, and fast response times, making it ideal for high-end smartphones and wearable devices. Since its inception, Tianma has focused on researching, developing, manufacturing, and selling these and other innovative display solutions.

3. To drive its strategic growth and industry leadership, Tianma has adopted a “2+1+N” model: “2” signifies its dual focus on smart mobile terminal and automotive displays, “1” highlights its key business of growth, IT display, and “N” represents N value-added businesses, including industrial products, horizontal market segments, non-display applications, industrial chain investment and organic expansion. This forward-looking framework underscores Tianma’s commitment to continuous innovation and excellence. Guided by its mission to “Create Colorful Life,” Tianma is dedicated to enriching everyday visual experiences through advanced, high-performance display technologies.

4. Today, Tianma’s products are widely used in smartphones, tablets, automotive displays, industrial equipment, medical devices, and other applications, serving a diverse global customer base. The company remains focused on innovations that enhance the visual experience

¹ About Us, TIANMA MICROELECTRONICS CO., LTD., <https://en.tianma.cn/gsjj.jhtml>, <https://perma.cc/8CES-AB9R> (last visited Dec. 5, 2025).

across multiple industries, investing heavily in R&D to frequently invent new display technologies with enhanced functionality, improved image quality, lower power consumption, and enriched user experiences.

5. Through continuous innovation and dedication to excellence, Tianma has played a significant role in shaping the modern display industry and remains at the forefront of technological advancement. Tianma has built a substantial patent portfolio covering modern display technologies and manufacturing processes, including thin-film transistor structures, touch-sensing electrode configurations, spacer distribution systems, and pixel structure designs.

6. LG Display and Tianma are direct competitors in the global display panel market, each vying for leadership in advanced display technologies. In May 2025, both companies showcased their latest innovations at SID Display Week 2025, a major international symposium and exhibition hosted by the Society for Information Display (SID).²

7. Their rivalry is especially pronounced in the automotive sector, a fast-growing segment in which global LCD automotive display panel shipments reached 232 million units in 2024.³ Both LG Display and Tianma are recognized as major players in this rapidly growing segment, competing for market share and key customer relationships.

² LG Display Targets Future Markets with World-Leading Technology at SID Display Week 2025, PR NEWswire (May 14, 2025), <https://www.prnewswire.com/news-releases/lg-display-targets-future-markets-with-world-leading-technology-at-sid-display-week-2025-302453846.html>, <https://perma.cc/7JSW-A6C5> (last visited Nov. 14, 2025); Tianma Showcasing Wide Range of New Display Products and Prototype Technologies at Display Week 2025, TIANMA, <https://usa.tianma.com/news/tianma-showcasing-wide-range-of-new-display-products-and-prototype-technologies-at-display-week-2025/>, <https://perma.cc/KH2Q-HQP9> (last visited Nov. 14, 2025).

³ Omdia, Global Automotive Display Panel Shipments Reach 232 Million Units in 2024, Fueled by China's Market Influence, BUSINESS WIRE (Mar. 18, 2025), <https://www.businesswire.com/news/home/20250318953786/en/Omdia-Global-Automotive-Display-Panel-Shipments-Reach-232-Million-Units-in-2024-Fueled-by-Chinas-Market-Influence>, <https://perma.cc/8AZG-7PX7> (last visited Nov. 14, 2025).

8. Tianma brings this action to protect its intellectual property rights and seek appropriate relief for LG Display's unlawful conduct.

LG DISPLAY AND LG DISPLAY AMERICA'S INFRINGEMENT

9. LG Display manufactures display panels including, but not limited to, TFT-LCD and OLED modules (the "Accused Products," described further below) and sells, offers to sell, and/or imports those products in and into this District. The Accused Products are LCD and OLED panels incorporated into devices such as televisions, monitors, and in-vehicle displays. By way of non-limiting examples of such devices include the LG 27-inch UltraGear Nano IPS 4K Gaming Monitor (27GP950-B),⁴ the LG Display 13.4-inch OLED panel (LP134WT1), other LCD and OLED panels supplied for use in U.S.-bound products, and in-vehicle display including the Tesla 15.4-inch LTPS in-cell display, sold or made available in the United States.

10. Tianma has identified at least some of LG Display's products that practice the claimed inventions and communicated evidence of infringement to LG Display during licensing discussions and other formal communications. Despite this notice and subsequent communications, LG Display continued to make, use, sell, offer to sell, and import these Accused Products into the United States, including in the State of Texas and this District, without authorization. On information and belief, LG Display America distributes LG Display products, including the Accused Products, in the United States.

11. For example, on March 24, 2021, Tianma put LG Display on notice that it was infringing Tianma patents, including asserted U.S. Patent No. 8,785,925, when the parties conferred virtually to discuss potential licensing and patent-related issues.

⁴ LG 27 Inch UltraGear 4K UHD Nano IPS 1ms 144Hz HDR600 Monitor with G-SYNC® Compatibility, LG, <https://www.lg.com/us/monitors/lg-27gp950-b-gaming-monitor>, <https://perma.cc/KFN8-4YUZ> (last visited Nov. 14, 2025).

12. LG Display's infringement expanded despite Tianma's notice. LG Display, in concert with LG Display America, has continued to make, use, sell, offer to sell, and import these Accused Products into the United States, including Texas and this District, without authorization from Tianma. Despite repeated efforts by Tianma to resolve these issues amicably through licensing negotiations, LG Display has refused to enter into a license agreement or otherwise address its infringement of Tianma's patents. As a result of LG Display's and LG Display America's continued unauthorized use of Tianma's patented technology and its unwillingness to reach a resolution, Tianma brings this lawsuit to protect its intellectual property rights and seek appropriate relief for LG Display's and LG Display America's unlawful conduct.

THE PARTIES

13. Plaintiff Tianma Microelectronics Co., Ltd. is a corporation organized and existing under the laws of China, founded in 1983 and headquartered at Tianma Building, North Station Community Minzhi Street, Longhua District, Shenzhen, Guangdong Province, China. Tianma Microelectronics Co., Ltd. is the owner of U.S. Patent Nos. 8,785,925 and 12,293,691. Tianma Microelectronics Co., Ltd. holds all substantial rights, title and interest in and to U.S. Patent Nos. 8,785,925 and 12,293,691. Tianma Microelectronics Co., Ltd. jointly owns U.S. Patent No. 10,234,971 with Shanghai Tianma Microelectronics Co., Ltd. Tianma Microelectronics Co., Ltd. and Shanghai Tianma Microelectronics Co., Ltd. hold all substantial rights, title and interest in and to U.S. Patent No. 10,234,971.

14. Plaintiff Shanghai Tianma Microelectronics Co., Ltd. is a corporation organized and existing under the laws of China, headquartered at No. 888 and 889, Huiqing Road, Pudong New District, Shanghai, China. Shanghai Tianma Microelectronics Co., Ltd. is the owner of U.S. Patent No. 10,770,525. Shanghai Tianma Microelectronics Co., Ltd. holds all substantial rights, title and interest in and to U.S. Patent No. 10,770,525. Shanghai Tianma Microelectronics Co.,

Ltd. jointly owns U.S. Patent No. 10,234,971 with Tianma Microelectronics Co., Ltd. Shanghai Tianma Microelectronics Co., Ltd. and Tianma Microelectronics Co., Ltd. hold all substantial rights, title and interest in and to U.S. Patent No. 10,234,971.

15. On information and belief, Defendant LG Display Co., Ltd. (LG Display) is a South Korean corporation with a registered place of business at LG Twin Tower, 128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea.

16. On information and belief, Defendant LG Display America, Inc. (LG Display America) is a California corporation with a registered place of business at 2540 N 1st St, San Jose, California 95131. LG Display America maintains a physical sales office in this District at 9600 Great Hills Trail, Suite 150W, Austin, TX 78759. LG Display America may be served with process through its registered agent, John Lee, at 1700 City Plaza Drive, Suite 475, Spring, TX 77389. LG Display America is registered to do business in the State of Texas and has been since at least June 13, 2000. On information and belief, LG Display America is a wholly owned subsidiary of LG Display.

17. LG Display and LG Display America directly and/or indirectly develop, design, manufacture, distribute, market, offer to sell, sell, and/or import the Accused Products at issue in this litigation in and into the United States, including in the Western District of Texas, and otherwise purposefully direct infringing activities to this District in connection with the Accused Products.

JURISDICTION AND VENUE

Subject Matter Jurisdiction

18. This action arises under the patent laws of the United States, 35 U.S.C. § 1 *et seq.* This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338.

Personal Jurisdiction and Venue — LG Display

19. This Court has personal jurisdiction over LG Display according to Due Process and/or the Texas Long Arm Statute because LG Display, directly and/or through its agents and intermediaries, including LG Display America, has: (1) availed itself of the rights and benefits of the laws of the State of Texas, (2) transacted, conducted, and/or solicited business and engaged in a persistent course of conduct in the State of Texas and in this District, (3) derived substantial revenue from the sales and/or use of products, including the Accused Products, in the State of Texas and in this District, (4) purposefully directed activities (directly and/or through intermediaries), such as shipping, distributing, offering for sale, selling, and/or advertising its Accused Products, at residents of the State of Texas and residents in this District, (5) delivered its Accused Products into the stream of commerce with the expectation that the products will be used and/or purchased by consumers in the State of Texas and in this District, and (6) committed acts of patent infringement in the State of Texas and in this District.

20. In addition, or in the alternative, this Court has personal jurisdiction over LG Display pursuant to Fed. R. Civ. P. 4(k)(2).

21. Venue is proper in this District under 28 U.S.C. § 1391(c)(3). LG Display is organized under the laws of a foreign jurisdiction and is not resident in the United States. Thus, LG Display may be sued in any judicial district.

22. Further, LG Display has been involved in litigation in this District. LG Display was previously sued in this District in *Solas OLED Ltd. V. LG Display Co., Ltd.*, No. 6:19-cv-00236, in April 2019. In that case, LG Display did not dispute that it was subject to personal jurisdiction of the Court. Ex. E, *Solas OLED Ltd. V. LG Display Co., Ltd.*, No. 6:19-cv-00236, Dkt. No. 41, ¶ 7. Likewise, LG Display did not dispute whether venue was proper in the Court under § 1391(c)(3). *Id.* ¶ 9.

Personal Jurisdiction and Venue — LG Display America

23. This Court has personal jurisdiction over LG Display America according to Due Process and/or the Texas Long Arm Statute because LG Display America has: (1) availed itself of the rights and benefits of the laws of the State of Texas, (2) transacted, conducted, and/or solicited business and engaged in a persistent course of conduct in the State of Texas and in this District, (3) derived substantial revenue from the sales and/or use of products, including the Accused Products, in the State of Texas and in this District, (4) purposefully directed activities (directly and/or through intermediaries), such as shipping, distributing, offering for sale, selling, and/or advertising its Accused Products, at residents of the State of Texas and residents in this District, (5) delivered its Accused Products into the stream of commerce with the expectation that the products will be used and/or purchased by consumers in the State of Texas and in this District, and (6) committed acts of patent infringement in the State of Texas and in this District.

24. This Court also has personal jurisdiction over LG Display America because it is registered to do business in the State of Texas and has one or more regular and established places of business in the Western District of Texas.

25. Venue is proper in this District under 28 U.S.C. § 1400(b) because, on information and belief, LG Display America has committed acts of infringement in this District and has a regular and established place of business in this District located at 9600 Great Hills Trail, Suite 150W, Austin, TX 78759.

26. On information and belief, LG Display America is a wholly owned subsidiary of LG Display.⁵

⁵LG Display Co., Ltd., Form 20-F, Consolidated Subsidiaries at F-15 (filed Apr. 28, 2025) <https://www.sec.gov/Archives/edgar/data/1290109/000095017025058944/lpl->

27. On information and belief, LG Display America is an active California-formed corporation authorized to transact business in Texas. Moreover, it has an economic nexus in Texas, and generates revenue of \$500,000 or more in this State.⁶

28. LG Display America maintains a sales office in Austin, Texas, and has active employees there. It also targets the workforce in the District by hiring sales, customer service, administrative professionals, and engineers for that office.⁷ Upon information and belief, and based on publicly available salary data, LG Display America has employed individuals in the positions of Quality Engineer and Quality Assurance Engineer in Austin, Texas.⁸ As another example, LG Display America was hiring for a sales professional in the Austin area in early 2023.⁹

[20241231.htm#b_consolidated_subsidaries_as_of](#), <https://perma.cc/5FFD-TPU5> (last visited Nov. 14, 2025).

⁶ See Franchise Tax Account Status Search for LG Display America, Inc., TEX. COMPTROLLER PUB. ACCTS., <https://comptroller.texas.gov/taxes/franchise/account-status/search/17705230336>, <https://perma.cc/3RV3-38KR> (providing Texas franchise tax account status information for LG Display America, Inc., including details such as entity name, taxpayer number, current standing, and filing history) (last visited Nov. 14, 2025); 34 Tex. Admin. Code § 3.586(f), [https://texas-sos.appianportalsgov.com/rules-and-meetings?\\$locale=en_US&interface=VIEW_TAC_SUMMARY&recordId=203556](https://texas-sos.appianportalsgov.com/rules-and-meetings?$locale=en_US&interface=VIEW_TAC_SUMMARY&recordId=203556), <https://perma.cc/V9Q8-S4Z6> (“a foreign taxable entity has nexus in Texas and is subject to Texas franchise tax, even if it has no physical presence in Texas, if during that federal income tax accounting period, it had gross receipts from business done in Texas of \$500,000 or more, as sourced under §3.591(e) and (f) of this title (relating to Margin: Apportionment).”) (last visited Dec. 5, 2025).

⁷ LG DISPLAY AMERICA, <https://www.linkedin.com/company/lgdus/about/>, <https://perma.cc/NA7K-XFKB> (last visited Nov. 14, 2025) (“Our U.S. sales office[] in ... Austin (TX) ... [is] looking for competent sales, customer service, and administrative professionals to support various high-profile manufacturing clients in the consumer electronics and automotive industries.”).

⁸ Ex. H, Glassdoor Salary Report for LG Display Quality Assurance Engineer in Austin, TX (last updated Apr. 10, 2025) (last accessed: Nov. 19, 2025); Ex. I, Glassdoor Salary Report for LG Display Quality Engineer in Austin, TX (last accessed: Nov. 19, 2025).

⁹ LG Display America 에서 Sales Professional 모집합니다 Austin Texas, WORKINGUS, <https://www.workingus.com/forums/topic/lg-display-america%EC%97%90%EC%84%9C-sales-professional-%EB%AA%A8%EC%A7%91%ED%95%A9%EB%8B%88%EB%8B%A4-austin-texas/>, <https://perma.cc/L96L-MS3C> (last visited Nov. 14, 2025).

29. LG Display America targets recruiting efforts to students in the District, including at its university campuses. In particular, LG Display America has sought to hire employees through the University of Texas Korean Student Association in early 2024.¹⁰

30. On information and belief, LG Display America maintains a regional sales and support office in Austin for ongoing business-to-business relations with major U.S. technology and automotive clients in the region. On information and belief, these clients include Tesla, which maintains and operates at the Gigafactory Texas described above.¹¹

LG DISPLAY’S INFRINGING ACTIVITIES

31. On information and belief, LG Display makes, uses, sells, offers to sell, and/or imports the Accused Products in or into the United States. More specifically, on information and belief, LG Display offers to sell and/or sells Accused Products directly to LG Display America Inc. See Excerpt of LG Display Shipments to U.S. (Ex. F).

32. For example, in 2025, LG Display effectuated thirteen shipments containing TFT LCD panels to LG Display America. See Ex. F. LTPS displays constitute a subset of TFT-LCD technology, and one of the Accused Products—the Tesla 15.4-inch LTPS in-cell display—falls within this category.¹² The Tesla Model Y is assembled at several Tesla factories, including at the

¹⁰ 취업 정보, TEX. KOREAN STUDENTS ASS’N, <https://www.texasksa.org/%EC%B7%A8%EC%97%85-%EC%A0%95%EB%B3%B4/?mod=document&uid=40690>, <https://perma.cc/8BX2-YDE5> (last visited Nov. 14, 2025). A partial translation of the job posting, generated using an automated translation feature, is reproduced in Exhibit J.

¹¹Giga Texas, TESLA, <https://www.tesla.com/giga-texas>, <https://perma.cc/86H4-89RP> (last visited Nov. 14, 2025).

¹² What Is LTPS Technology for LCD Screen?, TEEVO BLOG, <https://blog.teevo.com/what-is-is-ltps-technology-for-lcd-screen/>, <https://perma.cc/2R36-TRRY> (“LTPS stands for Low-Temperature Polysilicon, a type of technology used in the construction of LCD (Liquid Crystal Display) screens, as well as OLED (Organic Light Emitting Diode) displays. LTPS is a type of thin-film transistor (TFT) technology.”) (last visited Dec. 5, 2024); LTPS vs. a-Si LCD:

Austin Gigafactory, and the most recent iterations of the Model Y incorporate the Tesla 15.4-inch LTPS in-cell display.¹³ Accordingly, on information and belief, the TFT-LCD panels shipped by LG Display were transported into this District, via cargo channels, for integration into Model Y vehicles manufactured at Tesla's Austin facility.

33. The thirteen shipments, weighing over 67,000 kg, were shipped through the Port of Long Beach, California and the Port of Los Angeles, California. Ex. F. These shipments evidence a continuous supply chain of large-format panels and IT display components, with—on information and belief—a substantial portion destined for Texas and within this District.

34. On information and belief, LG Display's products are sold and distributed in Texas and in this District, including through major customers with a presence in Austin, Texas. For example, LG Display's products are incorporated into goods that are sold and distributed by several major customers, including Tesla, Inc., which have operations in Austin.

35. On information and belief, LG Display's products have been showcased at events in the greater Austin area. For example, on information and belief, LG Display's 65-inch rollable OLED display was exhibited in LG Electronics' showcase at SXSW in Austin, Texas in 2019.¹⁴

Differences, TRULY USA, <https://trulyusa.com/ltps-vs-a-si-lcd-differences/>, <https://perma.cc/5C6N-663> ("Two of the most widely used technologies are a-Si (amorphous silicon) TFT LCD and LTPS (low-temperature polycrystalline silicon) TFT LCD.") (last visited Dec. 5, 2024).

¹³ See Giga Texas, TESLA, <https://www.tesla.com/giga-texas>, <https://perma.cc/86H4-89RP> ("Gigafactory Texas is a U.S. manufacturing hub for Model Y and the home of Cybertruck.") (last visited Nov. 14, 2025); Automotive Display Market Expands as Vehicles Adopt Larger, More Advanced Screens, DISPLAY DAILY, <https://displaydaily.com/automotive-display-market-expands-as-vehicles-adopt-larger-more-advanced-screens/>, <https://perma.cc/9RR9-VTV5> ("Tesla's Model Y retained its top ranking for display revenue, attributable to its large 15.4-inch LTPS LCD") (last visited Dec. 5, 2025).

¹⁴ See LG's "Inspiration Gallery" Takes SXSW by Storm, LG, <https://www.lg.com/global/newsroom/news/corporate/lgs-inspiration-gallery-takes-sxsw-by-storm/>, <https://perma.cc/TJ67-W5SZ> ("Finally, a must-see highlight of the LG Inspiration Gallery

LG DISPLAY AMERICA'S INFRINGING ACTIVITIES

36. On information and belief, LG Display America makes, uses, sells, offers to sell, and/or imports the Accused Products in or into the United States. LG Display America acts as consignee and distributor for LG Display's and its subsidiaries' products and offers to sell and/or sells these products to U.S.-based customers and partners. *See* Ex. F. On information and belief, LG Display America received shipments of Accused Products with a portion destined for the State of Texas and within this District. *See* Ex. F.

THE PATENTS-IN-SUIT

U.S. Patent No. 8,785,925

37. Tianma Microelectronics Co., Ltd. is the owner of U.S. Patent No. 8,785,925 (the '925 Patent), entitled "Thin Film Device," which was duly and legally issued by the United States Patent and Trademark Office on July 22, 2014. A copy of the '925 Patent is attached hereto as Ex. A.

38. Tianma Microelectronics Co., Ltd. is the owner of all right, title, and interest in and to the '925 Patent, including the right to recover for past, present, and future infringement.

39. The '925 Patent is valid and enforceable.

40. The '925 Patent relates to thin film devices with improved interface characteristics between oxide semiconductor films and source/drain electrodes.

41. The '925 Patent recognized problems with conventional thin film transistors where contact resistance between the oxide semiconductor film and the source/drain electrode becomes

is the LG SIGNATURE OLED TV R, the world's first rollable TV – with a razor-thin 65-inch 4K Ultra HD flexible display") (last visited Dec. 5, 2025); The Rollable OLED revolution is here, LG Display, <https://news.lgdisplay.com/en/2021/09/the-rollable-oled-revolution-is-here/>, <https://perma.cc/CJ6P-5KPD> ("Having been initially developed and exhibited by LG Display, its sister company LG Electronics released the first Rollable OLED TV") (last visited Dec. 8, 2025).

high, creating performance issues in electronic devices.

42. The '925 Patent describes thin film devices where a surface layer contains composition elements from both the oxide semiconductor film and the source/drain electrode, with fluorine or chlorine present in specific regions to improve device performance.

U.S. Patent No. 10,234,971

43. Tianma Microelectronics Co., Ltd. and Shanghai Tianma Microelectronics Co., Ltd. are the joint owners of U.S. Patent No. 10,234,971 (the '971 Patent), entitled "Touch-Display Panel and Touch-Display Device," which was duly and legally issued by the United States Patent and Trademark Office on March 19, 2019. A copy of the '971 Patent is attached hereto as Ex. B.

44. Tianma Microelectronics Co., Ltd. and Shanghai Tianma Microelectronics Co., Ltd. are joint owners of all right, title, and interest in and to the '971 Patent, including the right to recover for past, present, and future infringement.

45. The '971 Patent is valid and enforceable.

46. The '971 Patent relates to touch display panels with improved spacer distribution configurations for liquid crystal display devices.

47. The '971 Patent recognized problems with conventional touch display panels where "Touch signal traces within the display area restrict the placement freedom of support pillars. In actual manufacturing, some support pillars may be positioned above touch signal traces, while some touch lines may not align with support pillars. This results in increased thickness in the area where support pillars are located above touch signal traces resulting in abnormally thick areas where support pillars are positioned above touch signal traces, which in turn causes display panel color abnormalities."

48. The '971 Patent "adds virtual touch lines" so some support pillars are positioned on the actual touch signal lines while others are placed on the virtual touch signal lines, thereby

providing better flexibility of spacer distribution and maintaining more even cell thickness.

U.S. Patent No. 10,770,525

49. Shanghai Tianma Microelectronics Co., Ltd. is the owner of U.S. Patent No. 10,770,525 (the '525 Patent), entitled "Organic Light-Emitting Display Panel, Display Device, and Fabrication Method Thereof," which was duly and legally issued by the United States Patent and Trademark Office on September 8, 2020. A copy of the '525 Patent is attached hereto as Ex. C.

50. Shanghai Tianma Microelectronics Co., Ltd. is the owner of all right, title, and interest in and to the '525 Patent, including the right to recover for past, present, and future infringement.

51. The '525 Patent is valid and enforceable.

52. The '525 Patent addresses reliability and yield problems that arise when evaporation mask frames are supported in the non-display border during formation of common layers and cathodes in OLED manufacturing.

53. The '525 Patent discloses an organic light-emitting display panel having a substrate, an array layer, a pixel defining layer with openings, and OLED devices formed in those openings, coupled with a system of support units disposed in the non-display region, including support units formed on the pixel defining layer and, in certain embodiments, on a retaining wall formed on the array layer that surrounds the display region.

54. The '525 Patent further teaches island structures of the pixel defining layer in the non-display region to mount support units, placement of first and second support units inside and outside the orthogonal projection of the cathode on the substrate, and a packaging layer that fully covers the OLED devices to block oxygen and moisture.

U.S. Patent No. 12,293,691

55. Tianma Microelectronics Co., Ltd. is the owner of U.S. Patent No. 12,293,691 (the

'691 Patent), entitled "Display Device and Luminance Allocation Method," which was duly and legally issued by the United States Patent and Trademark Office on May 6, 2025. A copy of the '691 Patent is attached hereto as Ex. D.

56. Tianma Microelectronics Co., Ltd. is the owner of all right, title, and interest in and to the '691 Patent, including the right to recover for past, present, and future infringement.

57. The '691 Patent is valid and enforceable.

58. The '691 Patent addresses pixel arrangement, connection-part placement, and layer overlap in high-resolution OLED displays that employ two pixel types arranged alternately across rows and columns. The '691 Patent teaches a checkerboard-like arrangement of first and second pixels with subpixels of three colors, biasing the first-color subpixel within each pixel along its long axis, positioning the "connection part" that links the TFT circuit to the subpixel at a biased location along the long axis, and maintaining consistent connection-part spacing across row-adjacent first and second pixels. The '691 Patent further provides that the connection-part position overlaps the anode and OLED layers in plain view and that, in the array defined by alternating first- and second-pixel columns, the first-color subpixel's connection part is disposed between the first-color column and the alternating second/third-color column.

COUNT I: INFRINGEMENT OF U.S. PATENT NO. 8,785,925

59. Tianma incorporates by reference and re-alleges paragraphs 1–58 of this Complaint as if fully set forth here.

60. On information and belief, LG Display and LG Display America have directly infringed (either literally or under the doctrine of equivalents) and continues to directly infringe one or more claims of the '925 Patent, in violation of 35 U.S.C. § 271(a), by making, using, offering for sale, and/or selling TFT-LCD displays and display modules and OLED displays and display modules within the United States and/or importing TFT-LCD displays and display

modules and OLED displays and display modules into the United States without authority or license.

61. Such TFT-LCD and OLED displays and display modules are the “Accused ’925 Products.”

62. As just one non-limiting example of an Accused ’925 Product, the display panel manufactured by LG Display in the LG 27-inch UltraGear Nano IPS 4K Gaming Monitor (27GP950-B) infringes at least claim 1 of the ’925 Patent. For the avoidance of doubt, the exemplary product discussed below in no way limits the infringement allegations against LG Display and LG Display America that incorporate the same or reasonably similar features.



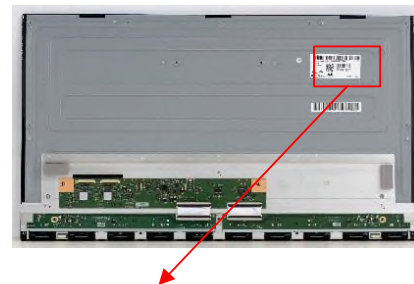
SET Box



Monitor SET

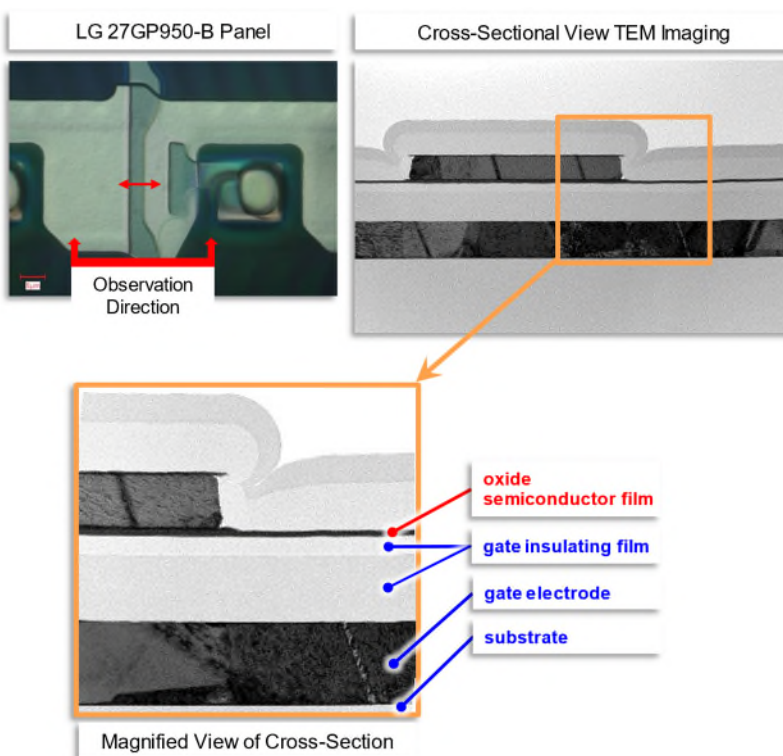


→
Rear Cover
removed

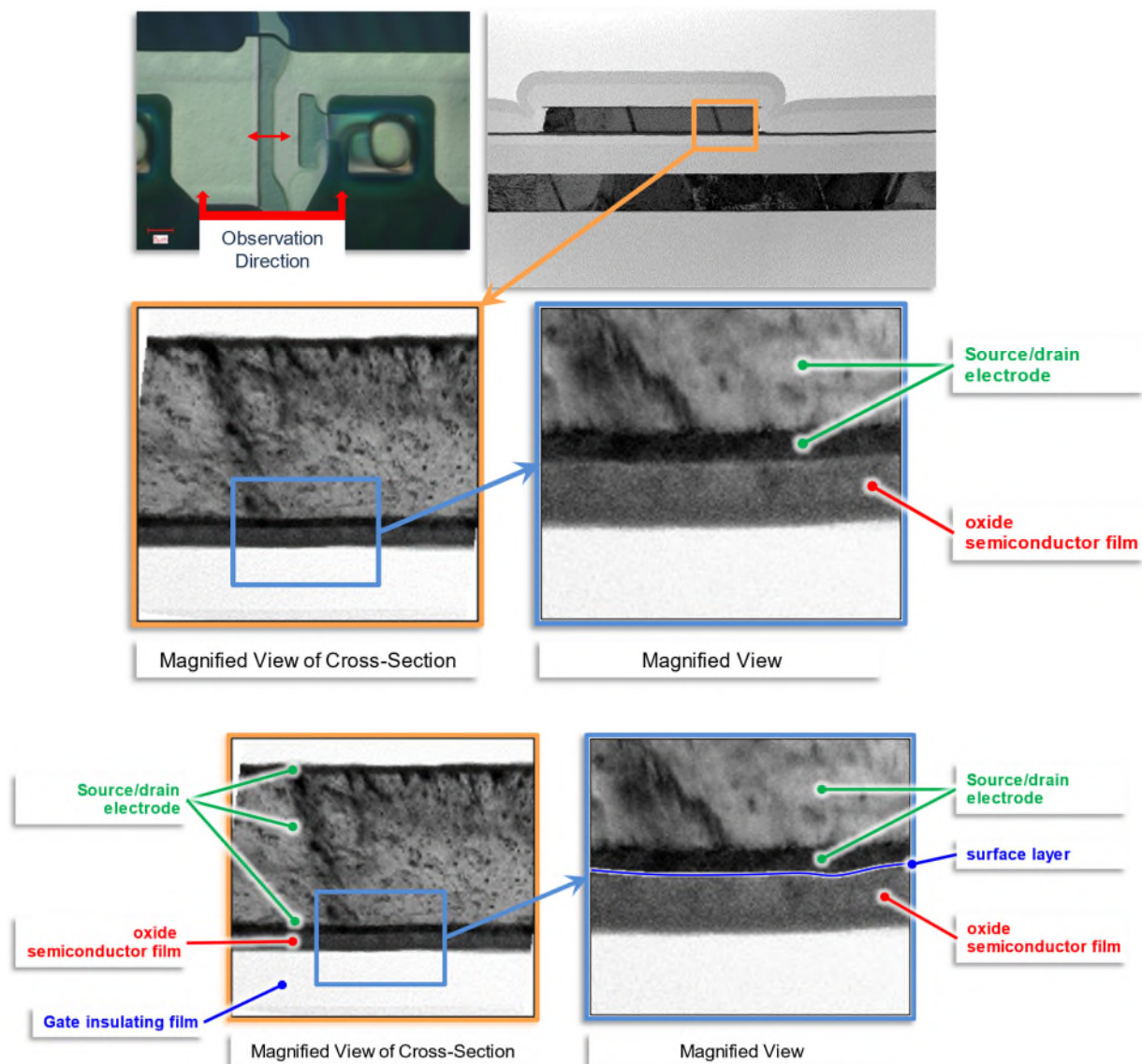




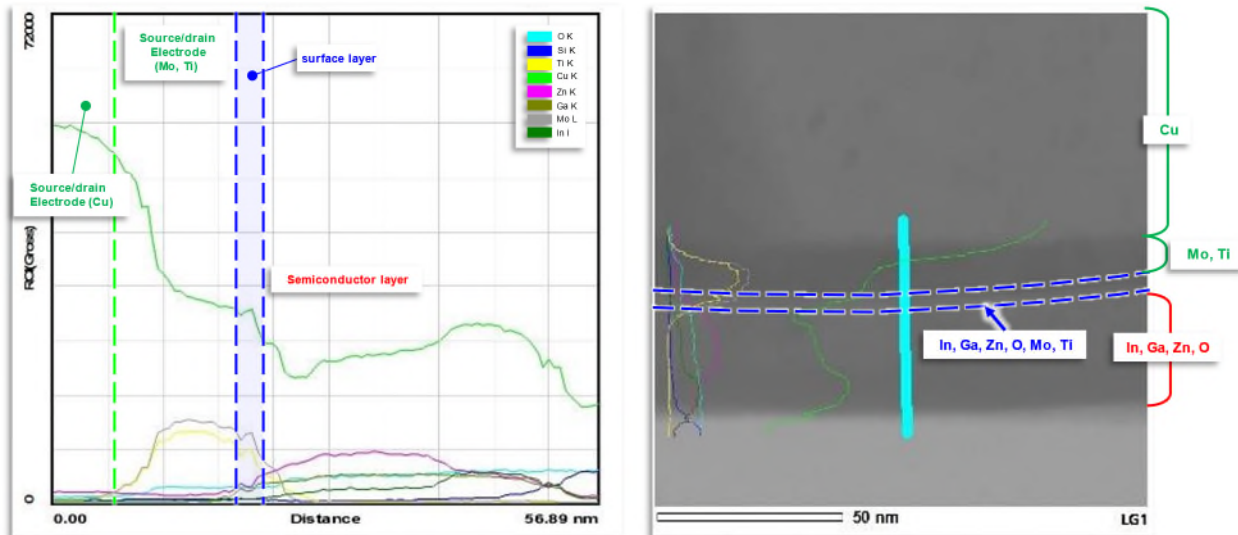
63. As shown below in cross-sectional Transmission Electron Microscopy (TEM) image of an Accused '925 Product, the Accused '925 Products include a thin-film device with a gate electrode (blue), and an oxide semiconductor film (red) on the gate insulating film (blue).



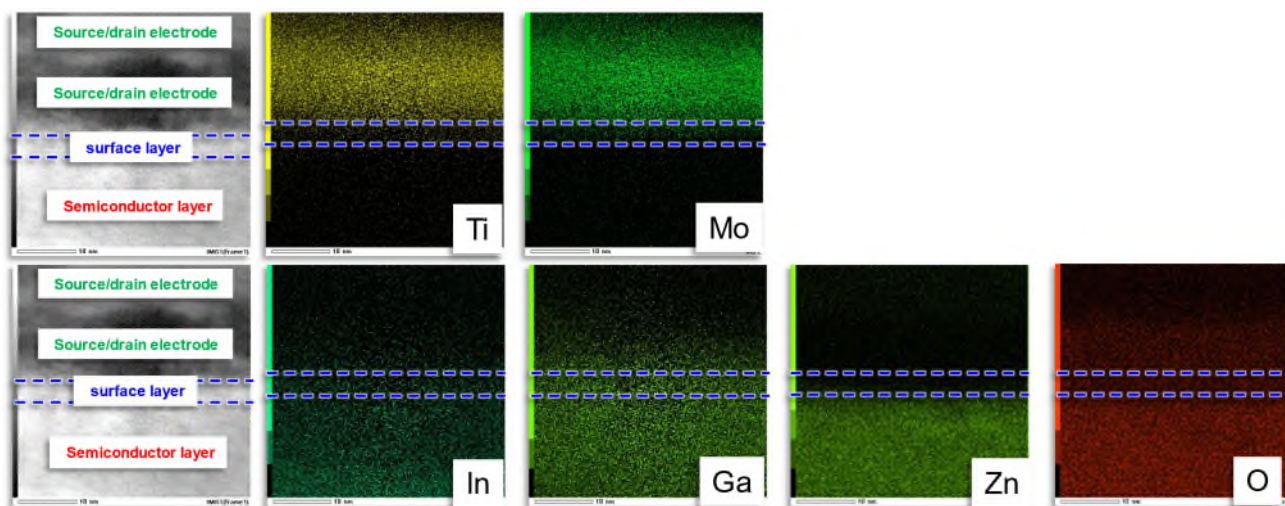
64. The Accused '925 Products further include source/drain electrode (green) on the oxide semiconductor film (red).



65. The Accused '925 Products include a surface layer (blue) that contains a composition element of the oxide semiconductor film and a composition element of a part of the source/drain electrode in contact with the oxide semiconductor film. As shown below, an oxide semiconductor film (red) containing indium, gallium, zinc, and oxygen (In, Ga, Zn, O) is positioned on the gate insulating film and molybdenum, titanium, and copper (Mo, Ti, Cu) are in the source/drain electrode (green), as revealed by EDX (Energy Dispersive X-ray) spectroscopy.

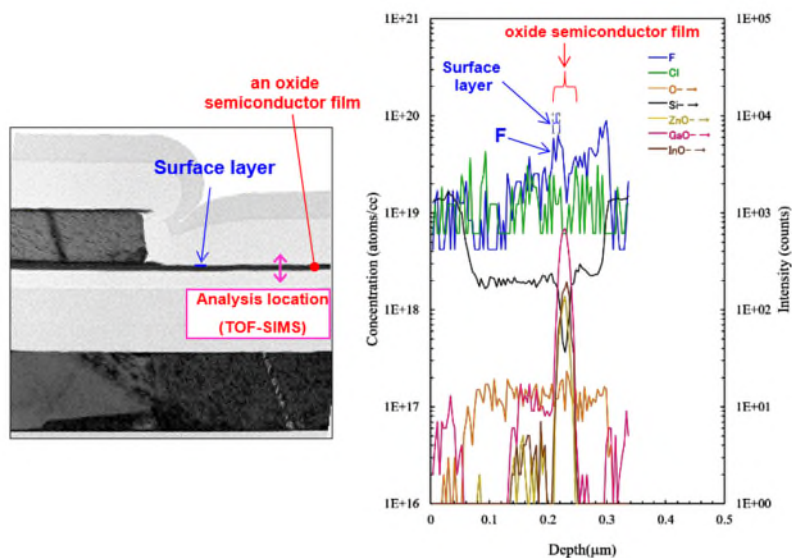
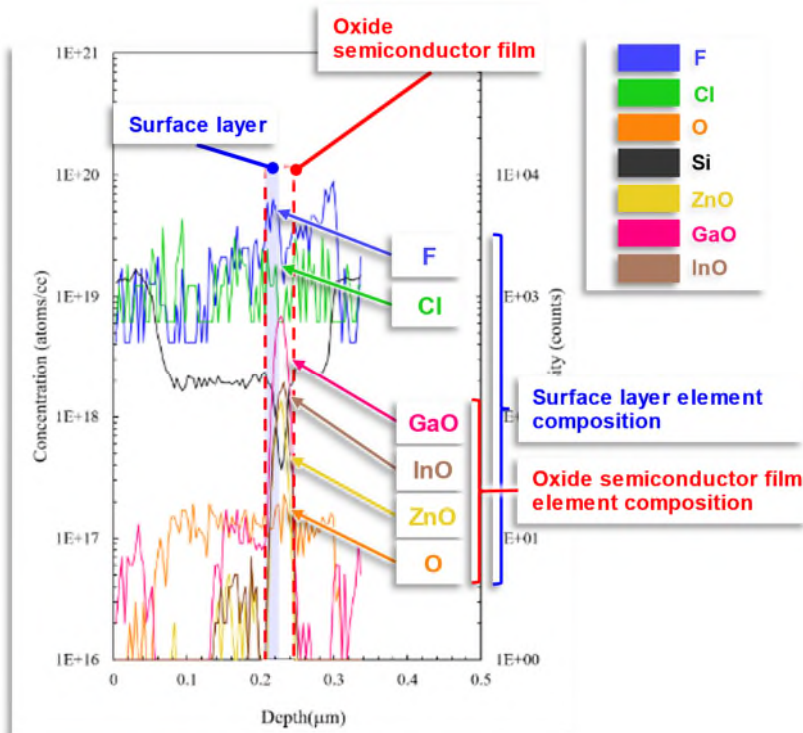


66. The surface layer contains elements from both the oxide semiconductor film and the source/drain electrode. Specifically, the surface layer includes indium (In), gallium (Ga), zinc (Zn), oxygen (O), titanium (Ti), and molybdenum (Mo), representing a mixture of composition elements from both components. The source/drain electrode is comprised of titanium (Ti), molybdenum (Mo), and copper (Cu) and, thus, contributes titanium (Ti) and molybdenum (Mo). The oxide semiconductor film is comprised of indium (In), gallium (Ga), zinc (Zn), and oxygen (O) and, thus, contributes the indium (In), gallium (Ga), zinc (Zn), and oxygen (O).



67. In the Accused '925 Products, at least either fluorine or chlorine exist in a part of the oxide semiconductor film where the source/drain electrode is not superimposed. As shown, the

TOF-SIMS (Time-of-Flight Secondary Ion Mass Spectrometry) image demonstrates that fluorine (F) and chlorine (Cl) exist in the oxide semiconductor film surface layer (blue) not covered by source/drain electrode.



68. On information and belief, LG Display and LG Display America have had actual knowledge of the '925 Patent and their infringement of the '925 Patent since at least March 24,

2021, or willfully ignored their import. On March 24, 2021, the IP directors of LG Display and Tianma had a virtual meeting for the purpose of patent licensing negotiation. The '925 Patent was disclosed to LG Display with Tianma's infringement allegations during the meeting.

69. Furthermore, on information and belief, LG Display and LG Display America knew of, had reason to know of, or were willfully blind to the existence of the '925 Patent and their infringement well before March 24, 2021, including as early as September 5, 2012, the record date of the assignment to NLT Technologies Ltd. This knowledge is demonstrated by LG Display's long-standing awareness of, and engagement with, Tianma's display-technology business and intellectual property portfolio. First, LG Display had been involved in patent-licensing discussions directly involving Tianma since at least 2011, when AVIC International Holding Corporation ("AVIC") – Tianma's parent company – entered into a capital alliance with NEC LCD Technologies, Ltd. to form a joint venture subsequently renamed NLT Technologies Ltd., the original assignee of the '925 Patent. Ex. G, *LG Display v. Tianma Microelectronics Co., Ltd.*, No. 5:25-cv-00078, Compl. ¶ 46 (E.D. Tex. Jun. 13, 2025). LG Display expressly acknowledges that, as part of the 2011 patent cross-license agreement between LG Display and NEC, NEC's LCD products were licensed under LGD patents. *Id.* at ¶ 45. LG Display asserts that Tianma "had knowledge of LG Display's patent portfolio." *Id.* at ¶ 47. By LG Display's own logic and allegations, LG Display in turn was aware of and closely monitoring the patent portfolios of the entities participating in the alliance. Second, LG Display further notes that between 2011 and 2015, LG Display held multiple in-person meetings with Tianma. *Id.* at ¶¶ 50-51. Also, throughout 2015 to 2024, the negotiation went on with more meetings and correspondence expressly exchanging technical information, patent claim charts. *Id.* at ¶¶ 54-70. Accordingly, LG Display's own decade-long pattern of negotiations, patent monitoring and technical exchanges demonstrates

that LG Display and LG Display America had knowledge of the '925 Patent and LG Display and LG Display America's infringement of the '925 Patent prior to March 24, 2021.

70. LG Display America is a wholly owned subsidiary of LG Display. As LG Display's corporate family, LG Display America appears to be LG Display's marketing arm in the United States. Thus, LG Display America is acting as LG Display's agent and has had actual knowledge of the '925 Patent and LG Display's and LG Display America's infringement of the '925 Patent.

71. Additionally and/or alternatively, LG Display and LG Display America have indirectly infringed and continue to indirectly infringe one or more of the claims of the '925 Patent, in violation of 35 U.S.C. § 271(b), by actively inducing others (including customers, partners, and end users) to directly infringe the '925 Patent. In particular, LG Display and LG Display America have promoted, advertised, and instructed customers and potential customers about the Accused '925 Products, and encouraged such customers and potential customers to engage in activity that constitutes direct infringement.

72. Additionally and/or alternatively, LG Display and LG Display America have contributorily infringed and continue to contributorily infringe one or more of the claims of the '925 Patent, in violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United States, and/or importing into the United States, at least the IGZO-based thin-film transistors with a gate electrode, the gate insulating film, the oxide semiconductor layer, the source/drain electrodes and the surface layer in the Accused '925 Products that contribute to the direct infringement of the '925 Patent by others, where such components are not staple articles of commerce suitable for substantial non-infringing use.

73. LG Display's and LG Display America's infringement of the '925 Patent is willful

because LG Display and LG Display America (a) had actual knowledge of the '925 Patent and Tianma's infringement contentions no later than September 5, 2012, (b) engaged in the aforementioned activity despite an objectively high likelihood that LG Display's actions constituted infringement of the '925 Patent, (c) has continued to engage in the aforementioned infringing activity after receiving notice through this lawsuit despite the objectively high likelihood that such continued actions constitute infringement of the '925 Patent, and (d) this objectively-defined risk was either known or so obvious that it should have been known to LG Display and LG Display America.

74. As a leading manufacturer in the display technology industry, it is highly likely that LG Display was aware of relevant patents in the field, including the '925 Patent. The systematic nature of the infringement across multiple product lines and the precise implementation of claimed structures support findings of willful infringement.

75. LG Display's and LG Display America's infringement has caused substantial commercial harm to Tianma by allowing LG Display and LG Display America to compete unfairly in the display panel market using Tianma's patented technology without authorization or compensation. The widespread adoption of LG Display and LG Display America's infringing products by major technology companies has established market acceptance for devices incorporating the patented technology, creating lost sales opportunities for Tianma.

76. On information and belief, LG Display continues to manufacture products using the infringing technology, as the analyzed products span multiple years and product generations, showing systematic rather than isolated infringement. Each sale, importation, or use of LG Display's infringing products constitutes a separate act of patent infringement under 35 U.S.C. § 271(a).

77. Tianma is entitled to recover from LG Display and LG Display America all damages that Tianma has sustained as a result of LG Display and LG Display America's infringement of the '925 Patent, including, without limitation, a reasonable royalty and lost profits.

78. LG Display's and LG Display America's infringement of the '925 Patent was and continues to be willful and deliberate, entitling Tianma to enhanced damages. The systematic nature of the infringement across multiple product lines and LG Display's continued violation despite available design alternatives demonstrate egregious misconduct that, under the totality of circumstances, warrants enhanced damages under 35 U.S.C. § 284.

79. LG Display's and LG Display America's infringement of the '925 Patent is exceptional and entitles Tianma to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285. LG Display and LG Display America's willful infringement makes this case exceptional.

80. LG Display's and LG Display America's infringement of the '925 Patent has caused irreparable harm to Tianma and will continue to do so unless enjoined by this Court. Monetary damages alone cannot adequately compensate Tianma for LG Display and LG Display America's ongoing infringement, as LG Display's infringement has caused and continues to cause irreparable harm to Tianma, including loss of market share, erosion of licensing opportunities, and damage to Tianma's reputation as an innovator in display technology.

COUNT II: INFRINGEMENT OF U.S. PATENT NO. 10,234,971

81. Tianma incorporates by reference and re-alleges paragraphs 1–80 of this Complaint as if fully set forth here.

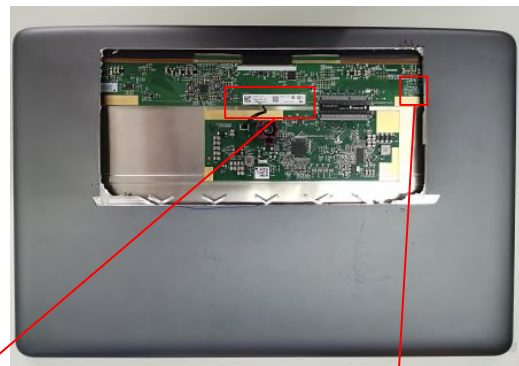
82. On information and belief, LG Display and LG Display America have directly infringed (either literally or under the doctrine of equivalents) and continue to directly infringe one or more claims of the '971 Patent, in violation of 35 U.S.C. § 271(a), by making, using, offering

for sale, and/or selling automobile display panels and display modules within the United States and/or importing automobile display panels and display modules into the United States without authority or license.

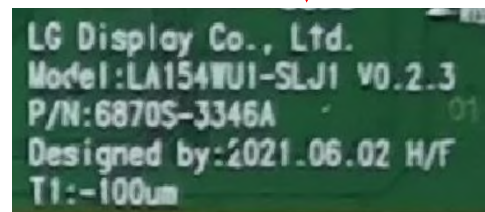
83. Such automobile display panels and display modules are the “Accused ’971 Products.” As just one non-limiting example, the display panel manufactured by LG Display in the Tesla 15.4-inch LTPS in-cell display infringes at least claim 1 of the ’971 Patent. For avoidance of doubt, the exemplary product discussed below in no way limits the infringement allegations against LG Display and LG Display America that incorporate the same or reasonably similar features.



In-cell display panel



Rear of the panel



84. The Tesla 15.4-inch LTPS in-cell display contains an LTPS in-cell touch display panel manufactured by LG Display that infringes claim 1 of the ’971 Patent.

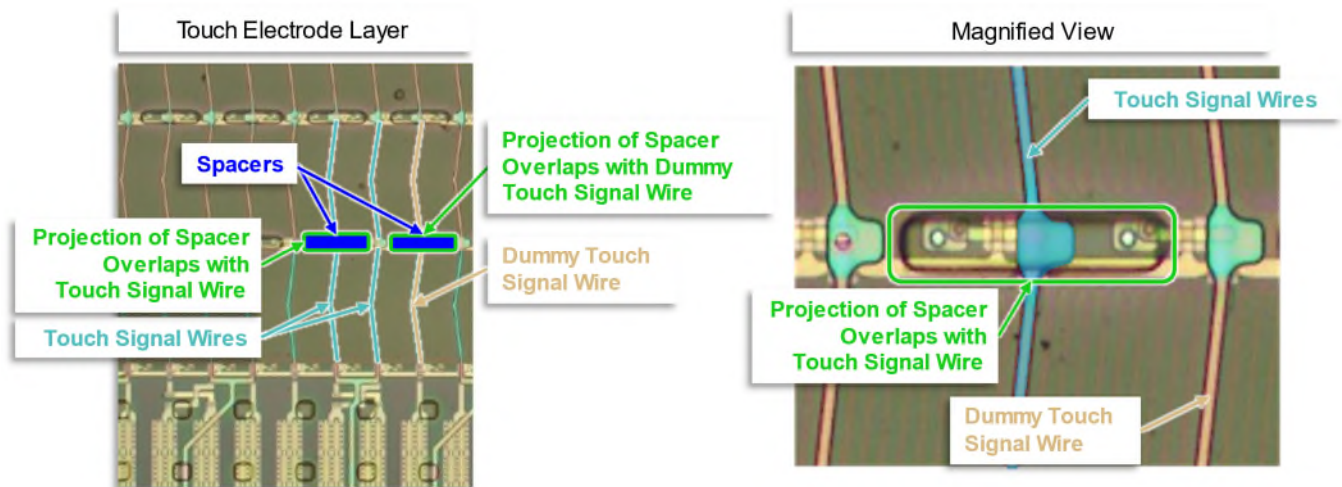
85. As shown below in the annotated technical diagram of Tesla 15.4-inch LTPS in-cell display, the Accused ’971 Product includes a touch-display panel comprising a first substrate and a second substrate disposed opposite to each other.

86. The Accused '971 Products include a touch electrode layer provided on the first substrate and comprising a plurality of touch electrodes provided in an array and insulated from each other.

87. The Accused '971 Products include a touch signal wire layer, including a plurality of touch signal wires (aqua) and a plurality of dummy touch signal wires (yellow).

88. Each dummy touch signal wire (yellow) has an orthographic projection on a plane of the touch electrode layer located within an area of one touch electrode of the plurality of touch electrodes.

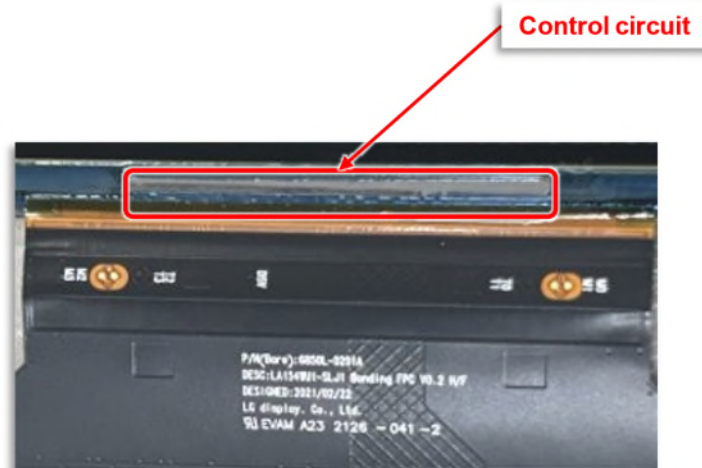
89. The Accused '971 Products include a plurality of spacers (blue) provided on a surface of the second substrate facing the first substrate. The plurality of spacers (blue) project (green) onto the touch signal wire layer where at least one projection overlaps with a touch signal wire (aqua), and at least another projection (green) overlaps with a dummy touch signal wire (yellow).



90. On information and belief, the Accused '971 Products include a control circuit configured to provide touch signals to each touch electrode of the plurality of touch electrodes.

91. On information and belief, each touch signal wire of the plurality of touch signal

wires electrically connects one touch electrode of the plurality of touch electrodes with the control circuit, and each touch electrode of the plurality of touch electrodes is electrically connected with at least one touch signal wire of the plurality of touch signal wires.



92. On information and belief, LG Display and LG Display America have had actual knowledge of the '971 Patent and their infringement of the '971 Patent since at least Mar. 19, 2019, the issue date, and the parties' subsequent licensing discussions, or were willfully blind to their existence. This knowledge is demonstrated by LG Display's long-standing awareness of, and engagement with, Tianma's display-technology business and intellectual property portfolio. As previously noted, between 2011 and 2015, LG Display held multiple in-person meetings with Tianma. Ex. G, [*LG Display v. Tianma et al.*, No.5:25-cv-00078, Compl.] ¶¶ 50-51. Also, throughout 2015 to 2024, the negotiation went on with more meetings and correspondence expressly exchanging technical information, patent claim charts. *Id.* at ¶¶ 54-70. Accordingly, LG Display's own decade-long pattern of negotiations, patent monitoring and technical exchanges demonstrates that LG Display and LG Display America had knowledge of the '971 Patent and LG Display and LG Display America's infringement of the '971 Patent prior to the filing of this Complaint.

93. LG Display America is a wholly owned subsidiary of LG Display. As part of the LG Display corporate family, LG Display America appears to be LG Display's marketing arm in the United States. Thus, LG Display America is acting as LG Display's agent and has also had actual knowledge of the '971 Patent and LG Display's and LG Display America's infringement of the '971 Patent.

94. Additionally, and/or alternatively, LG Display and LG Display America have indirectly infringed and continue to indirectly infringe one or more of the claims of the '971 Patent, in violation of 35 U.S.C. § 271(b), by actively inducing others (including customers, partners, and end users) to directly infringe the '971 Patent. In particular, LG Display and LG Display America have promoted, advertised, and instructed customers and potential customers about the Accused Products and services, and encouraged such customers and potential customers to engage in activity that constitutes direct infringement.

95. Additionally and/or alternatively, LG Display and LG Display America have contributorily infringed and continues to contributorily infringe one or more of the claims of the '971 Patent, in violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United States, and/or importing into the United States, at least the integrated touch-display panel elements in the Accused '971 Products—including a touch electrode layer, a touch signal wire layer comprising touch signal wires and dummy touch signal wires, and spacers whose first orthographic projections on the plane of the touch signal wire layer overlap touch signal wires and dummy touch signal wires (with associated insulating layers and via connections where present)—that contribute to the direct infringement of the '971 Patent by others, where such components are not staple articles of commerce suitable for substantial non-infringing use.

96. LG Display's and LG Display America's infringement of the '971 Patent is willful

because LG Display: (a) had actual knowledge of the '971 Patent and Tianma's infringement contentions as early as January 28, 2019, (b) has continued to engage in the aforementioned infringing activity after receiving notice of the '971 Patent and Tianma's infringement contentions despite an objectively high likelihood that LG Display's actions constitute infringement of the '971 Patent, and (c) this objectively-defined risk was either known or so obvious that it should have been known to LG Display.

97. As a leading manufacturer in the display technology industry, LG Display employs sophisticated engineering teams and maintains extensive patent portfolios. LG Display's technical sophistication and industry position make it highly likely that the company was aware of relevant patents in the field, including the '971 Patent. The systematic nature of the infringement across multiple product lines and the precise implementation of claimed structures support findings of willful infringement.

98. LG Display's and LG Display America's infringement has caused substantial commercial harm to Tianma by allowing LG Display and LG Display America to compete unfairly in the display panel market using Tianma's patented technology without authorization or compensation. The widespread adoption of LG Display and LG Display America's infringing products by major technology companies has established market acceptance for devices incorporating the patented technology, creating lost sales opportunities for Tianma.

99. On information and belief, LG Display continues to manufacture products using the infringing technology, as the analyzed products span multiple years and product generations, showing systematic rather than isolated infringement. Each sale, importation, or use of LG Display's and LG Display America's infringing products constitutes a separate act of patent infringement under 35 U.S.C. § 271(a).

100. Tianma is entitled to recover from LG Display and LG Display America all damages that Tianma has sustained as a result of LG Display's and LG Display America's infringement of the '971 Patent, including, without limitation, a reasonable royalty and lost profits.

101. LG Display's and LG Display America's infringement of the '971 Patent was and continues to be willful and deliberate, entitling Tianma to enhanced damages. The systematic nature of the infringement across multiple product lines and LG Display's and LG Display America's continued violation despite available design alternatives demonstrate egregious misconduct that, under the totality of circumstances, warrants enhanced damages under 35 U.S.C. § 284.

102. LG Display's and LG Display America's infringement of the '971 Patent is exceptional and entitles Tianma to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285. LG Display and LG Display America's willful infringement, combined with the company's sophisticated technical capabilities and industry position, makes this case exceptional.

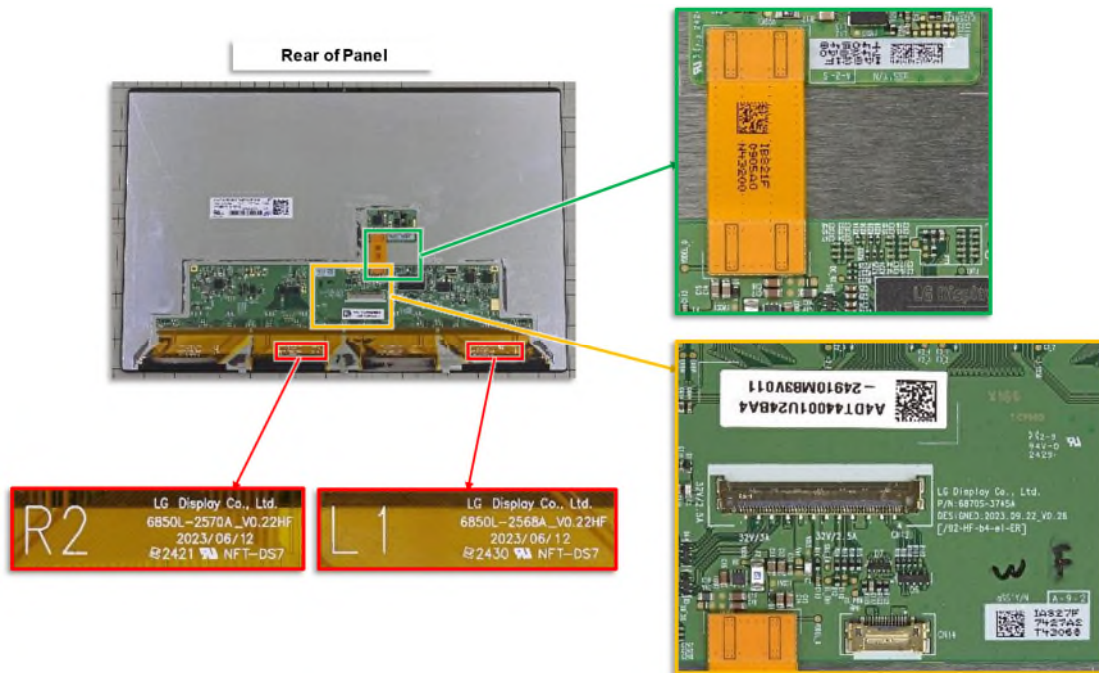
103. LG Display's and LG Display America's infringement of the '971 Patent has caused irreparable harm to Tianma and will continue to do so unless enjoined by this Court. Monetary damages alone cannot adequately compensate Tianma for LG Display and LG Display America's ongoing infringement, as LG Display and LG Display America's infringement has caused and continues to cause irreparable harm to Tianma, including loss of market share, erosion of licensing opportunities, and damage to Tianma's reputation as an innovator in display technology.

COUNT III: INFRINGEMENT OF U.S. PATENT NO. 10,770,525

104. Tianma incorporates by reference and re-alleges paragraphs 1–103 of this Complaint as if fully set forth here.

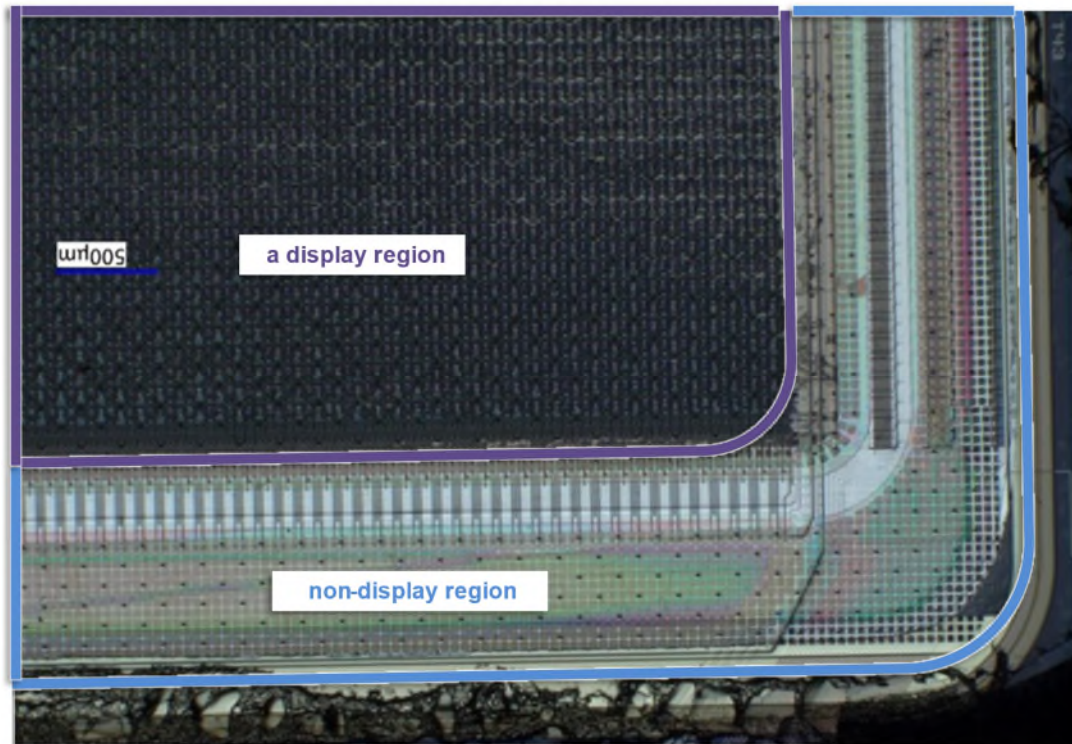
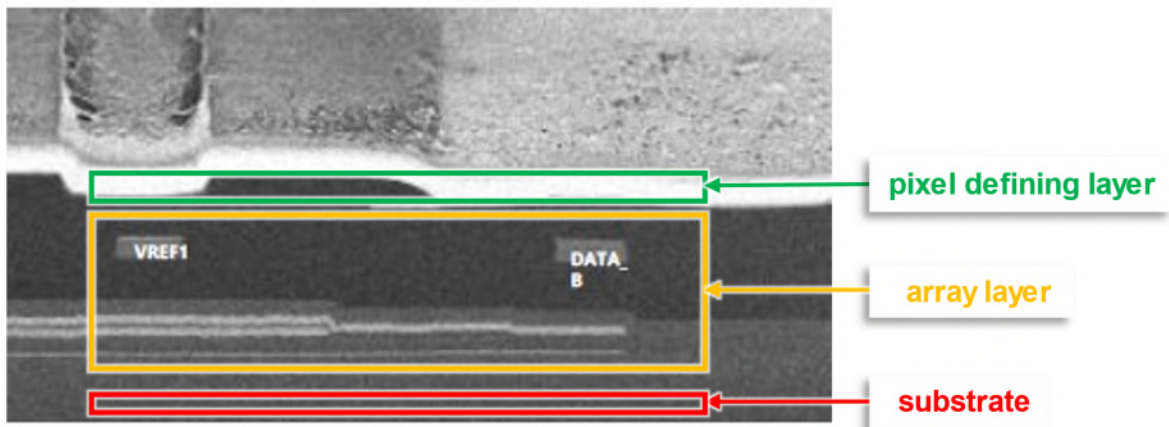
105. On information and belief, LG Display and LG Display America have directly infringed (either literally or under the doctrine of equivalents) and continues to directly infringe one or more claims of the '525 Patent, in violation of 35 U.S.C. § 271(a), by making, using, offering for sale, and/or selling OLED display panels and display modules within the United States and/or importing OLED display panels and display modules into the United States without authority or license.

106. Such OLED display panels and display modules are the “Accused '525 Products.” As just one non-limiting example of an Accused '525 Product, the LG Display 13.4inch OLED panel model LP134WT1 infringes at least claim 7 of the '525 Patent. For avoidance of doubt, the exemplary product discussed below in no way limits the infringement allegations against LG Display and LG Display America that incorporate the same or reasonably similar features.

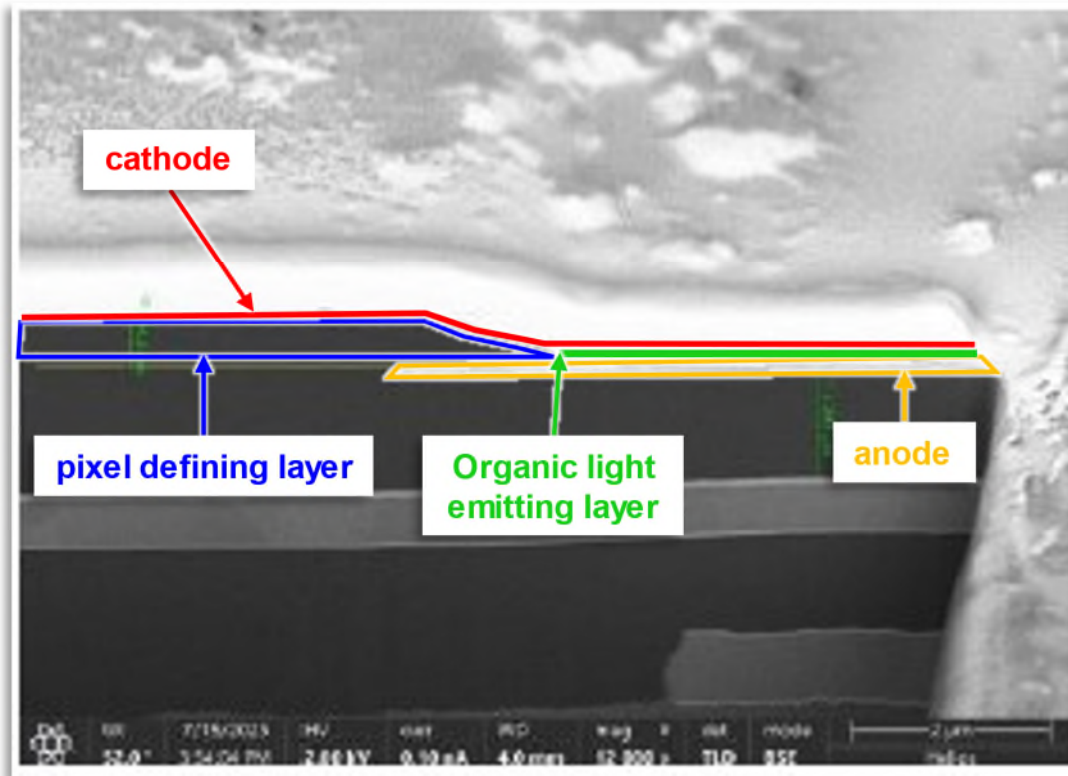


107. The Accused '525 Products comprise an organic light-emitting display panel divided into a display region and a non-display region surrounding the display region, and comprising a substrate, an array layer formed over the substrate, and a pixel defining layer formed

on a surface of the array layer away from the substrate.



108. The Accused '525 Products includes a plurality of organic light-emitting devices formed in a plurality of openings of the pixel defining layer, wherein the plurality of organic light-emitting devices are disposed in the display region, and each organic light-emitting device includes an anode, an organic light-emitting layer, and a cathode sequentially formed on the substrate in a direction away from the substrate.



109. On information and belief, the Accused '525 Products includes a plurality of support units disposed in the non-display region, wherein at least one support unit of the plurality of support units is disposed on a surface of the pixel defining layer away from the substrate, wherein the plurality of support units include a plurality of first support units located within a region covered by an orthogonal projection of the cathode on the substrate, and a plurality of second support units located outside the region covered by the orthogonal projection of the cathode on the substrate.

110. On information and belief, LG Display and LG Display America have had actual knowledge of the '525 Patent and their infringement of the '525 Patent since at least September 8, 2020, the issue date, and the parties' subsequent licensing discussions, or were willfully blind to their existence. This knowledge is demonstrated by LG Display's long standing awareness of, and engagement with, Tianma's display technology business and intellectual property portfolio.

Between 2011 and 2015, LG Display held multiple in person meetings with Tianma. From 2015 through 2024, the parties engaged in negotiations, additional meetings, and correspondence expressly exchanging technical information and patent claim charts. Accordingly, LG Display's decade long pattern of negotiations, patent monitoring, and technical exchanges demonstrates that LG Display and LG Display America had knowledge of the '525 Patent and of LG Display's and LG Display America's infringement of the '525 Patent prior to the filing of this Complaint.

111. LG Display America is a wholly owned subsidiary of LG Display. As part of the LG Display corporate family, LG Display America appears to be LG Display's marketing arm in the United States. LG Display America is acting as LG Display's agent and has also had actual knowledge of the '525 Patent and LG Display's and LG Display America's infringement of the '525 Patent.

112. Additionally and/or alternatively, LG Display and LG Display America have indirectly infringed and continue to indirectly infringe one or more claims of the '525 Patent, in violation of 35 U.S.C. § 271(b), by actively inducing customers and partners to directly infringe through the making, using, selling, offering for sale, and/or importing of the Accused '525 Products.

113. Additionally and/or alternatively, LG Display and LG Display America have contributorily infringed and continue to contributorily infringe one or more claims of the '525 Patent, in violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United States and/or importing into the United States, at least the OLED/AMOLED display-panel border structures in the Accused '525 Products—including support units disposed in the non-display region on the pixel defining layer and/or on island structures, together with the pixel defining layer and the associated organic light-emitting device stack (anode, organic light-emitting layer, and

cathode) as claimed—that contribute to the direct infringement of the '525 Patent by others, where such components are not staple articles of commerce suitable for substantial non-infringing use.

114. LG Display's and LG Display America's infringement of the '525 Patent is willful because they had knowledge of the '525 Patent and of their infringement and nevertheless continued their unauthorized activities despite an objectively high likelihood that their acts constituted infringement.

115. Tianma is entitled to recover from LG Display and LG Display America all damages that Tianma has sustained as a result of LG Display's and LG Display America's infringement of the '525 Patent, including, without limitation, a reasonable royalty and lost profits.

116. LG Display's and LG Display America's infringement of the '525 Patent was and continues to be willful and deliberate, entitling Tianma to enhanced damages under 35 U.S.C. § 284.

117. LG Display's and LG Display America's infringement of the '525 Patent is exceptional and entitles Tianma to its reasonable attorneys' fees and costs under 35 U.S.C. § 285.

118. LG Display's and LG Display America's infringement of the '525 Patent has caused and continues to cause irreparable harm to Tianma for which there is no adequate remedy at law, and Tianma is entitled to a permanent injunction and such other relief as the Court deems just and proper.

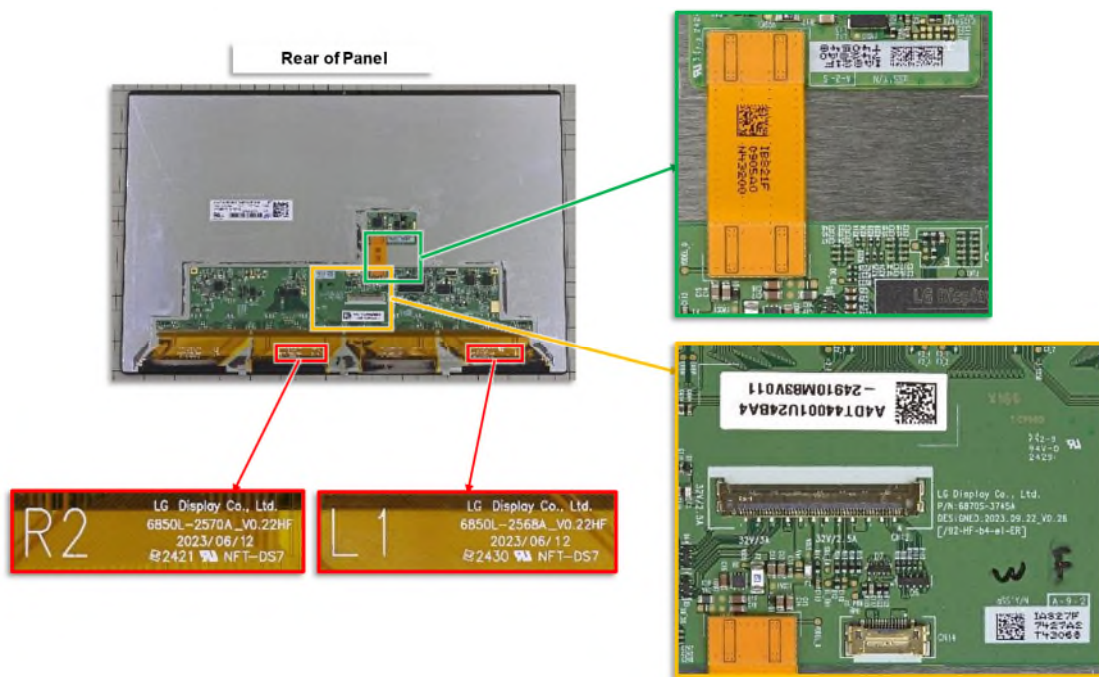
COUNT IV: INFRINGEMENT OF U.S. PATENT NO. 12,293,691

119. Tianma incorporates by reference and re-alleges paragraphs 1–118 of this Complaint as if fully set forth here.

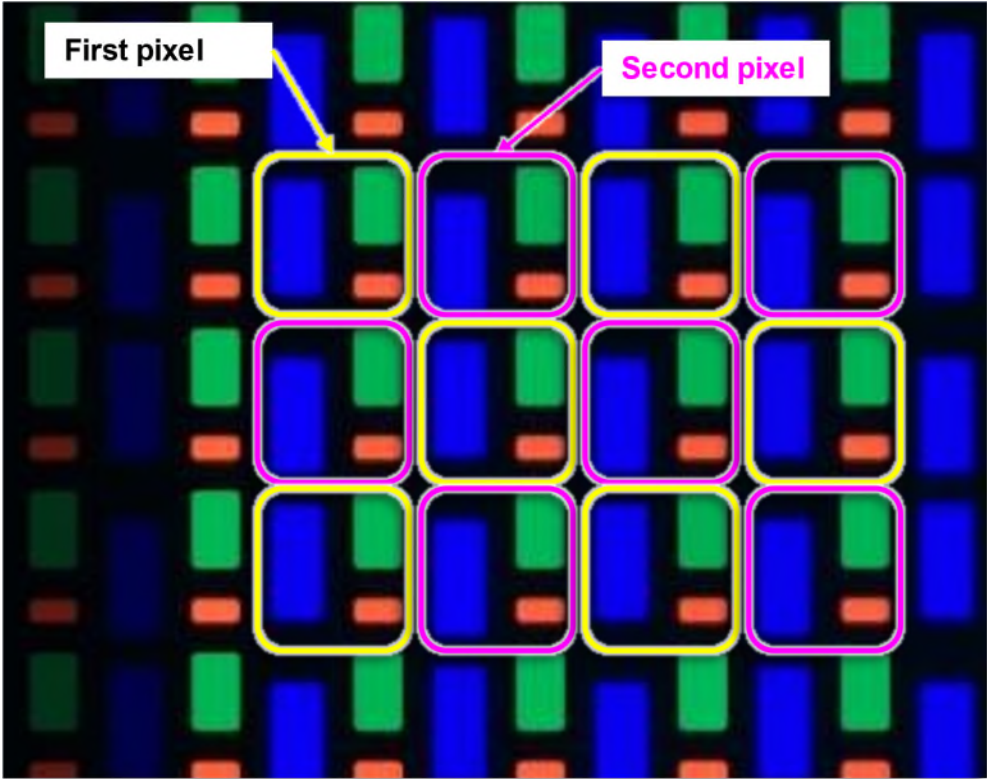
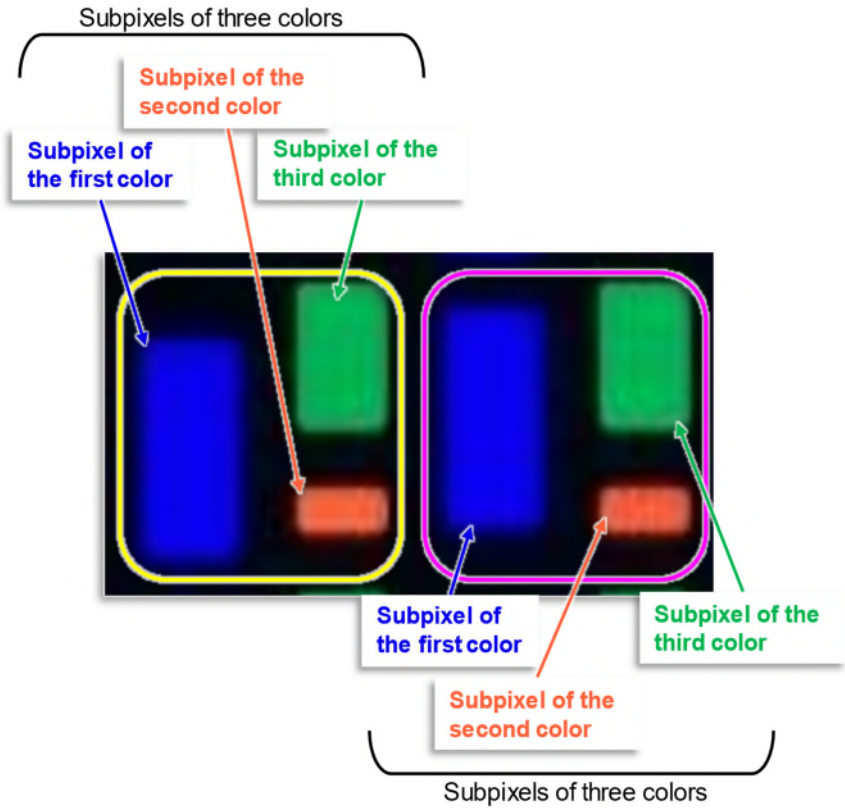
120. On information and belief, LG Display and LG Display America have directly infringed (either literally or under the doctrine of equivalents) and continue to directly infringe one

or more claims of the '691 Patent, in violation of 35 U.S.C. § 271(a), by making, using, offering for sale, and/or selling OLED display panels and display modules within the United States and/or importing OLED display panels and display modules into the United States without authority or license.

121. Such OLED display panels and display modules are the “Accused '691 Products.” As just one nonlimiting example of an Accused '691 Product, the LG Display 13.4inch OLED panel model LP134WT1 infringes at least claim 1 of the '691 Patent. For avoidance of doubt, the exemplary product discussed below in no way limits the infringement allegations against LG Display and LG Display America that incorporate the same or reasonably similar features.



122. The Accused '691 Products include a display unit in which a plurality of first pixels each including subpixels of three colors and a plurality of second pixels each including subpixels of three colors arranged differently from the subpixels in one of the first pixels are alternately arrayed in a row direction and a column direction.



123. The Accused '691 Products include a thin film transistor circuit disposed below each subpixel to control the subpixels.

124. The Accused '691 Products include at least one connection part that connects the thin film transistor circuit and one of the subpixels.

125. In first and second pixels that are adjacent to each other in the column direction in the Accused '691 Products, the subpixel of the second color and the subpixel of the third color are arrayed alternately in the column direction.

126. In the Accused '691 Products, a column where the subpixel of the first color in the first pixel and the subpixel of the first color in the second pixel are arrayed is in parallel with a column where the subpixel of the second color and the subpixel of the third color are alternately arrayed, with the columns arrayed alternately in the row direction.

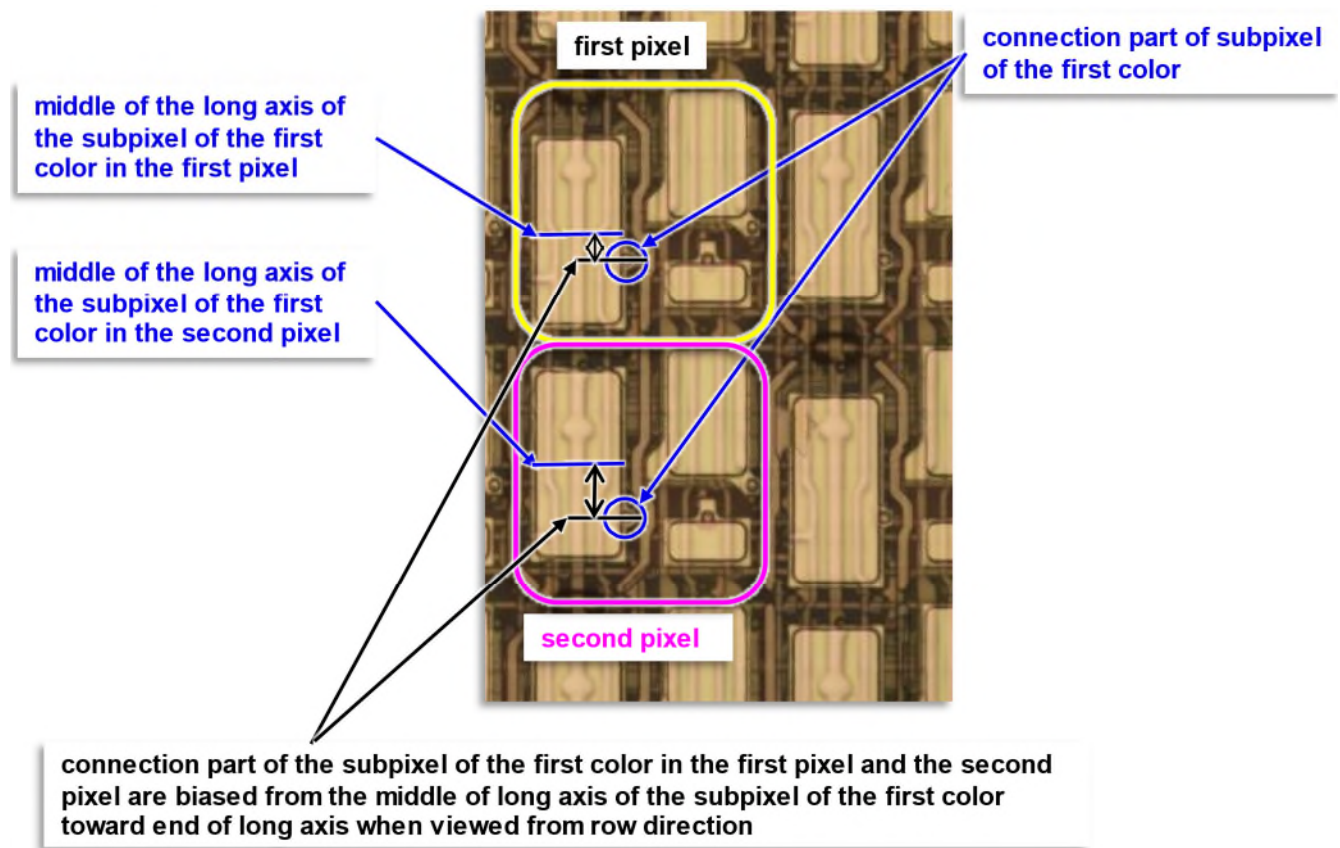
127. In the Accused '691 Products, the subpixel of the first color in one of the first pixels has a biased arrangement positioned toward a side of the subpixel of the second color in the array direction of the alternately arrayed second- and third-color subpixels.

128. In the Accused '691 Products, the subpixel of the first color in one of the second pixels has a biased arrangement positioned toward a side of the subpixel of the third color in the array direction of the alternately arrayed second- and third-color subpixels.

129. In the Accused '691 Products, the subpixel of the first color in one of the first pixels has a rectangle or rounded-rectangle shape whose long axis is parallel with the direction in which the second- and third-color subpixels are alternately arrayed.

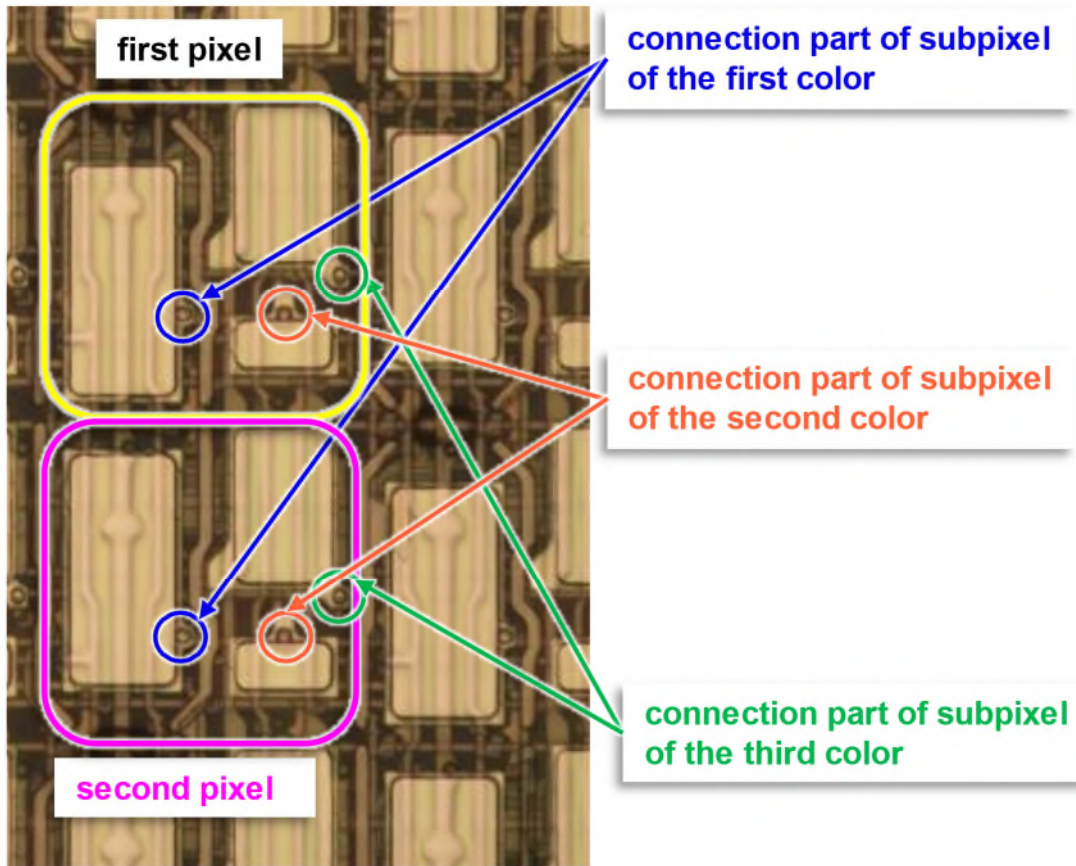
130. In the Accused '691 Products, the subpixel of the first color in one of the second pixels has the rectangle or rounded-rectangle shape whose long axis is parallel with the direction in which the second- and third-color subpixels are alternately arrayed.

131. In the Accused '691 Products, the at least one connection part for the subpixel of the first color in one of the first pixels is one connection part that is biased from the middle of a long axis of the subpixel of the first color toward an end of the long axis when viewed from the row direction.

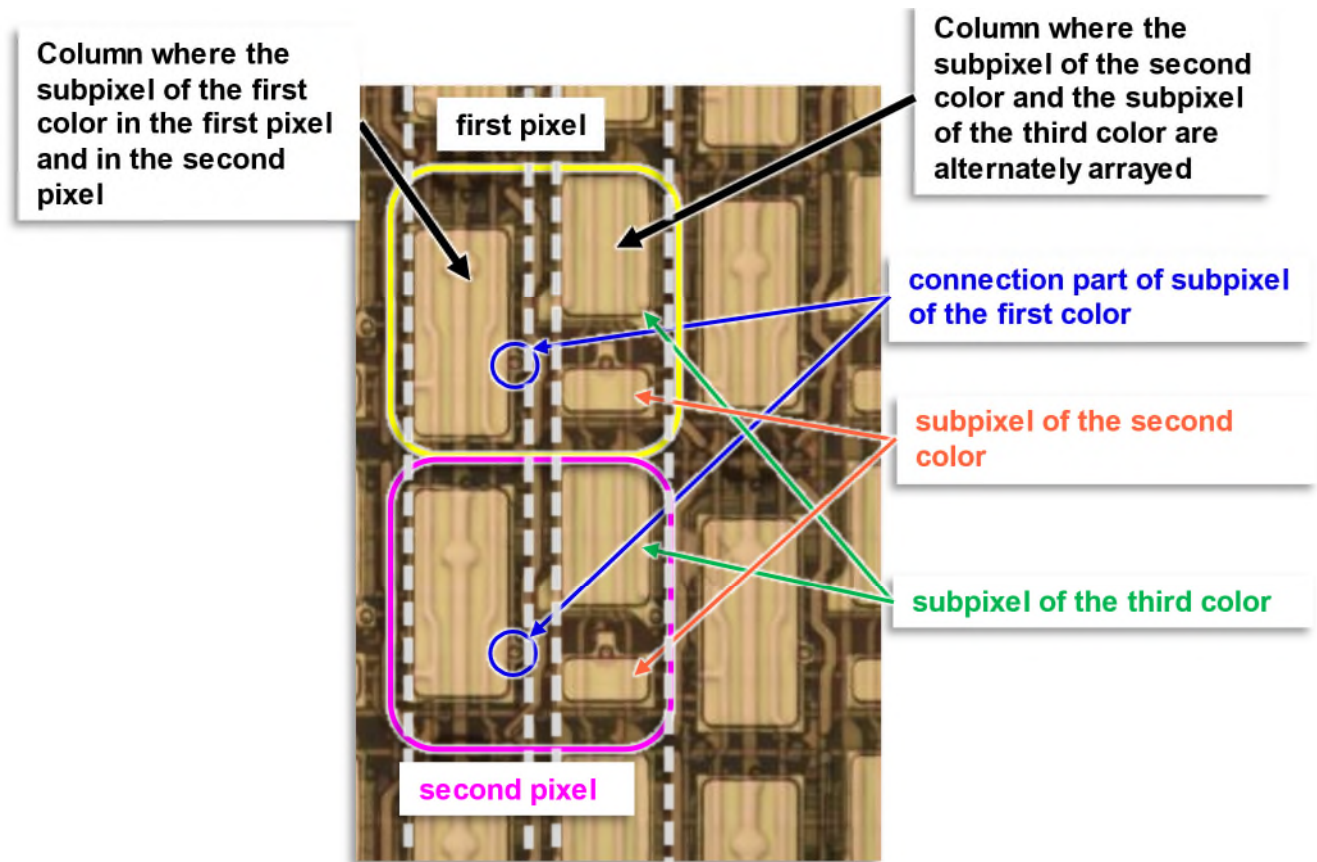


132. In the Accused '691 Products, the at least one connection part for the subpixel of the first color in one of the second pixels is one connection part that is biased from the middle of a long axis of the subpixel of the first color toward an end of the long axis when viewed from the row direction, with the biased positions for the first and second pixels being relatively different.

133. In the Accused '691 Products, the positions where the connection part is disposed with respect to the subpixels of the first, second, and third colors in the first pixel are relatively the same as those in the second pixel.



134. Within a pixel array including the first and second pixels arrayed in the column direction in the Accused '691 Products, the connection part of the subpixel of the first color is disposed between the column where the subpixel of the second color and the subpixel of the third color are alternately arrayed and the column where the subpixel of the first color is arrayed.



135. On information and belief, LG Display and LG Display America have had actual knowledge of the '691 Patent and their infringement of the '691 Patent since at least the May 6, 2025, the issue date, and the parties' subsequent exchanges concerning LG Display's OLED panels, or were willfully blind to their existence. This knowledge is demonstrated by LG Display's long-standing awareness of, and engagement with, Tianma's display-technology business and intellectual property portfolio. Between 2011 and 2015, LG Display held multiple in-person meetings with Tianma. From 2015 through 2024, the parties engaged in negotiations, additional meetings, and correspondence expressly exchanging technical information and patent claim charts. Accordingly, LG Display's decade-long pattern of negotiations, patent monitoring, and technical exchanges demonstrates that LG Display and LG Display America had knowledge of the '691 Patent and of LG Display's and LG Display America's infringement of the '691 Patent prior

to the filing of this Complaint.

136. LG Display America is a wholly owned subsidiary of LG Display. As part of the LG Display corporate family, LG Display America appears to be LG Display's marketing arm in the United States. LG Display America is acting as LG Display's agent and has also had actual knowledge of the '691 Patent and LG Display's and LG Display America's infringement of the '691 Patent.

137. Additionally and/or alternatively, LG Display and LG Display America have indirectly infringed and continue to indirectly infringe one or more claims of the '691 Patent, in violation of 35 U.S.C. § 271(b), by actively inducing customers and partners to directly infringe through the making, using, selling, offering for sale, and/or importing of the Accused '691 Products.

138. Additionally and/or alternatively, LG Display and LG Display America have contributorily infringed and continue to contributorily infringe one or more claims of the '691 Patent, in violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United States and/or importing into the United States, at least the OLED/AMOLED pixel structures in the Accused '691 Products—including first-, second-, and third-color subpixels arranged as claimed; thin-film transistor circuits disposed below the subpixels; and at least one connection part electrically connecting the TFT circuit output to the anode of the first-color subpixel with the claimed biased placement—that contribute to the direct infringement of the '691 Patent by others, where such components are not staple articles of commerce suitable for substantial non-infringing use.

139. LG Display's and LG Display America's infringement of the '691 Patent is willful because they had actual knowledge of the '691 Patent and Tianma's infringement contentions no

later than the date of the filing of this Complaint and nevertheless continued their unauthorized activities despite an objectively high likelihood that their acts constituted infringement.

140. This objectively defined risk was either known or so obvious that it should have been known to LG Display and LG Display America.

141. Tianma is entitled to recover from LG Display and LG Display America all damages that Tianma has sustained as a result of LG Display's and LG Display America's infringement of the '691 Patent, including, without limitation, a reasonable royalty and lost profits.

142. LG Display's and LG Display America's infringement of the '691 Patent was and continues to be willful and deliberate, entitling Tianma to enhanced damages under 35 U.S.C. § 284.

143. LG Display's and LG Display America's infringement of the '691 Patent is exceptional and entitles Tianma to its reasonable attorneys' fees and costs under 35 U.S.C. § 285.

144. LG Display's and LG Display America's infringement of the '691 Patent has caused and continues to cause irreparable harm to Tianma for which there is no adequate remedy at law, and Tianma is entitled to a permanent injunction and such other relief as the Court deems just and proper.

PRAYER FOR RELIEF

WHEREFORE, Tianma respectfully requests that this Court enter judgment in its favor and against LG Display and LG Display America and that the Court grant the following relief:

A. A judgment that LG Display and LG Display America directly and/or indirectly infringed one or more claims of the patents-in-suit, literally and/or under the doctrine of equivalents, and that such infringement has been willful;

B. An order and judgment awarding Tianma all damages adequate to compensate for

LG Display and LG Display America's infringement of the patents-in-suit, including, but not limited to, a reasonable royalty, lost profits, and any supplemental damages, together with pre-judgment and post-judgment interest as provided by law;

C. An award of enhanced damages pursuant to 35 U.S.C. § 284 as a result of LG Display and LG Display America's willful infringement;

D. An order declaring that this case is exceptional and awarding Tianma its reasonable attorneys' fees, costs, and expenses incurred in this action pursuant to 35 U.S.C. § 285;

E. A preliminary and permanent injunction enjoining LG Display and LG Display America, and its officers, agents, servants, employees, attorneys, and all persons in active concert or participation with them, from further acts of infringement of the patents-in-suit;

F. Such other and further relief as the Court may deem just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Tianma respectfully demands a trial by jury on all issues triable by jury.

Dated: December 9, 2025

Respectfully submitted,

/s/ Timothy J. Carroll

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* Motions for admission *pro hac vice* forthcoming

† Admitted only in California