

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

SAMSUNG DISPLAY CO., LTD.

Plaintiff,

v.

BOE TECHNOLOGY GROUP CO., LTD.,
MIANYANG BOE OPTOELECTRONICS
TECHNOLOGY CO., LTD., ORDOS
YUANSHEG OPTOELECTRONICS CO.,
LTD., CHENGDU BOE
OPTOELECTRONICS TECHNOLOGY
CO., LTD., CHONGQING BOE
OPTOELECTRONICS TECHNOLOGY
CO., LTD., WUHAN BOE
OPTOELECTRONICS TECHNOLOGY
CO., LTD., and YUNNAN INVENSIGHT
OPTOELECTRONICS TECHNOLOGY
CO., LTD. f/k/a/ BMOT f/k/a KUNMING
BOE DISPLAY TECHNOLOGY.

Defendants.

COMPLAINT
Civil Action No. []
JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Samsung Display Co., Ltd. (“Samsung Display” or “Plaintiff”), by and through the undersigned attorneys, complains and alleges the following against Defendants BOE Technology Group Co., Ltd., Mianyang BOE Optoelectronics Technology Co., Ltd., Ordos Yuansheng Optoelectronics Co., Ltd., Chengdu BOE Optoelectronics Technology Co., Ltd., Chongqingmi BOE Optoelectronics Technology Co., Ltd., Wuhan BOE Optoelectronics Technology Co., Ltd., and Yunnan Invensight Optoelectronics Technology Co., Ltd. f/k/a BMOT f/k/a Kunming BOE Display Technology (together, “BOE” or “Defendants”).

NATURE OF THE ACTION

1. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.*

2. Samsung Display has filed this lawsuit to respond to Defendants' unlawful infringement of Samsung Display's patented inventions and to obtain damages and other relief.

THE PARTIES

3. Plaintiff Samsung Display is a corporation organized and existing under the laws of the Republic of Korea, with its principal place of business at 1, Samsung-ro, Giheung-gu, Yongin-si, Gyeonggi-do, 17113, Republic of Korea. Samsung Display is a market leader in the research, development, and manufacture of organic light emitting diode ("OLED") displays.

4. Upon information and belief, BOE Technology Group Co., Ltd. ("BOE Beijing") is a corporation organized and existing under the laws of the People's Republic of China with its principal place of business located at No. 12 Xihuanzhong, RD, BDA, Beijing, 100176, P.R. China.

5. Upon information and belief, Mianyang BOE Optoelectronics Technology Co., Ltd. ("Mianyang BOE") is a corporation organized and existing under the laws of the People's Republic of China with a principal place of business located at No. 198 Kefa Road, Hi-Tech Zone, Mianyang, P.R. China. Upon information and belief, Defendant BOE Beijing owns a controlling stake in Mianyang BOE.

6. Upon information and belief, Ordos Yuansheng Optoelectronics Co., Ltd. ("Ordos BOE") is a corporation organized and existing under the laws of the People's Republic of China, having a principal place of business at No. 37 Science RD, Equipment Manufacturing Base, Dongsheng District, Ordos, Inner Mongolia Autonomous Region, P.R. China. Upon information and belief, Ordos BOE is a subsidiary of BOE Beijing.

7. Upon information and belief, Chengdu BOE Optoelectronics Technology Co., Ltd. ("Chengdu BOE") is a corporation organized and existing under the laws of the People's Republic of China, having a principal place of business at No. 1188 Cooperation RD, Hi-tech Zone (west

area), Chengdu, Sichuan, P.R. China. Upon information and belief, Chengdu BOE is a subsidiary of BOE Beijing.

8. Upon information and belief, Chongqing BOE Optoelectronics Technology Co., Ltd. (“Chongqing BOE”) is a corporation organized under the laws of the People’s Republic of China, having a principal place of business at No. 7, Yunhan RD, Shuitu Hi-tech Industrial Zone, Chongqing, P.R. China. Upon information and belief, Chongqing BOE is a subsidiary of BOE Beijing.

9. Upon information and belief, Wuhan BOE Optoelectronics Technology Co., Ltd. (“Wuhan BOE”) is a corporation organized and existing under the laws of the People’s Republic of China, having a principal place of business at No.691 Linkonggang RD, Dongxihu District, Wuhan, Hubei, 430040, P.R. China. Upon information and belief, Wuhan BOE is a subsidiary of BOE Beijing.

10. Upon information and belief, Yunnan Invensight Optoelectronics Technology Co., Ltd. (“BMOT”) is a corporation organized and existing under the laws of the People’s Republic of China, having a principal place of business at No. 215, Building A2, No.1 Yunshui RD, Da Ban Qiao sub-district office of Yunnan Dianzhong New Area, 650211, P.R. China. Upon information and belief, Yunnan Invensight Optoelectronics Technology Co., Ltd. was formerly known as “BMOT” and also as Kunming BOE Display Technology. Upon information and belief, BMOT is a subsidiary of BOE Beijing.

11. BOE Beijing, Mianyang BOE, Ordos BOE, Chengdu BOE, Chongqing BOE, Wuhan BOE, and BMOT are collectively referred to herein as “BOE” or “Defendants.”

12. Upon information and belief, Defendants make and sell OLED displays that infringe one or more claims of U.S. Patent No. 11,574,990 (“the ’990 Patent”), U.S. Patent No. 11,574,991

(“the ’991 Patent”), U.S. Patent No. 10,439,015 (“the ’015 Patent”), and U.S. Patent No. 10,013,088 (“the ’088 Patent”) (collectively, the “Asserted Patents”). Such OLED displays are hereinafter referred to as the “Accused Products.”

JURISDICTION AND VENUE

13. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this is a civil action arising under the Patent Act.

14. This Court has personal jurisdiction over Defendants. Defendant BOE Beijing has established minimum contacts with the United States as a whole and with Texas such that subjecting BOE Beijing to personal jurisdiction in this Court will not offend traditional notions of fair play and substantial justice. BOE Beijing has purposely availed itself of the laws and protections of the United States and the State of Texas by knowingly supplying and/or contracting to supply OLED displays for incorporation into products (such as smartphones) to be sold, offered for sale, imported, and used in the United States, the State of Texas, and in this District. BOE Beijing has targeted the United States by conducting regular business therein, and has placed and continues to place its products into the stream of commerce through an established distribution channel with the expectation and/or knowledge that they will be purchased by consumers in the United States, the State of Texas, and this District. Samsung Display’s claims for patent infringement arise directly from and/or relate to this activity. For example, a Nubia Z60 Ultra product that, on information and belief, contains an infringing OLED display supplied by Defendants was purchased in Texas, and is discussed further below. BOE Beijing has also purposely availed itself of the laws and protections of the United States, the State of Texas, and this District by filing counterclaims in this District. *See, e.g.,* Docket No. 27, *Element Capital Commercial Company PTE. LTD v. BOE Technology Group Co., Ltd. et al*, Case No. 2-22-cv-00118 (E.D. Tex. Dec. 1, 2022); Docket No. 58, *Longitude Licensing Ltd. v. BOE Technology Group Co., Ltd.*, Case No. 2:23-cv-00515 (E.D. Tex. Jun. 13, 2024).

15. Defendant Mianyang BOE has established minimum contacts with the United States as a whole and with Texas such that subjecting Mianyang BOE to personal jurisdiction in this Court will not offend traditional notions of fair play and substantial justice. Mianyang BOE has purposely availed itself of the laws and protections of the United States and the State of Texas by knowingly supplying and/or contracting to supply OLED displays for incorporation into products to be sold, offered for sale, imported, and used in the United States, in the State of Texas, and in this District. Mianyang BOE has targeted the United States by conducting regular business therein, and has placed and continues to place its products into the stream of commerce through an established distribution channel with the expectation and/or knowledge that they will be purchased by consumers in the United States, the State of Texas, and this District. For instance, Mianyang BOE has admitted that it supplies OLED displays that are imported into the United States. *See Exhibit 1 (Mianyang BOE's Motion to Intervene as a Respondent (Public Version), In the Matter of Certain Active Matrix Organic Light-Emitting Diode Display Panels and Modules for Mobile Devices, and Components Thereof, ITC Inv. No. 337-TA-1351 (the "-1351 ITC Investigation"), at 3, 6 (Feb. 22, 2023))*. Further, a Nubia Z60 Ultra product that, on information and belief, contains an infringing OLED display supplied by Defendants was purchased in Texas, and is discussed further below. Samsung Display's claims for patent infringement arise directly from and/or relate to this activity.

16. On information and belief, Defendant Ordos BOE, alone and/or through the activities of its parent BOE Beijing, has established minimum contacts with the United States as a whole and with Texas such that subjecting Ordos BOE to personal jurisdiction in this Court will not offend traditional notions of fair play and substantial justice. Ordos BOE has purposely availed itself of the laws and protections of the United States and the State of Texas by knowingly supplying and/or contracting to supply OLED displays for incorporation into products (such as smartphones) to be

sold, offered for sale, imported, and used in the United States, the State of Texas, and in this District. Ordos BOE has targeted the United States by conducting regular business therein, and has placed and continues to place its products into the stream of commerce through an established distribution channel with the expectation and/or knowledge that they will be purchased by consumers in the United States, the State of Texas, and this District. Further, a Nubia Z60 Ultra product that, on information and belief, contains an infringing OLED display supplied by Defendants was purchased in Texas, and is discussed further below. Samsung Display's claims for patent infringement arise directly from and/or relate to this activity.

17. On information and belief, Defendant Chengdu BOE, alone and/or through the activities of its parent BOE Beijing, has established minimum contacts with the United States as a whole and with Texas such that subjecting Chengdu BOE to personal jurisdiction in this Court will not offend traditional notions of fair play and substantial justice. Chengdu BOE has purposely availed itself of the laws and protections of the United States and the State of Texas by knowingly supplying and/or contracting to supply OLED displays for incorporation into products (such as smartphones) to be sold, offered for sale, imported, and used in the United States, the State of Texas, and in this District. Chengdu BOE has targeted the United States by conducting regular business therein, and has placed and continues to place its products into the stream of commerce through an established distribution channel with the expectation and/or knowledge that they will be purchased by consumers in the United States, the State of Texas, and this District. Further, a Nubia Z60 Ultra product that, on information and belief, contains an infringing OLED display supplied by Defendants was purchased in Texas, and is discussed further below. Samsung Display's claims for patent infringement arise directly from and/or relate to this activity.

18. On information and belief, Defendant Chongqing BOE, alone and/or through the activities of its parent BOE Beijing, has established minimum contacts with the United States as a whole and with Texas such that subjecting Chongqing BOE to personal jurisdiction in this Court will not offend traditional notions of fair play and substantial justice. Chongqing BOE has purposely availed itself of the laws and protections of the United States and the State of Texas by knowingly supplying and/or contracting to supply OLED displays for incorporation into products (such as smartphones) to be sold, offered for sale, imported, and used in the United States, the State of Texas, and in this District. Chongqing BOE has targeted the United States by conducting regular business therein, and has placed and continues to place its products into the stream of commerce through an established distribution channel with the expectation and/or knowledge that they will be purchased by consumers in the United States, the State of Texas, and this District. Further, a Nubia Z60 Ultra product that, on information and belief, contains an infringing OLED display supplied by Defendants was purchased in Texas, and is discussed further below. Samsung Display's claims for patent infringement arise directly from and/or relate to this activity.

19. On information and belief, Defendant Wuhan BOE, alone and/or through the activities of its parent BOE Beijing, has established minimum contacts with the United States as a whole and with Texas such that subjecting Wuhan BOE to personal jurisdiction in this Court will not offend traditional notions of fair play and substantial justice. Wuhan BOE has purposely availed itself of the laws and protections of the United States and the State of Texas by knowingly supplying and/or contracting to supply OLED displays for incorporation into products (such as smartphones) to be sold, offered for sale, imported, and used in the United States, the State of Texas, and in this District. Wuhan BOE has targeted the United States by conducting regular business therein, and has placed and continues to place its products into the stream of commerce through an established

distribution channel with the expectation and/or knowledge that they will be purchased by consumers in the United States, the State of Texas, and this District. Further, a Nubia Z60 Ultra product that, on information and belief, contains an infringing OLED display supplied by Defendants was purchased in Texas, and is discussed further below. Samsung Display's claims for patent infringement arise directly from and/or relate to this activity.

20. On information and belief, Defendant BMOT, alone and/or through the activities of its parent BOE Beijing, has established minimum contacts with the United States as a whole and with Texas such that subjecting BMOT to personal jurisdiction in this Court will not offend traditional notions of fair play and substantial justice. BMOT has purposely availed itself of the laws and protections of the United States and the State of Texas by knowingly supplying and/or contracting to supply OLED displays for incorporation into products (such as smartphones) to be sold, offered for sale, imported, and used in the United States, the State of Texas, and in this District. BMOT has targeted the United States by conducting regular business therein, and has placed and continues to place its products into the stream of commerce through an established distribution channel with the expectation and/or knowledge that they will be purchased by consumers in the United States, the State of Texas, and this District. Further, a Nubia Z60 Ultra product that, on information and belief, contains an infringing OLED display supplied by Defendants was purchased in Texas, and is discussed further below. Samsung Display's claims for patent infringement arise directly from and/or relate to this activity.

21. Venue is proper in this District under 28 U.S.C. §§ 1391(a)-(d) and 1400(b). BOE Beijing, Mianyang BOE, Ordos BOE, Chengdu BOE, Chongqing BOE, Wuhan BOE, and BMOT are foreign corporations that do not reside in the United States, and may be sued in any judicial district pursuant to 28 U.S.C. § 1391(c)(3).

22. Defendants are jointly and severally liable for infringing one or more claims of the Asserted Patents. Defendants' liability stems from the same transactions or occurrences regarding the use, sale, and/or offer for sale in the United States and/or the importation into the United States of the Accused Products. Consequently, this action involves questions of law and fact common to all Defendants.

THE ASSERTED PATENTS

23. U.S. Patent No. 11,574,990 ("the '990 Patent") is entitled "Organic Light Emitting Diode Display With Curved Channel Region." The '990 Patent discloses, *inter alia*, a novel structure for an OLED display including a semiconductor layer with a bent portion. A true and correct copy of the '990 Patent is attached as Exhibit 2.

24. Samsung Display is the sole owner by assignment of all right, title, and interest in the '990 Patent.

25. U.S. Patent No. 11,574,991 ("the '991 Patent") is entitled "Organic Light Emitting Diode Display With Semiconductor Layer Having Bent Portion." The '991 Patent discloses, *inter alia*, a novel structure for an OLED display including a semiconductor layer with a bent portion. A true and correct copy of the '991 Patent is attached as Exhibit 3.

26. Samsung Display is the sole owner by assignment of all right, title, and interest in the '991 Patent.

27. U.S. Patent No. 10,439,015 ("the '015 Patent") is entitled "Display Apparatus." The '015 Patent discloses, *inter alia*, a novel structure for a display apparatus having, among other things, a shield layer in a layer between a signal line and a semiconductor. A true and correct copy of the '015 Patent is attached as Exhibit 4.

28. Samsung Display is the sole owner by assignment of all right, title, and interest in the '015 Patent.

29. U.S. Patent No. 10,013,088 (“the ’088 Patent”) is entitled “Flat Panel Display With Integrated Touch Screen Panel.” The ’088 Patent discloses, *inter alia*, a novel structure for an integrated touch screen panel having, among other things, a sealing thin film with an inclined surface at an end of the sealing thin film to inhibit infiltration of oxygen or moisture. A true and correct copy of the ’088 Patent is attached as Exhibit 5.

30. Samsung Display is the sole owner by assignment of all right, title, and interest in the ’088 Patent.

31. On May 2, 2022, Samsung Display sent a letter to Defendant BOE Beijing notifying it that OLED displays being made and offered for sale by BOE were infringing Samsung Display’s patents including the ’015 Patent. Upon information and belief, Defendants have therefore had knowledge of the ’015 Patent and of their infringement of that patent, at least since receiving the May 2, 2022 letter. In addition, upon information and belief, Defendants have knowledge of the ’990 Patent and ’991 Patent and of their infringement of the ’990 Patent and ’991 Patent since at least the respective dates of issuance of these patents. The ’990 Patent and ’991 Patent issued from an application that was a continuation of an application that issued as U.S. Patent No. 10,204,976, which was identified in Samsung Display’s May 2, 2022 letter to Defendant BOE Beijing as being infringed by OLED displays being made and offered for sale by BOE. Moreover, upon information and belief, Defendants had knowledge of the ’088 Patent, and of their infringement of that patent, since its issuance.

32. Defendants have also had knowledge of the ’990 Patent, the ’991 Patent, the ’015 Patent, and the ’088 Patent, since at least the filing of this Complaint.

THE ACCUSED PRODUCTS

33. The Accused Products are OLED displays used, made, sold, offered for sale, or imported, directly or indirectly, by Defendants, including OLED displays incorporated into

smartphones, tablets, and other mobile devices—such as the Nubia Z60 Ultra and REDMAGIC 9S Pro devices.

34. Upon information and belief, the Accused Products are manufactured and assembled by or for Defendants at facilities in China, including by BOE Mianyang. *See* About Us, boe.com/en/about/index (last accessed April 1, 2025) (“BOE owns a number of manufacturing sites in Beijing, Hefei, Chengdu, Chongqing, Fuzhou, Mianyang, Wuhan, Kunming, Suzhou, Ordos, etc.”).

35. Upon information and belief, Defendants, directly or indirectly through affiliates, subsidiaries, agents or other representatives sell and/or offer for sale Accused Products in the United States, and/or import Accused Products into the United States, including in connection with supplying and selling Accused Products to U.S. businesses for product repair and as replacement parts and in connection with supplying and selling Accused Products to OEM customers for testing, evaluation, qualification, and incorporation into products, such as smartphones and tablets, that are used, sold, and/or offered for sale in the United States and/or imported into the United States.

36. BOE is identified on Nubia’s website as its OLED display supplier. *See* Nubia Z60 Ultra, Nubia Technology Co., Ltd., <https://www.nubia.com/en/products/smartphones/nubia/nubia-z60-ultra.html> (last accessed February 27, 2025) (“New BOE Q9+ Screen material Color display stability improved by 50%”); nubia Z70 Ultra - Nubia Store (Global), Nubia Technology Co., Ltd., <https://www.nubia.com/en/products/smartphones/nubia/nubia-z70-ultra.html> (last accessed February 27, 2025) (“Discover breathtaking visuals with the 6.85-inch AMOLED display, co-engineered with BOE for edge-to-edge clarity.”). BOE is also identified as Nubia’s supplier on the RedMagic website. *See* REDMAGIC 9S Pro Gaming Smartphone – Product Page - REDMAGIC (US and Canada), Nubia Technology Co., Ltd., <https://na.redmagic.gg/pages/redmagic-9-pro> (last

accessed February 27, 2025) (“Enjoy deeper contrast, vivid colors, and a notch more brightness on the BOE Q9+ luminescent materials screen.”); REDMAGIC 10 Pro Gaming Smartphone - Full Specifications & Price - REDMAGIC (US and Canada), Nubia Technology Co., Ltd., <https://na.redmagic.gg/pages/redmagic-10-pro-specs> (last accessed February 27, 2025) (“Size: 6.853 Inch BOE Q9+ FHD+”). Market reports indicate that BOE supplies OLED displays to Nubia including at least for the Nubia Z70 Ultra and REDMAGIC 10 Pro models sold in the United States. *See, e.g.*, BOE develops new under-the-OLED camera technology, to supply it to ZTE’s Nubia and Red Magic flagship smartphones (OLED-info), <https://www.oled-info.com/boe-develops-new-under-oled-camera-technology-supply-it-ztes-nubia-and-red> (last accessed February 27, 2025).

37. Upon information and belief, Defendants have also imported Accused Products into the United States, and used them in the United States, to promote them at industry and trade shows. For example, upon information and belief, BOE imported OLED devices into the United States for exhibition at The Society for Information Display’s (“SID”) DisplayWeek events in at least 2018, 2019, 2022, 2023, and 2024.

COUNT I – INFRINGEMENT OF U.S. PATENT NO. 11,574,990

38. Samsung Display hereby incorporates the allegations of Paragraphs 1 through 39 as fully set forth herein.

39. Upon information and belief, BOE has infringed and continues to directly infringe the ’990 Patent by making, using, selling, offering for sale, and/or importing into the United States OLED displays for incorporation into the Accused Products, such as OLED displays incorporated into the Nubia Z60 Ultra product (“BOE OLED Display”).

40. Independent claim 1 of the ’990 Patent recites:

1. An organic light emitting diode display comprising:
a substrate;

a first voltage line;

a second voltage line;

a plurality of pixels, each of the pixels comprising an organic light emitting diode;

a plurality of driving circuits on the substrate, each of the organic light emitting diodes being electrically coupled to a respective driving circuit;

wherein each of the driving circuits comprises:

a first thin film transistor coupled to a first scan line and a data line;

a second thin film transistor utilizing a semiconductor layer and electrically coupled to the first voltage line, the corresponding organic light emitting diode, and the first thin film transistor, the semiconductor layer being extended to and electrically coupled to the first thin film transistor;

an insulating layer covering the second thin film transistor;

a storage capacitor electrically coupled to a gate electrode of the second thin film transistor, the storage capacitor comprising a first capacitor plate comprising a portion of the gate electrode of the second thin film transistor, a second capacitor plate over the first capacitor plate, and a portion of the insulating layer between the first capacitor plate and the second capacitor plate, a portion of a channel region of the semiconductor layer under the gate electrode of the second thin film transistor being curved;

a third thin film transistor electrically coupled to the second thin film transistor, the corresponding organic light emitting diode, and the first capacitor plate, the semiconductor layer being extended to and electrically coupled to the third thin film transistor;

a fourth thin film transistor electrically coupled to the first voltage line and the second thin film transistor, the semiconductor layer being extended to and is electrically coupled to the fourth thin film transistor;

a fifth thin film transistor electrically coupled to the second thin film transistor, the third thin film transistor, and the corresponding organic light emitting diode, the semiconductor layer being extended to and is electrically coupled to the fifth thin film transistor; and

a sixth thin film transistor electrically coupled to the second voltage line, the third thin film transistor, and the first capacitor plate, the semiconductor layer being extended to and is electrically coupled to the sixth thin film transistor.

41. Upon information and belief, the BOE OLED Display meets each of the limitations of claim 1.

42. For example, the images below (Figures 1–3) are of a Nubia Z60 Ultra product sold in Texas that, on information and belief, contains an organic light emitting diode display supplied by BOE.



Figure 1

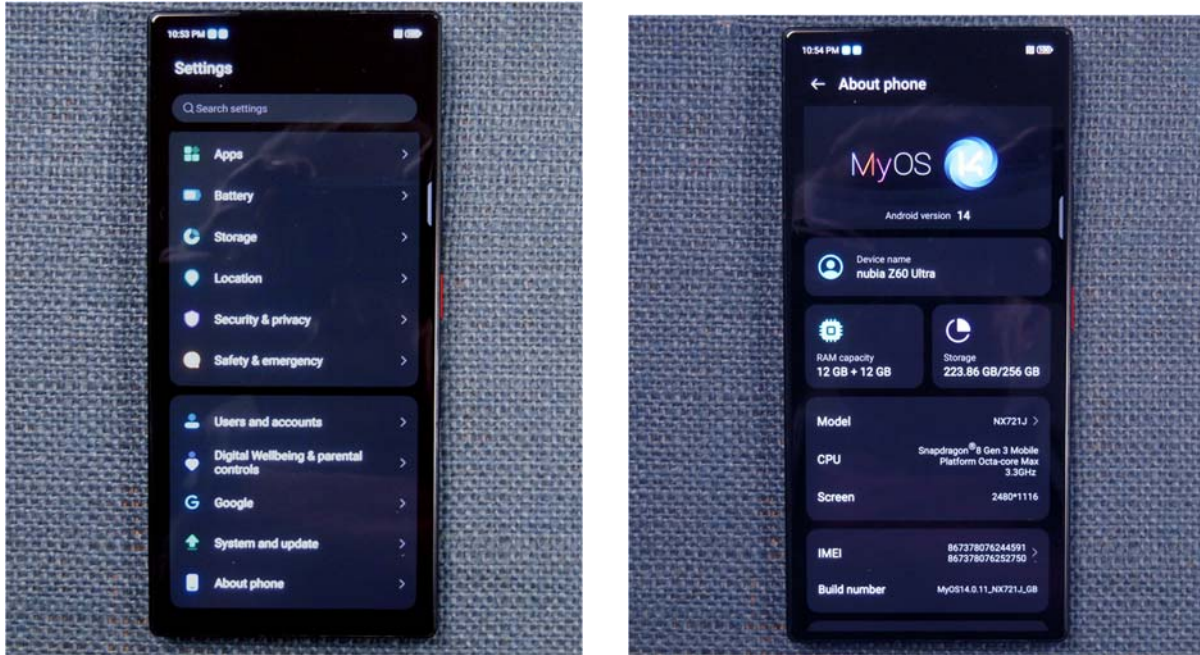


Figure 2



Figure 3

43. The BOE OLED Display is an “organic light emitting diode display,” and it comprises a “substrate,” which supports the OLED pixels that are visible through the glass panel as well as the circuitry that controls the operation of the OLED pixels. The BOE OLED Display is mounted within the device chassis and is located behind a glass panel, and in the image below (Fig. 4), the display panel substrate can be seen.

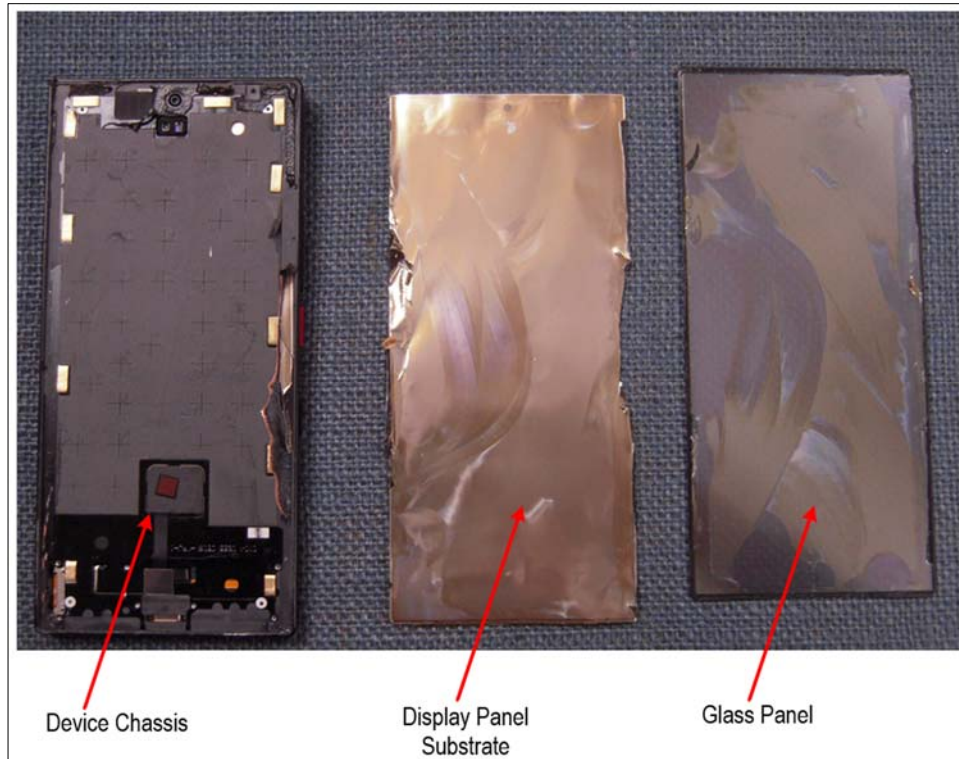


Figure 4

44. The BOE OLED Display comprises “a first voltage line; a second voltage line; [and] a plurality of driving circuits on the substrate.” In the annotated image below (Fig. 5), multiple driving circuits formed on the BOE OLED Display panel’s substrate are shown, and a first voltage line (“ELVDD”) and a second voltage line (“Vinit1”) are identified. In the low-magnification image of the front-side of the BOE OLED Display panel (Fig. 6), the patterns shown in Figure 5 repeat throughout the panel, providing additional first voltage lines, second voltage lines, and driving circuits. As shown in the figures, the BOE OLED Display comprises “a plurality of driving circuits on the substrate.”

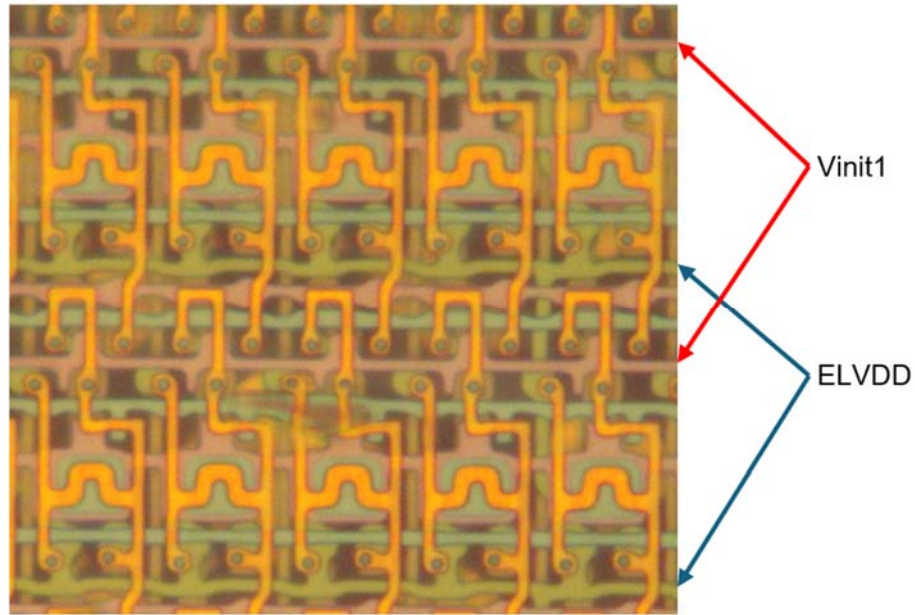


Figure 5

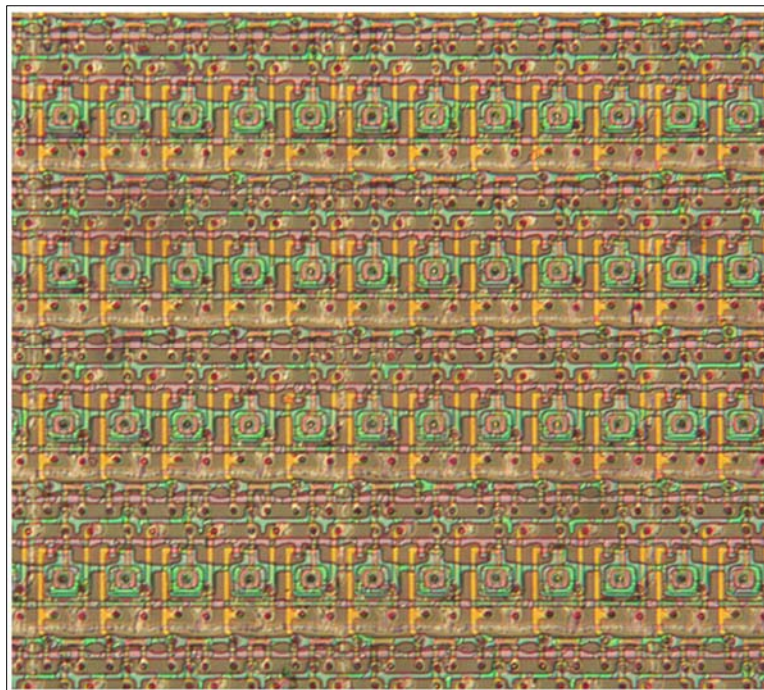


Figure 6

45. The BOE OLED Display comprises “a plurality of pixels, each of the pixels comprising an organic light emitting diode.” For example, in the annotated image below (Fig. 7)

(front-side image of the BOE OLED Display panel), a plurality of pixels is shown, each comprising an organic light emitting diode.

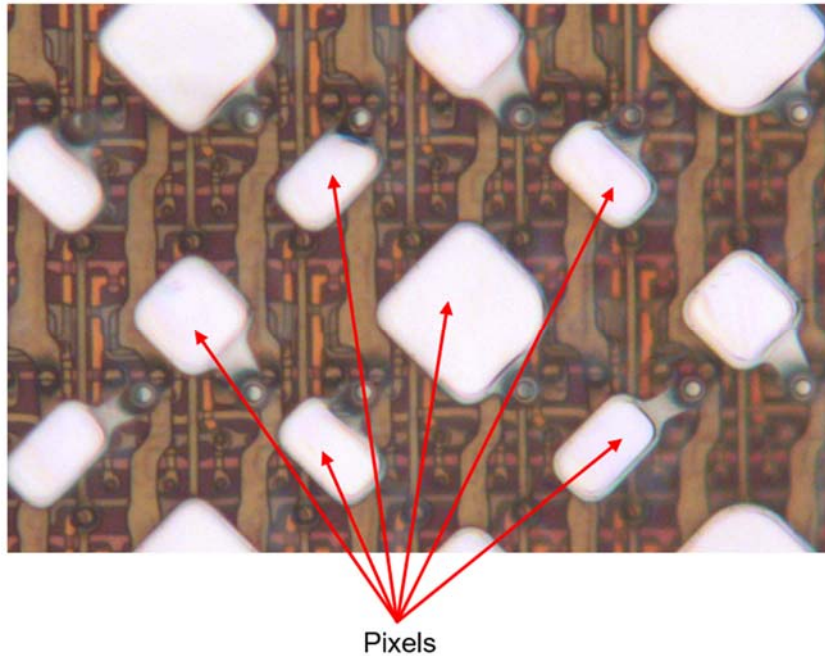


Figure 7

46. “[E]ach of the organic light emitting diodes” in the BOE OLED Display is “electrically coupled to a respective driving circuit.” For example, in the annotated images below (Fig. 8) (front and back sides of the BOE OLED Display panel driving circuits), the drain electrode of a driving thin film transistor (e.g., T1) is shown to be electrically coupled via a light emission control thin film transistor (e.g., T6) to the anode of an OLED.

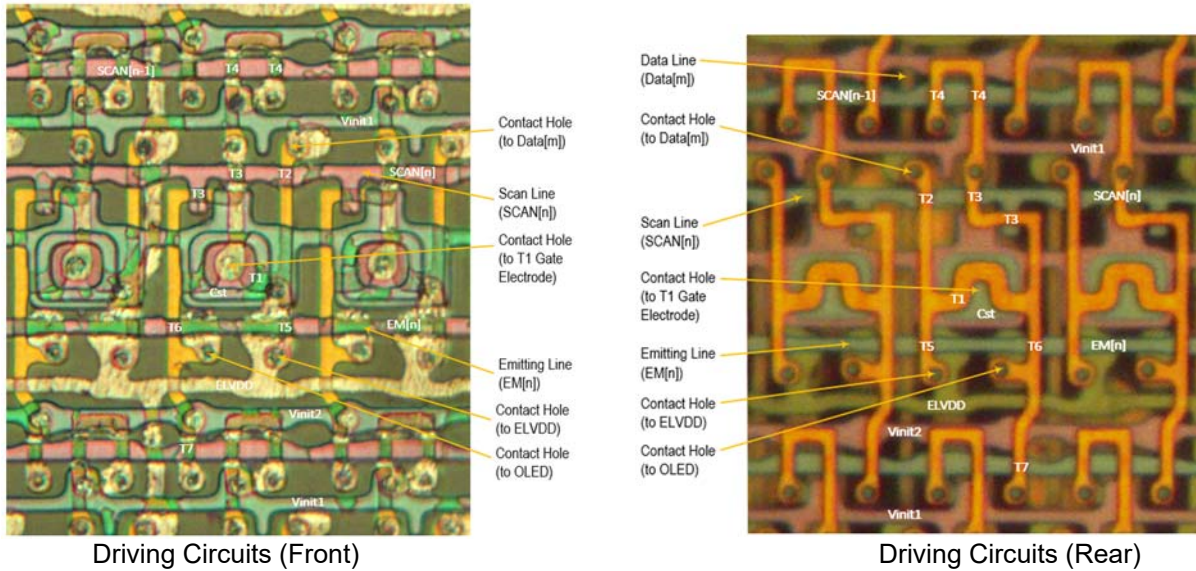


Figure 8

47. Each of the driving circuits in the BOE OLED Display comprises “a first thin film transistor coupled to a first scan line and a data line.” For example, in the annotated image below (Fig. 9) (back sides of the BOE OLED Display driving circuits), the first thin film transistor (e.g., T2) is shown to be coupled to a scan line (SCAN[n]) and a data line (Data[m]).

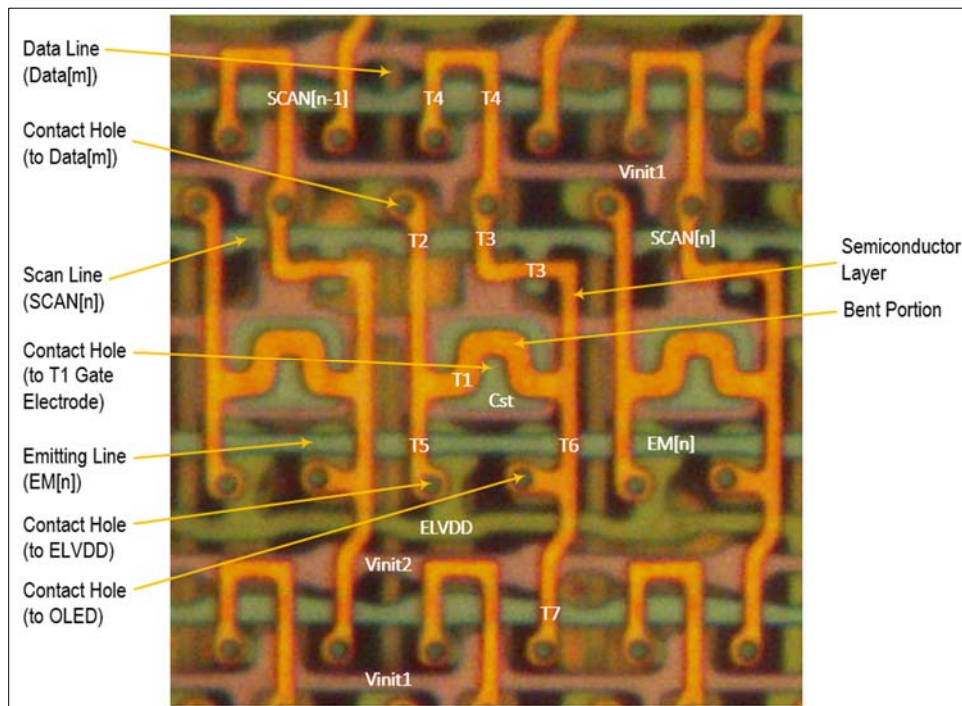


Figure 9

48. Each of the driving circuits in the BOE OLED Display comprises “a second thin film transistor utilizing a semiconductor layer and electrically coupled to the first voltage line, the corresponding organic light emitting diode, and the first thin film transistor, the semiconductor layer being extended to and electrically coupled to the first thin film transistor.” For example, in the annotated images below (Fig. 10) (front and back sides of the BOE OLED Display panel driving circuits), a second thin film transistor (e.g., T1) is shown to be utilizing a semiconductor layer. The second thin film transistor (e.g., T1) is shown to be electrically coupled to the first voltage line (ELVDD), the corresponding organic light emitting diode, and the first thin film transistor (e.g., T2). The semiconductor layer is shown to be extended to and electrically coupled to the first thin film transistor (e.g., T2). An insulating layer is shown to be covering the second thin film transistor (e.g., T1).

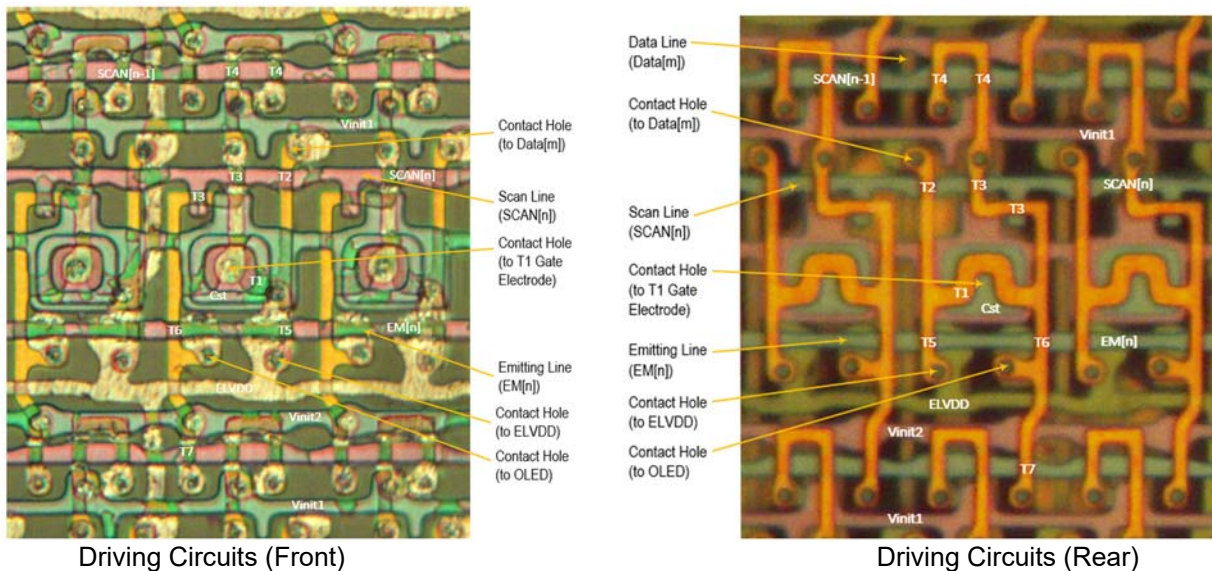


Figure 10

49. Each of the driving circuits in the BOE OLED Display comprises “an insulating layer covering the second thin film transistor.” For example, in the annotated cross-section view of the storage capacitor (Fig. 11), an insulating layer is shown to be covering the second thin film transistor (e.g., T1).

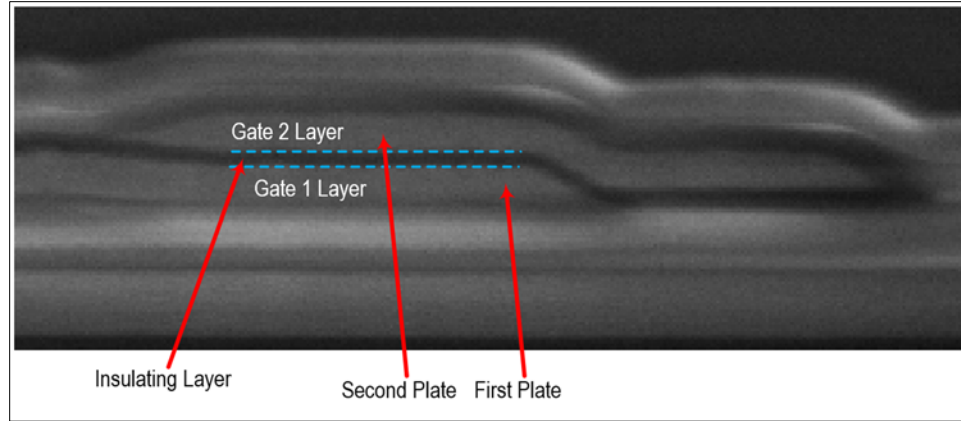


Figure 11

50. Each of the driving circuits in the BOE OLED Display comprises “a storage capacitor electrically coupled to a gate electrode of the second thin film transistor, the storage capacitor comprising a first capacitor plate comprising a portion of the gate electrode of the second thin film transistor, a second capacitor plate over the first capacitor plate, and a portion of the insulating layer between the first capacitor plate and the second capacitor plate, a portion of a channel region of the semiconductor layer under the gate electrode of the second thin film transistor being curved.” For example, in the annotated images below of the back side of the BOE OLED Display panel driving circuits (Fig. 12), there is shown a storage capacitor that is electrically coupled to a gate electrode of the second thin film transistor (e.g., T1) and comprising a portion of the gate electrode of the second thin film transistor (e.g., T1), a second capacitor plate overlapping the first capacitor plate, and a portion of a channel region of the semiconductor layer under the gate electrode of the second thin film transistor being curved. In addition, in the annotated cross-section view of the storage capacitor (Fig. 13), an insulating layer between the first capacitor plate and the second capacitor plate is shown.

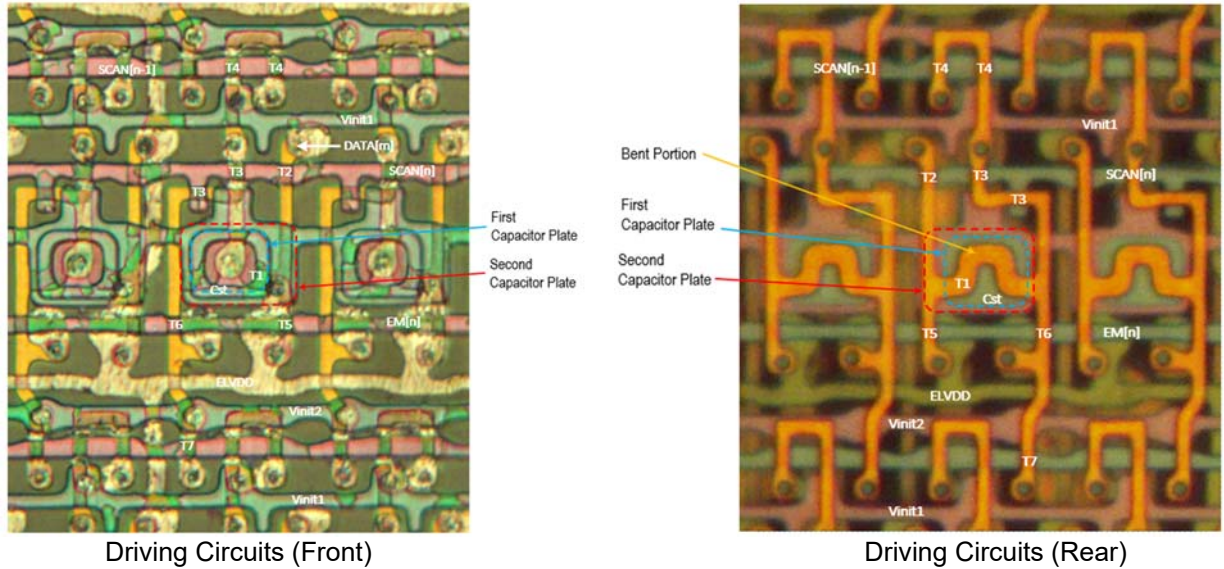


Figure 12

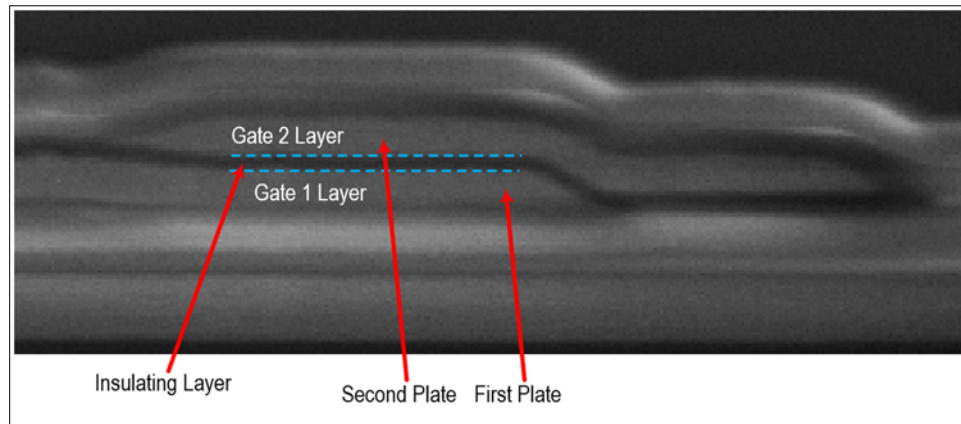


Figure 13

51. Each of the driving circuits in the BOE OLED Display comprises “a third thin film transistor electrically coupled to the second thin film transistor, the corresponding organic light emitting diode, and the first capacitor plate, the semiconductor layer being extended to and electrically coupled to the third thin film transistor.” For example, in the annotated images below (Fig. 14) (front and back sides of the BOE OLED Display panel driving circuits), a third thin film transistor (e.g., T6) is shown to be electrically coupled to the second thin film transistor (e.g., T1), the corresponding organic light emitting diode, and the first capacitor plate. The semiconductor layer is shown to be extended to and electrically coupled to the third thin film transistor (e.g., T6).

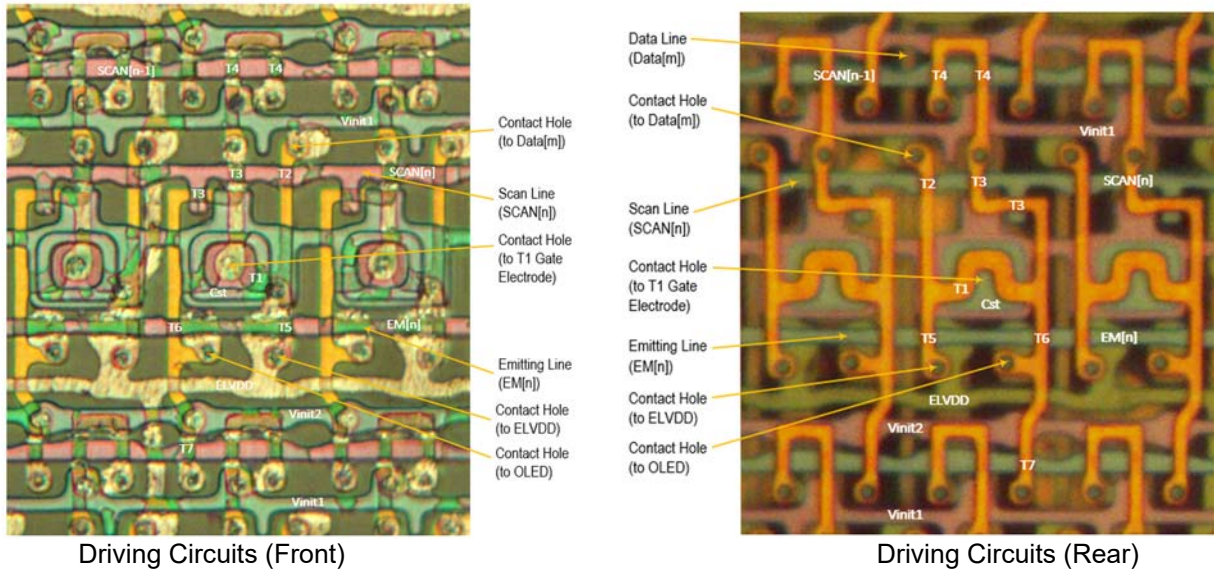


Figure 14

52. Each of the driving circuits in the BOE OLED Display comprises “a fourth thin film transistor electrically coupled to the first voltage line and the second thin film transistor, the semiconductor layer being extended to and is electrically coupled to the fourth thin film transistor.” For example, in the annotated images above (Fig. 14) (front and back sides of the BOE OLED Display panel driving circuits), a fourth thin film transistor (e.g., T5) is shown to be electrically coupled to the first voltage line (e.g., ELVDD) and the second thin film transistor (e.g., T1). The semiconductor layer is shown to be extended to and is electrically coupled to the fourth thin film transistor (e.g., T5).

53. Each of the driving circuits in the BOE OLED Display comprises “a fifth thin film transistor electrically coupled to the second thin film transistor, the third thin film transistor, and the corresponding organic light emitting diode, the semiconductor layer being extended to and is electrically coupled to the fifth thin film transistor.” For example, in the annotated images above (Fig. 14) (front and back sides of the BOE OLED Display panel driving circuits), a fifth thin film transistor (e.g., T3) is shown to be electrically coupled to the second thin film transistor (e.g., T1), the third thin film transistor (e.g., T6), and the corresponding organic light emitting diode. The

semiconductor layer is shown to be extended to and is electrically coupled to the fifth thin film transistor.

54. Each of the driving circuits in the BOE OLED Display comprises “a sixth thin film transistor electrically coupled to the second voltage line, the third thin film transistor, and the first capacitor plate, the semiconductor layer being extended to and is electrically coupled to the sixth thin film transistor.” For example, in the annotated images above (Fig. 14) (front and back sides of the BOE OLED Display panel driving circuits), a sixth thin film transistor (e.g., T4) is shown to be electrically coupled to the second voltage line, the third thin film transistor (e.g., T6), and the first capacitor plate, the semiconductor layer being extended to and is electrically coupled to the sixth thin film transistor (e.g., T4).

55. Upon information and belief, and as shown above in the example of the BOE OLED Displays used in the Nubia Z60 Ultra product, the Accused Products meet every limitation of at least claim 1 of the '990 Patent.

56. By making, using, selling, offering for sale, and/or importing into the United States the Accused Products, BOE directly infringes at least claim 1 of the '990 Patent.

57. Upon information and belief, BOE has induced infringement of the '990 Patent under 35 U.S.C. § 271(b) by knowingly and intentionally inducing others to directly infringe the '990 Patent. Upon information and belief, BOE has had notice of the '990 Patent from the time of its issuance, because an earlier May 2, 2022 letter from Samsung Display alleged infringement of the '976 Patent, which issued from the same application as the '990 Patent. Despite such notice, BOE has actively encouraged others to infringe the patent. For example, upon information and belief, BOE has knowingly and intentionally induced third-party manufacturers, shippers, distributors, and/or retailers to directly infringe (literally and/or under the doctrine of equivalents) the '990 Patent

by importing into the United States, using, and/or selling and offering to sell in the United States products containing infringing BOE OLED Displays. BOE's OLED Displays are specially designed to contain features that infringe the '990 Patent and the Accused Products have no substantial uses other than ones that infringe the '990 Patent.

58. Moreover, upon information and belief, BOE takes active steps, directly and/or through contractual relationships with others, with the specific intent to cause such persons to import, use, sell, and/or offer to sell products containing BOE OLED Displays that infringe at least claim 1 of the '990 Patent. Upon information and belief, such steps by BOE include, among other things, making or selling the Accused Products, including BOE OLED Displays for Nubia Z60 Ultra products, for importation into or sale in the United States, knowing that such importation or sale would occur. Indeed, in its February 28, 2023 motion to intervene as a respondent in the -1351 ITC Investigation, Mianyang BOE admitted that it "manufactures and sells AMOLED screens to" other entities, and that "some of those screens are thereafter imported into the United States." Exhibit 1 at 6. Upon information and belief, Mianyang BOE was thus by its own admission aware that its infringing OLED displays would be imported by its customers into the US (and that its customers' downstream products would infringe via their use of the infringing OLED displays), yet it has sold those displays to those customers anyway. Upon information and belief, BOE has engaged in these activities with knowledge of the '990 Patent and knowledge that the induced acts constitute infringement. BOE's inducement of infringement of the '990 Patent is ongoing.

59. Upon information and belief, BOE has also contributorily infringed the '990 Patent under 35 U.S.C. § 271(c) through its supply of the BOE OLED Displays to customers that incorporate those OLED displays into other products, including the Nubia Z60 Ultra product. The BOE OLED Displays have no substantial non-infringing uses and are especially designed and made

for use in devices that infringe the '990 Patent. BOE has engaged in these activities despite having notice of the '990 Patent, and the OLED displays that BOE has sold and/or provided to customers embody a material part of the claimed invention of at least claim 1 of the '990 Patent. BOE's contributory infringement of the '990 Patent is ongoing.

60. Upon information and belief, BOE's infringement has been, and continues to be, willful. For example, upon information and belief, BOE has been on notice of the '990 Patent and its infringement of the '990 Patent since at least the issuance of the '990 Patent and yet has continued its infringing activities.

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 11,574,991

61. Samsung Display hereby incorporates the allegations of Paragraphs 1 through 62 as fully set forth herein.

62. Upon information and belief, BOE has infringed and continues to directly infringe the '991 Patent by making, using, selling, offering for sale, and/or importing into the United States OLED displays for incorporation into the Accused Products, such as OLED displays incorporated into the Nubia Z60 Ultra product.

63. Independent claim 1 of the '991 Patent recites:

1. An organic light emitting diode display comprising:

a non-conductive substrate;

a plurality of first voltage lines;

a plurality of scan lines;

a plurality of data lines;

a plurality of driving circuits formed on the substrate;

a plurality of organic light emitting diodes, wherein each of the plurality of organic light emitting diodes is electrically coupled to a respective one of the plurality of driving circuits;

wherein each of the driving circuits comprises:

a first thin film transistor implemented in a first portion of a semiconductor layer disposed on the substrate, and coupled to one of the plurality of scan lines and to one of the plurality of data lines;

a second thin film transistor implemented in a second portion of the semiconductor layer, wherein the semiconductor layer couples the second thin film transistor to the first thin film transistor, and wherein the second portion of the semiconductor layer has at least one bent portion;

a storage capacitor comprising:

a first capacitor plate that is configured to operate as a gate electrode of the second thin film transistor;

a second capacitor plate electrically coupled to one of the plurality of first voltage lines and overlapping the first capacitor plate; and

an insulating layer between the first capacitor plate and the second capacitor plate;

a third thin film transistor implemented in a third portion of the semiconductor layer, wherein the semiconductor layer couples the third thin film transistor to the first thin film transistor and to the second thin film transistor, and wherein the third thin film transistor is electrically coupled to one of the plurality of first voltage lines through the semiconductor layer; and

a fourth thin film transistor implemented in a fourth portion of the semiconductor layer, wherein the semiconductor layer couples the fourth thin film transistor to the second thin film transistor, and wherein the fourth thin film transistor is electrically coupled to the respective organic light emitting diode through the semiconductor layer; and

wherein the bent portion of the second portion of the semiconductor layer is under the first capacitor plate.

64. Upon information and belief, the BOE OLED Display meets each of the limitations of claim 1.

65. For example, the images below (Figures 15–17) are of a Nubia Z60 Ultra product sold in Texas that, on information and belief, contains an organic light emitting diode display supplied by BOE.



Figure 15

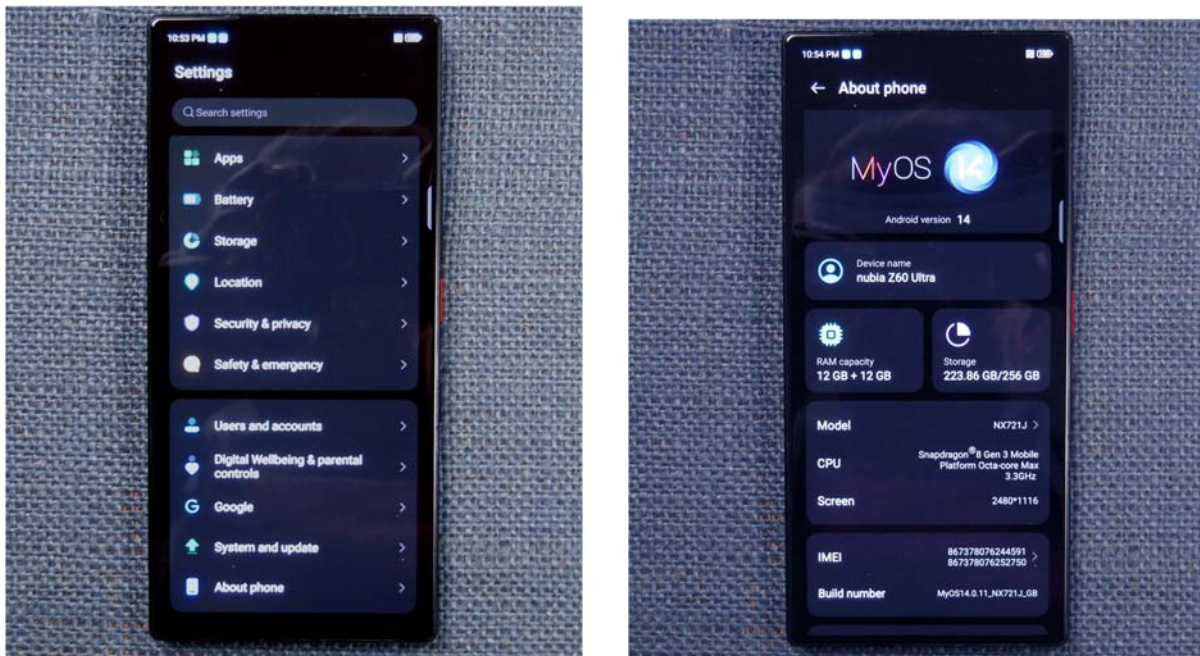


Figure 16



Figure 17

66. The BOE OLED Display comprises a substrate that supports the OLED pixels that are visible through the glass panel as well as the circuitry that controls the operation of the OLED pixels. The BOE OLED Display is mounted within the device chassis and is located behind a glass panel, and in the image below (Fig. 18), the display panel substrate can be seen.

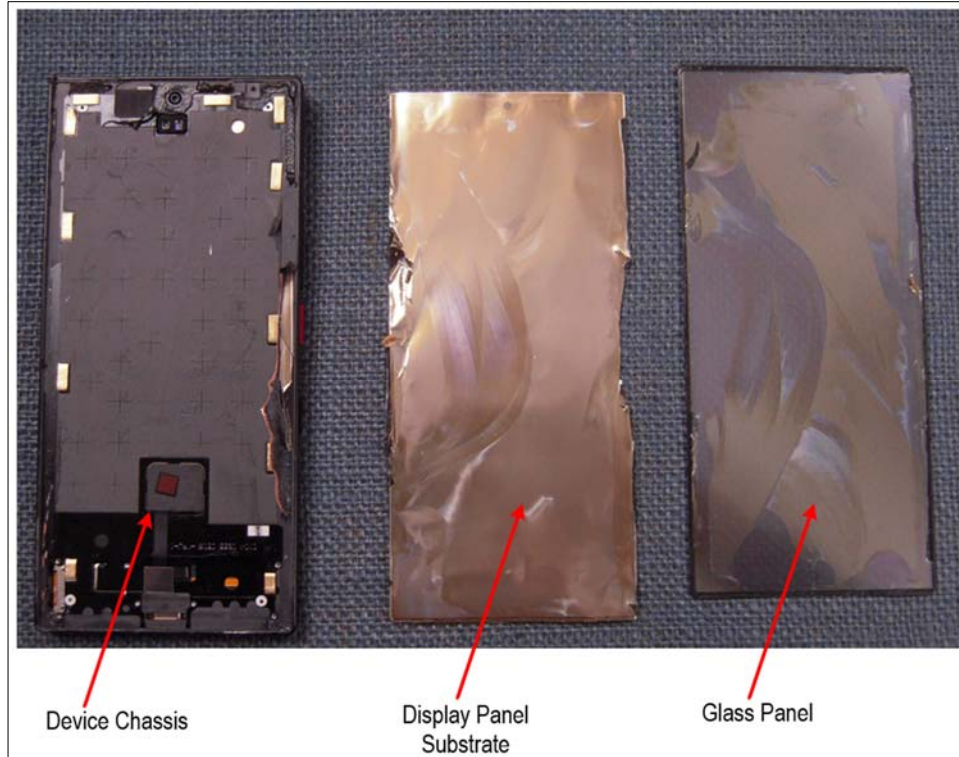


Figure 18

67. The BOE OLED Display panel is “an organic light emitting diode display.” Upon information and belief, the substrate is non-conductive.

68. The BOE OLED Display panel comprises “a plurality of first voltage lines; a plurality of scan lines; a plurality of data lines; [and] a plurality of driving circuits formed on the substrate.” For example, in the annotated image below (Fig. 19), the driving circuits formed on the BOE OLED Display panel’s substrate are shown, where a plurality of first voltage lines (“ELVDD”), a plurality of scan lines (“Sn”), and a plurality of data lines (“Dm”) are identified. In the low-magnification image of the front-side of the BOE OLED Display panel (Fig. 20), the patterns shown in Figure 19 repeat throughout the panel, providing additional first voltage lines, scan lines, data lines, and driving circuits.

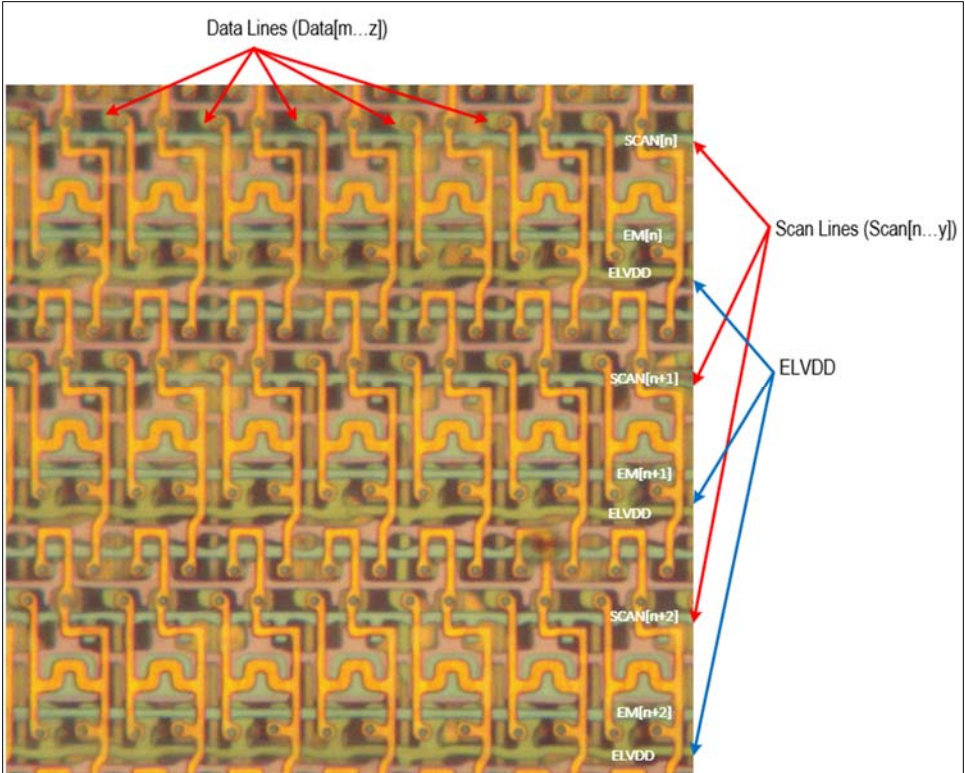


Figure 19

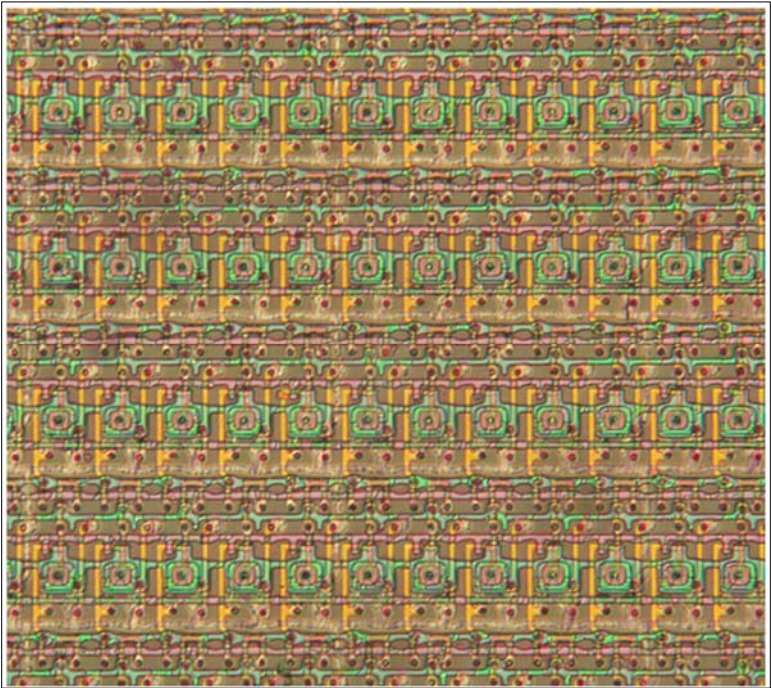


Figure 20

69. The BOE OLED Display panel comprises “a plurality of organic light emitting diodes.” For example, in the annotated image below (Fig. 21) (front-side image of the BOE OLED Display panel), a plurality of organic light-emitting diodes is shown, each present within a pixel.

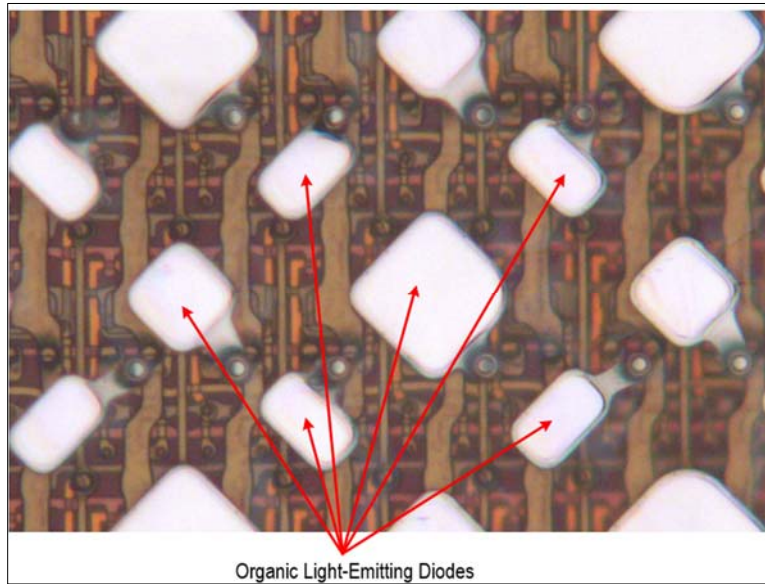


Figure 21

70. Each of the plurality of organic light-emitting diodes in the BOE OLED Display panel “is electrically coupled to a respective one of the plurality of driving circuits.” For example, in the annotated images below (Fig. 22) (front and back sides of the BOE OLED Display panel driving circuits), the drain electrode of a driving thin film transistor (e.g., T1) is shown to be electrically coupled via a light emission control thin film transistor (e.g., T6) to the anode of an OLED.

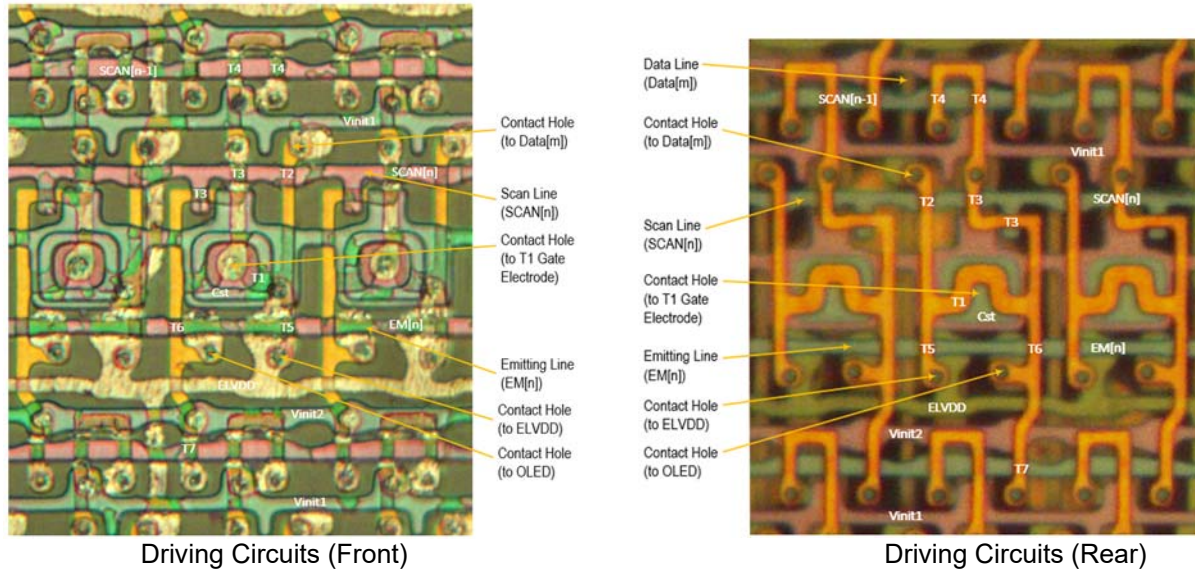


Figure 22

71. Each of the driving circuits in the BOE OLED Display comprises “a first thin film transistor implemented in a first portion of a semiconductor layer disposed on the substrate, and coupled to one of the plurality of scan lines and to one of the plurality of data lines; [and] a second thin film transistor implemented in a second portion of the semiconductor layer, wherein the semiconductor layer couples the second thin film transistor to the first thin film transistor, and wherein the second portion of the semiconductor layer has at least one bent portion.” For example, in the annotated image below (Fig. 23) (back sides of the BOE OLED Display panel driving circuits), a first thin film transistor (e.g., T2) is shown to be implemented in a first portion of a semiconductor layer disposed on the substrate. The first thin film transistor (e.g., T2) is shown to be coupled to a scan line (Sn) and a data line (Dm). A second thin film transistor (e.g., T1) is shown to be implemented in a second portion of the semiconductor layer. The semiconductor layer is shown to couple the second thin film transistor (e.g., T1) to the first thin film transistor (e.g., T2). The second portion of the semiconductor layer is shown to have at least one bent portion.

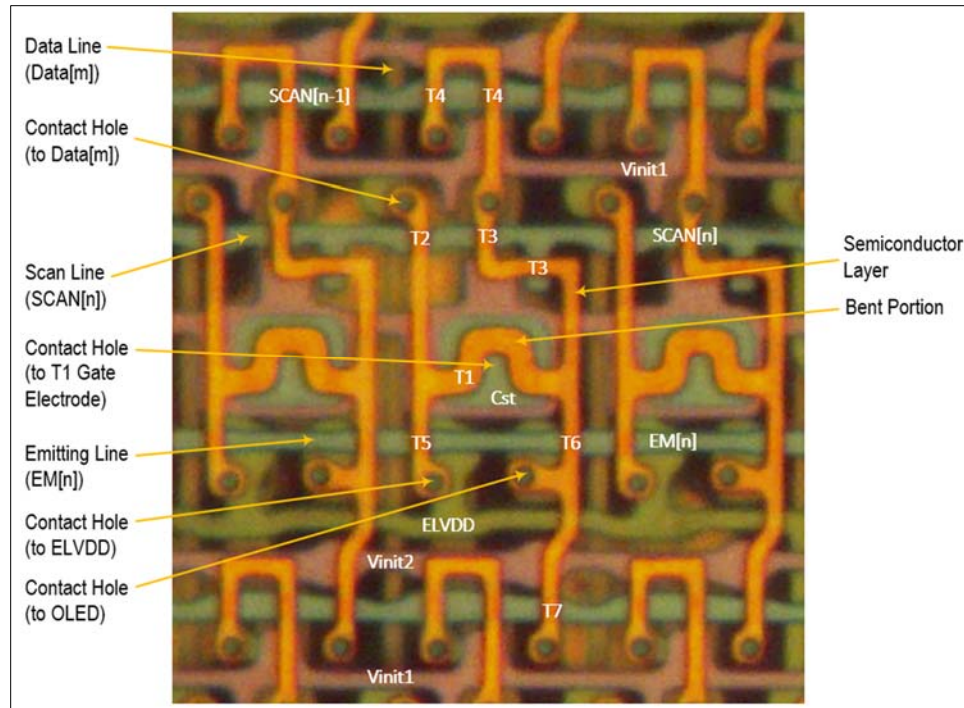


Figure 23

72. Each of the driving circuits in the BOE OLED Display comprises “a storage capacitor comprising: a first capacitor plate that is configured to operate as a gate electrode of the second thin film transistor; a second capacitor plate electrically coupled to one of the plurality of first voltage lines and overlapping the first capacitor plate; and an insulating layer between the first capacitor plate and the second capacitor plate.” For example, in the annotated images below of the back side of the BOE OLED Display panel driving circuits (Fig. 24), there is shown a storage capacitor that comprises a first capacitor plate that is configured to operate as a gate electrode of the second thin film transistor (e.g., T1), and a second capacitor plate electrically coupled to a first voltage line (ELVDD) and overlapping the first capacitor plate. In addition, in the annotated cross-section view of the storage capacitor (Fig. 25), an insulating layer between the first capacitor plate and the second capacitor plate is shown.

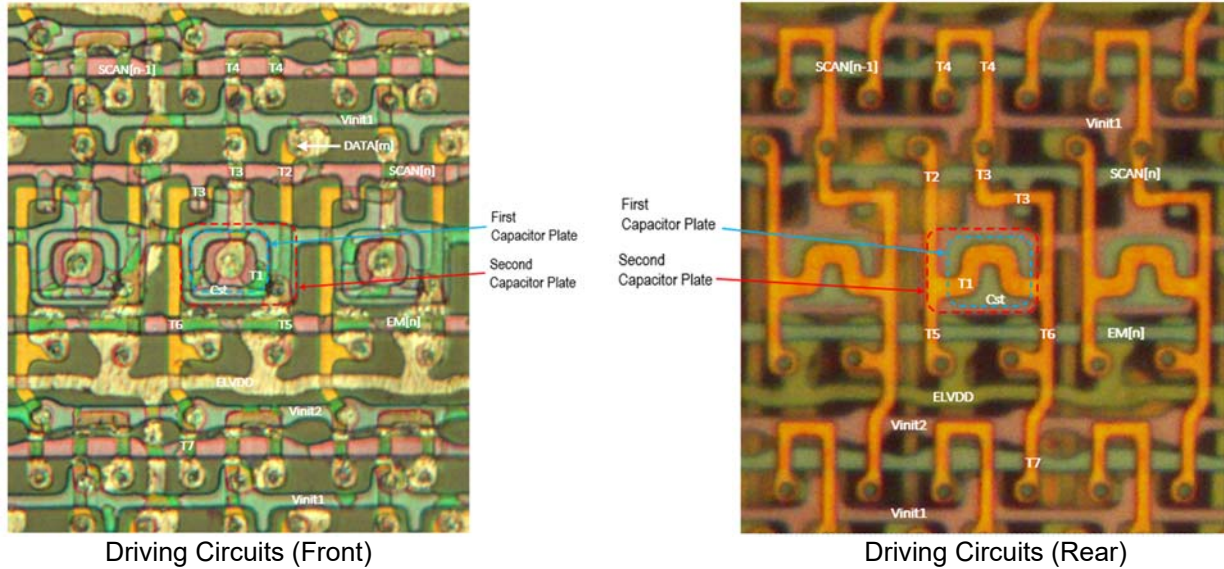


Figure 24

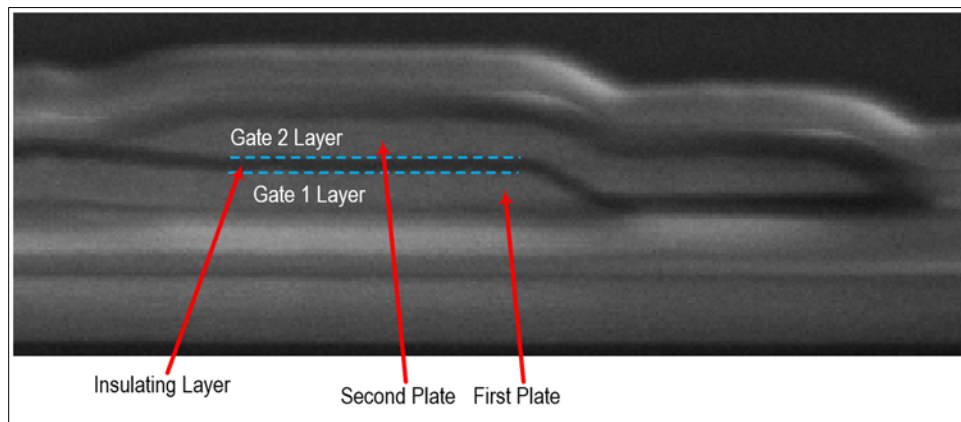


Figure 25

73. Each of the driving circuits in the BOE OLED Display panel comprises “a third thin film transistor implemented in a third portion of the semiconductor layer, wherein the semiconductor layer couples the third thin film transistor to the first thin film transistor and to the second thin film transistor, and wherein the third thin film transistor is electrically coupled to one of the plurality of first voltage lines through the semiconductor layer; and a fourth thin film transistor implemented in a fourth portion of the semiconductor layer, wherein the semiconductor layer couples the fourth thin film transistor to the second thin film transistor, and wherein the fourth thin film transistor is

electrically coupled to the respective organic light emitting diode through the semiconductor layer.”

For example, in the annotated images below (Fig. 26) (back side of the BOE OLED Display panel driving circuits), a third thin film transistor (e.g., T5) is shown to be implemented in a third portion of the semiconductor layer, and the semiconductor layer is shown to couple the third thin film transistor (e.g., T5) to the first thin film transistor (e.g., T2) and to the second thin film transistor (e.g., T1). The third thin film transistor (e.g., T5) is shown to be electrically coupled to a first voltage line (ELVDD) through the semiconductor layer. A fourth thin film transistor (e.g., T6) is shown to be implemented in a fourth portion of the semiconductor layer, and the semiconductor layer is shown to couple the fourth thin film transistor (e.g., T6) to the second thin film transistor (e.g., T1). The fourth thin film transistor (e.g., T6) is shown to be electrically coupled to the respective organic light-emitting diode through the semiconductor layer.

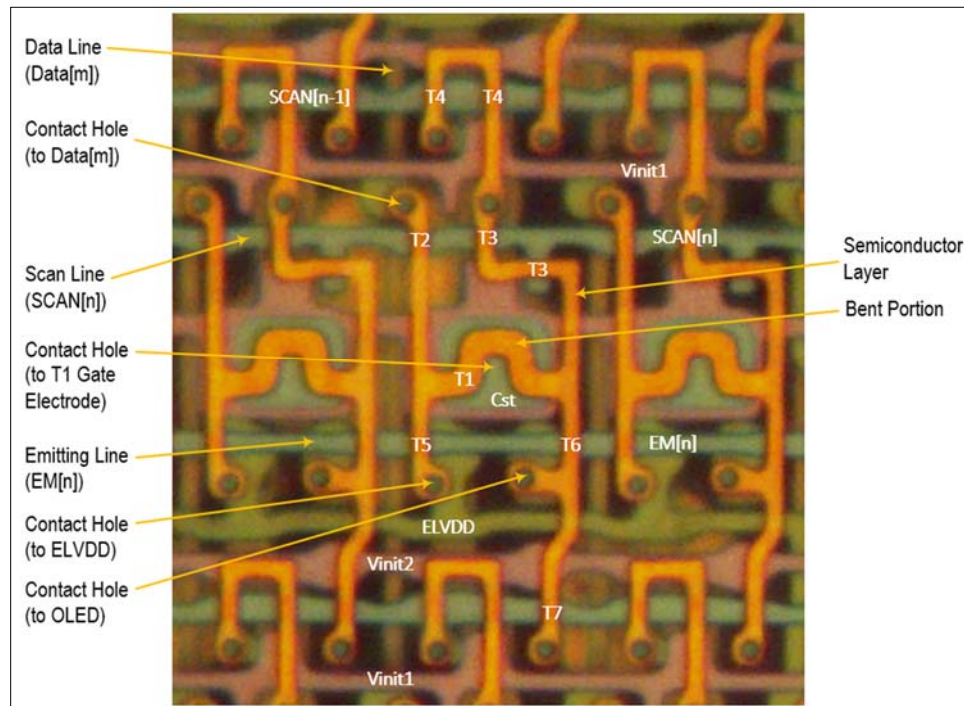


Figure 26

74. In the BOE OLED Display panel, “the bent portion of the second portion of the semiconductor layer is under the first capacitor plate.” In the annotated images below of the front and back sides of the BOE OLED Display panel driving circuits (Fig. 27), the bent portion of the second portion of the semiconductor layer (where the second thin film transistor T1 is located) appears in front of the first capacitor plate in the backside image and is behind the first capacitor plate in the front-side image, showing that the bent portion is under the first capacitor plate. In addition, in the annotated cross-section view of the storage capacitor (Fig. 28), the bent portion of the second portion of the semiconductor layer is shown to be under the first capacitor plate.

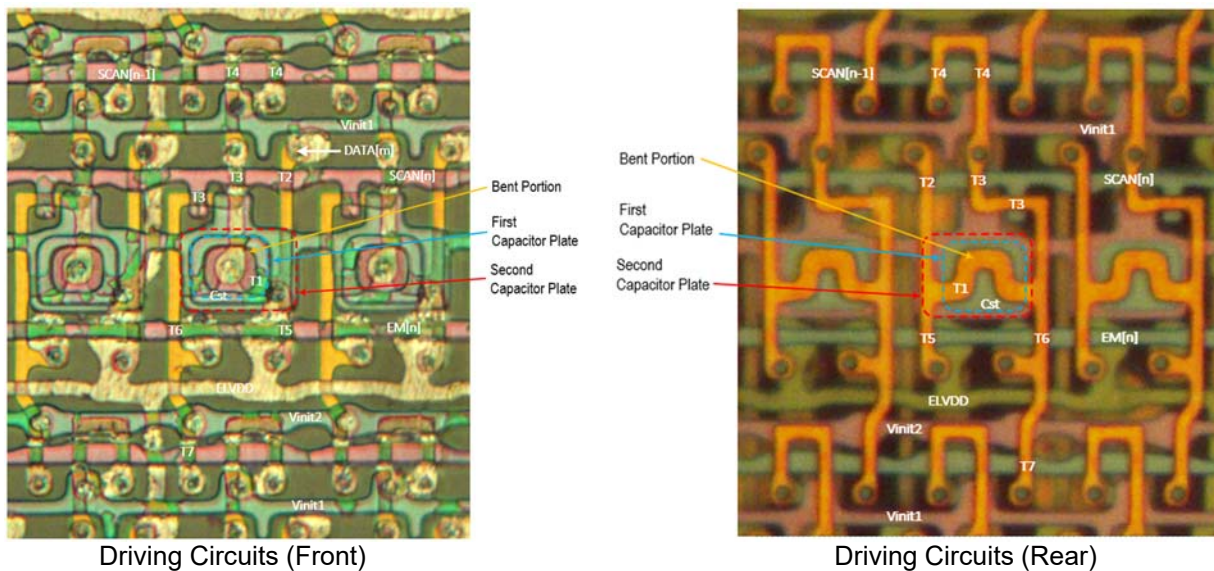


Figure 27

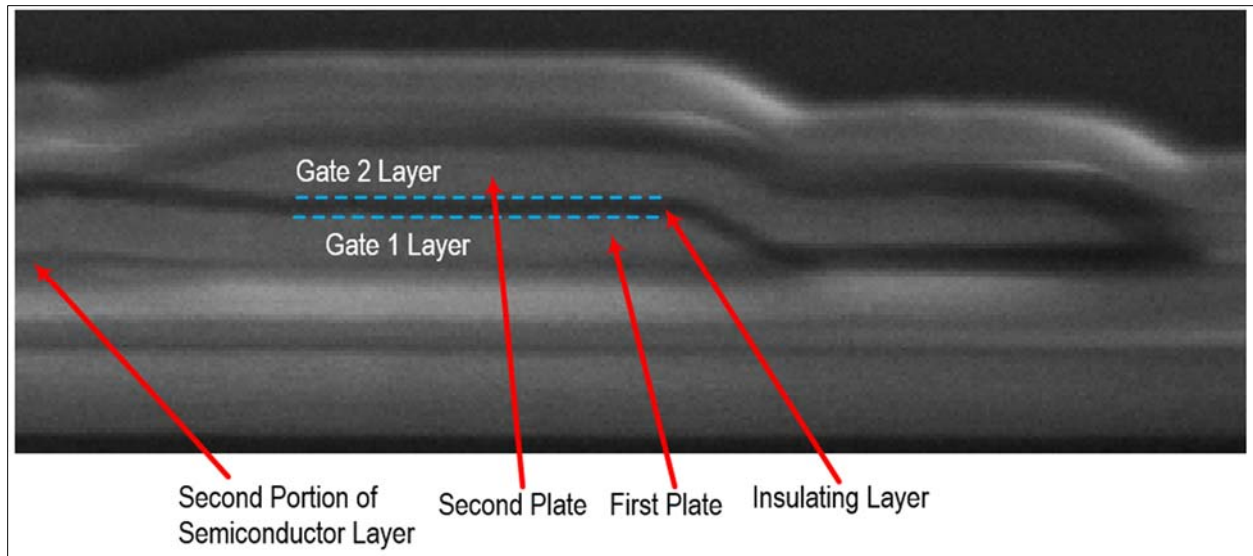


Figure 28

75. Upon information and belief, and as shown above in the example of the BOE OLED Displays used in the Nubia Z60 Ultra product, the Accused Products meet every limitation of at least claim 1 of the '991 Patent.

76. By making, using, selling, offering for sale, and/or importing into the United States the Accused Products, BOE directly infringes at least claim 1 of the '991 Patent.

77. Upon information and belief, BOE has induced infringement of the '991 Patent under 35 U.S.C. § 271(b) by knowingly and intentionally inducing others to directly infringe the '991 Patent. Upon information and belief, BOE has had notice of the '991 Patent from the time of its issuance, because an earlier May 2, 2022 letter from Samsung Display alleged infringement of the '976 Patent, which issued from the same application as the '991 Patent. Despite such notice, BOE has actively encouraged others to infringe the patent. For example, upon information and belief, BOE has knowingly and intentionally induced third-party manufacturers, shippers, distributors, and/or retailers to directly infringe (literally and/or under the doctrine of equivalents) the '991 Patent by importing into the United States, using, and/or selling and offering to sell in the United States

products containing infringing BOE OLED Displays. BOE's OLED Displays are specially designed to contain features that infringe the '991 Patent and the Accused Products have no substantial uses other than ones that infringe the '991 Patent.

78. Moreover, upon information and belief, BOE takes active steps, directly and/or through contractual relationships with others, with the specific intent to cause such persons to import, use, sell, and/or offer to sell products containing BOE OLED Displays that infringe at least claim 1 of the '991 Patent. Upon information and belief, such steps by BOE include, among other things, making or selling the Accused Products, including BOE OLED Displays for Nubia Z60 Ultra products, for importation into or sale in the United States, knowing that such importation or sale would occur. Indeed, in its February 28, 2023 motion to intervene as a respondent in the -1351 ITC Investigation, Mianyang BOE admitted that it "manufactures and sells AMOLED screens to" other entities, and that "some of those screens are thereafter imported into the United States." Exhibit 1 at 6. Upon information and belief, Mianyang BOE was thus by its own admission aware that its infringing OLED displays would be imported by its customers into the US (and that its customers' downstream products would infringe via their use of the infringing OLED displays), yet it has sold those displays to those customers anyway. Upon information and belief, BOE has engaged in these activities with knowledge of the '991 Patent and knowledge that the induced acts constitute infringement. BOE's inducement of infringement of the '991 Patent is ongoing.

79. Upon information and belief, BOE has also contributorily infringed the '991 Patent under 35 U.S.C. § 271(c) through its supply of the BOE OLED Displays to customers that incorporate those OLED displays into other products, including the Nubia Z60 Ultra product. The BOE OLED Displays have no substantial non-infringing uses and are especially designed and made for use in devices that infringe the '991 Patent. BOE has engaged in these activities despite having

notice of the '991 Patent, and the OLED displays that BOE has sold and/or provided to customers embody a material part of the claimed invention of at least claim 1 of the '991 Patent. BOE's contributory infringement of the '991 Patent is ongoing.

80. Upon information and belief, BOE's infringement has been, and continues to be, willful. For example, upon information and belief, BOE has been on notice of the '991 Patent and its infringement of the '991 Patent since at least the issuance of the '991 Patent and yet has continued its infringing activities.

COUNT III – INFRINGEMENT OF U.S. PATENT NO. 10,439,015

81. Samsung Display hereby incorporates the allegations of Paragraphs 1 through 82 as fully set forth herein.

82. Upon information and belief, BOE has infringed and continues to directly infringe the '015 Patent by making, using, selling, offering for sale, and/or importing into the United States OLED displays for incorporation into the Accused Products, such as OLED displays incorporated into the Nubia Z60 Ultra product.

83. Independent claim 28 of the '015 Patent recites:

28. A display apparatus comprising:

a first thin-film transistor comprising a first semiconductor;

a first electrode layer over the first semiconductor and overlapping a channel area of the first semiconductor;

a first signal line over the first electrode layer;

a second thin-film transistor comprising a second semiconductor, one end of the second semiconductor being connected to one end of the first semiconductor, and the other end of the second semiconductor being connected to the first electrode layer; and

a shield layer in a layer between the first signal line and the second semiconductor and overlapping a part between a first channel area and a second channel area of the second semiconductor.

84. Upon information and belief, the BOE OLED Display meets each of the limitations of claim 28.

85. For example, the images below (Figures 29–31) are of a Nubia Z60 Ultra product sold in Texas that, on information and belief, contains an organic light emitting diode display apparatus supplied by BOE.



Figure 29

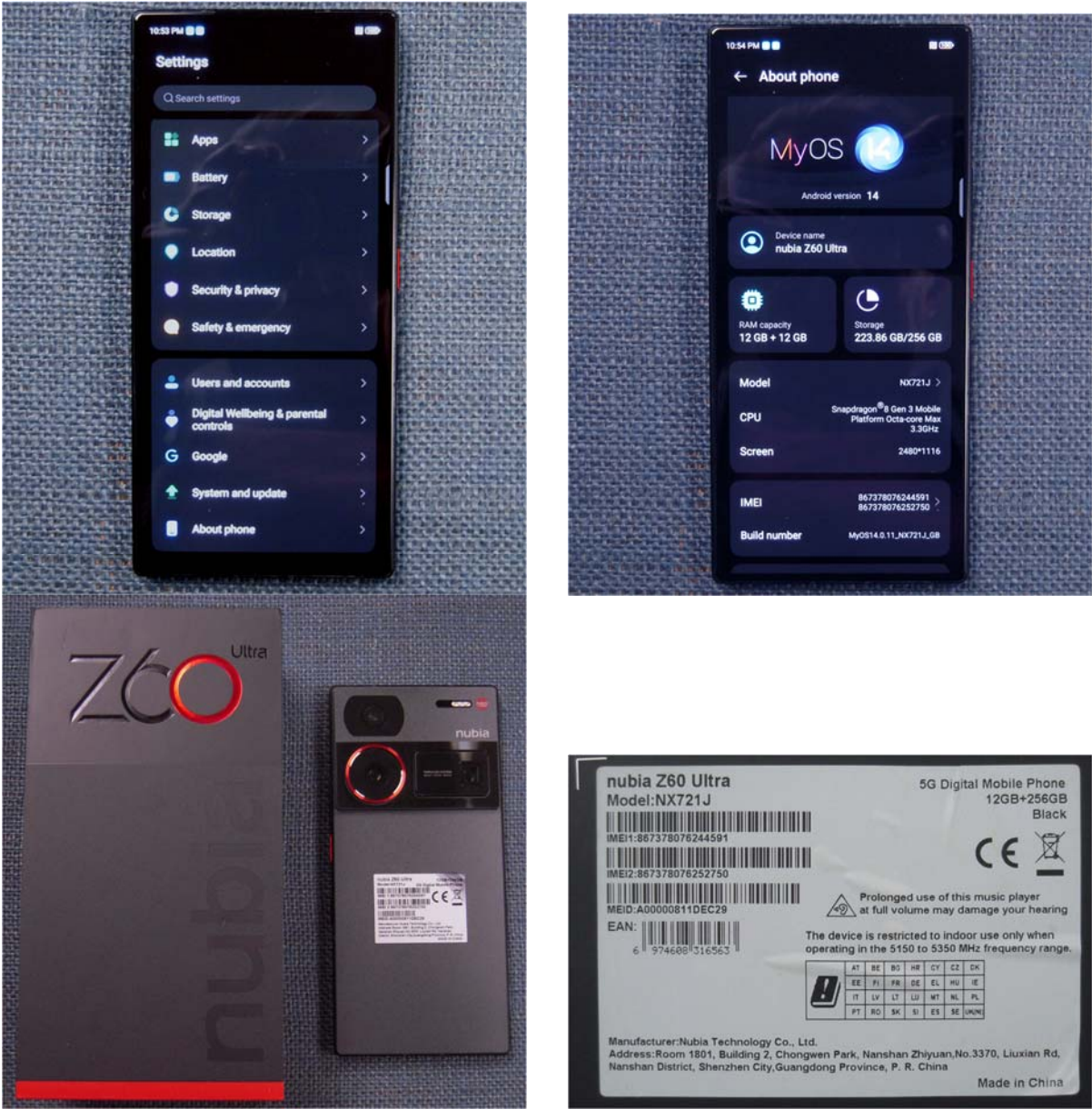


Figure 30

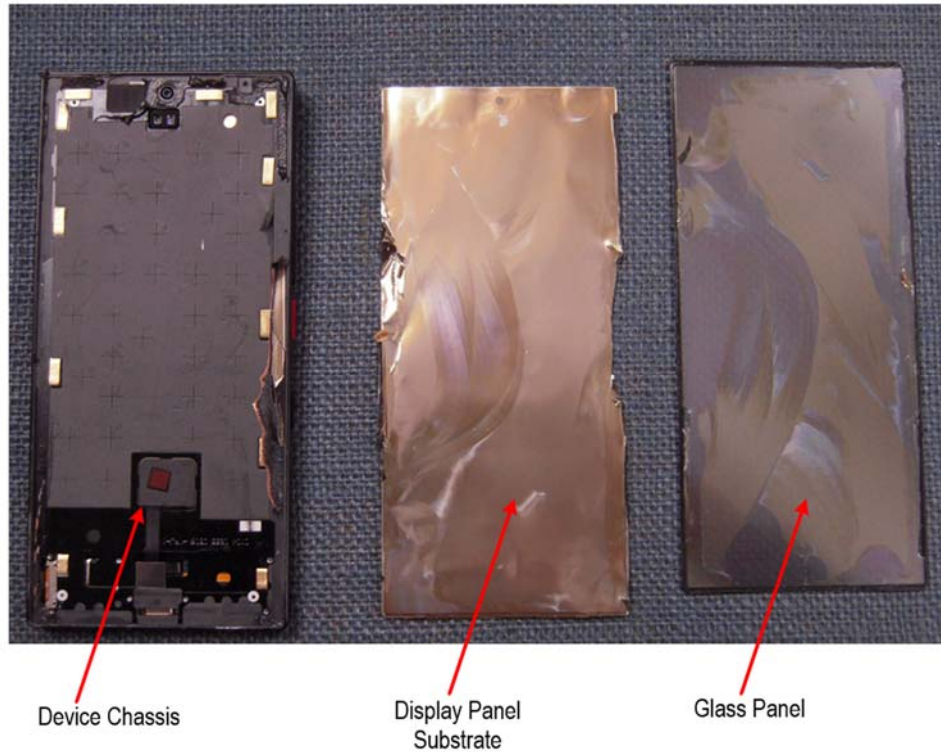


Figure 31

86. The BOE OLED Display comprises “a first thin-film transistor comprising a first semiconductor.” In the annotated image below of the front and back sides of the BOE OLED Display panel driving circuits (Fig. 32), a first thin-film transistor (e.g., T1) is shown to be comprising a first semiconductor.

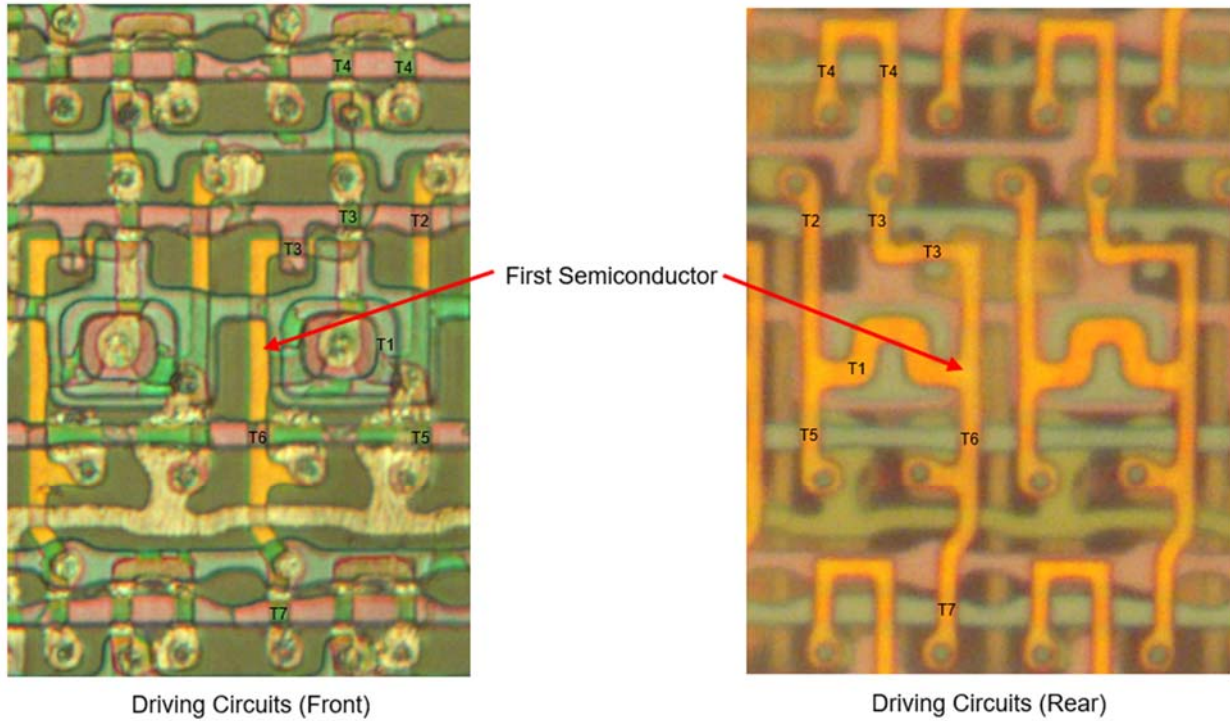


Figure 32

87. The BOE OLED Display comprises “a first electrode layer over the first semiconductor and overlapping a channel area of the first semiconductor.” In the annotated image below of the front and back sides of the BOE OLED Display panel driving circuits (Fig. 33), a first electrode layer is shown to be over the first semiconductor and overlapping a channel area of the first semiconductor.

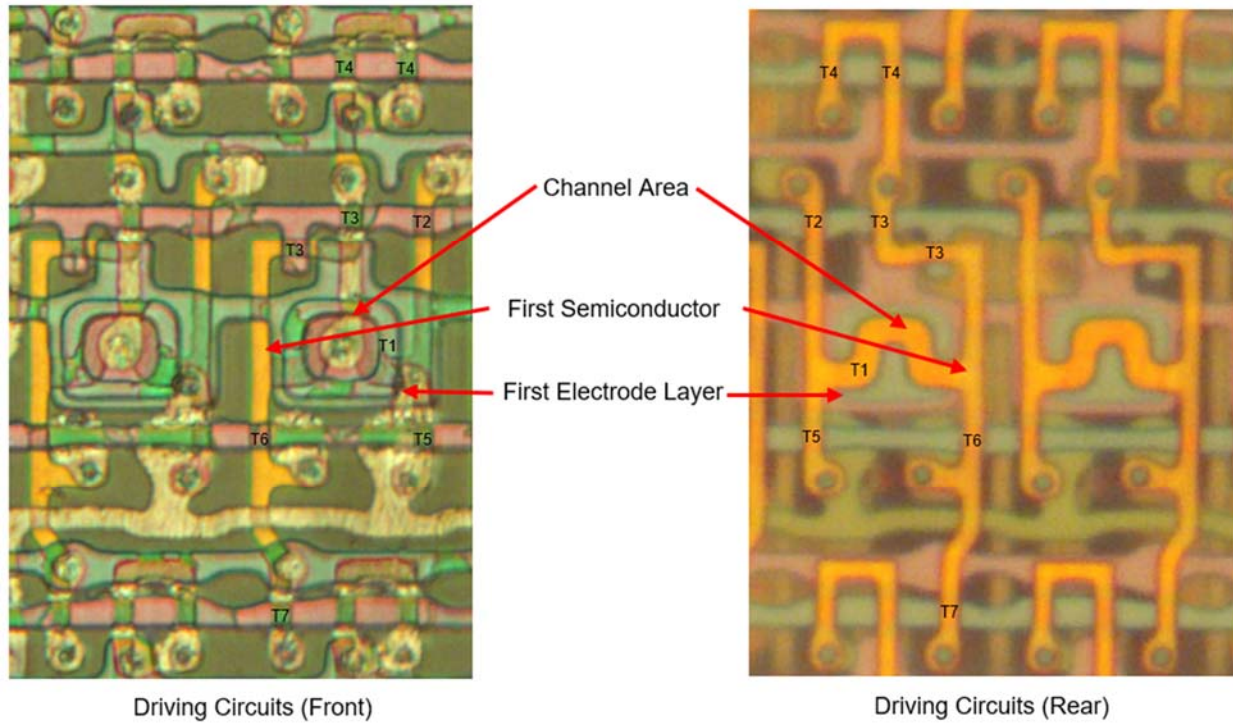


Figure 33

88. The BOE OLED Display comprises “a first signal line over the first electrode layer.” In the annotated image below of the front and back sides of the BOE OLED Display panel driving circuits (Fig. 34), a first signal line is shown to be over the first electrode layer.

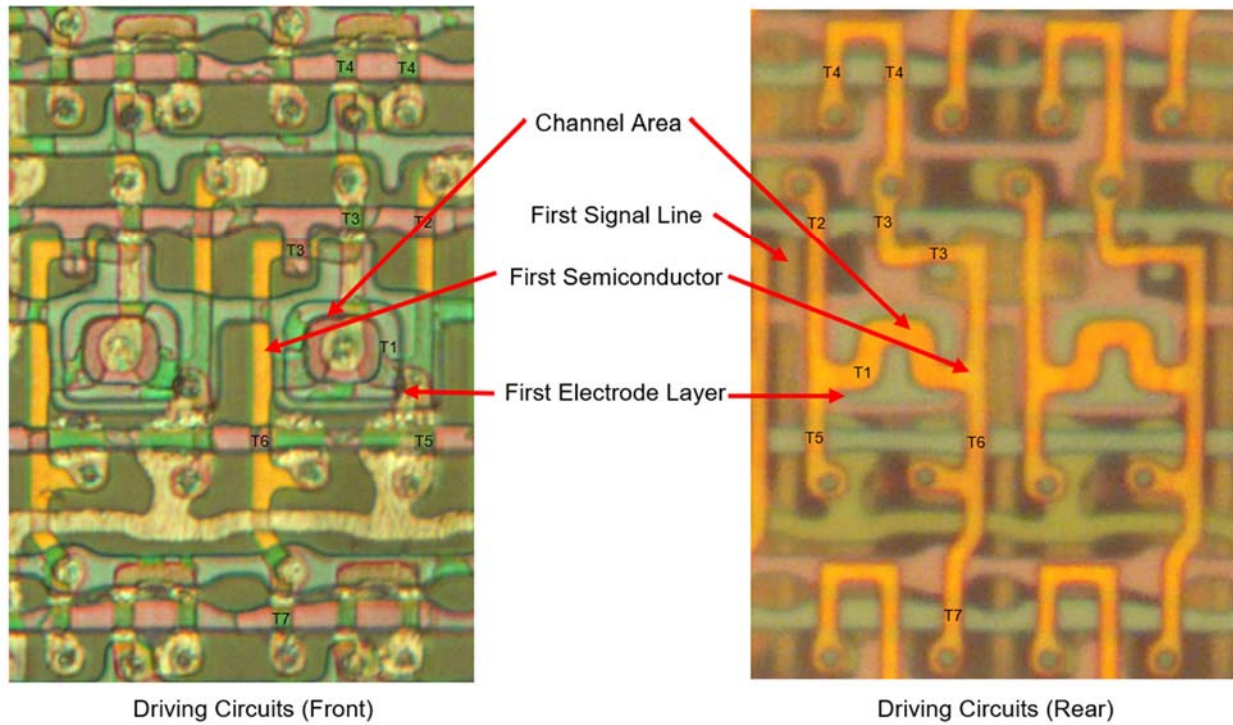


Figure 34

89. The BOE OLED Display comprises “a second thin-film transistor comprising a second semiconductor, one end of the second semiconductor being connected to one end of the first semiconductor, and the other end of the second semiconductor being connected to the first electrode layer.” In the annotated image below of the front and back sides of the BOE OLED Display panel driving circuits (Fig. 35), a second thin-film transistor (e.g., T3) is shown to be comprising a second semiconductor, and one end of the second semiconductor is shown to be connected to one end of the first semiconductor. In the annotated image below of the front side of the BOE OLED Display panel driving circuits (Fig. 36), the other end of the second semiconductor is shown to be connected to the first electrode layer through the connecting unit.

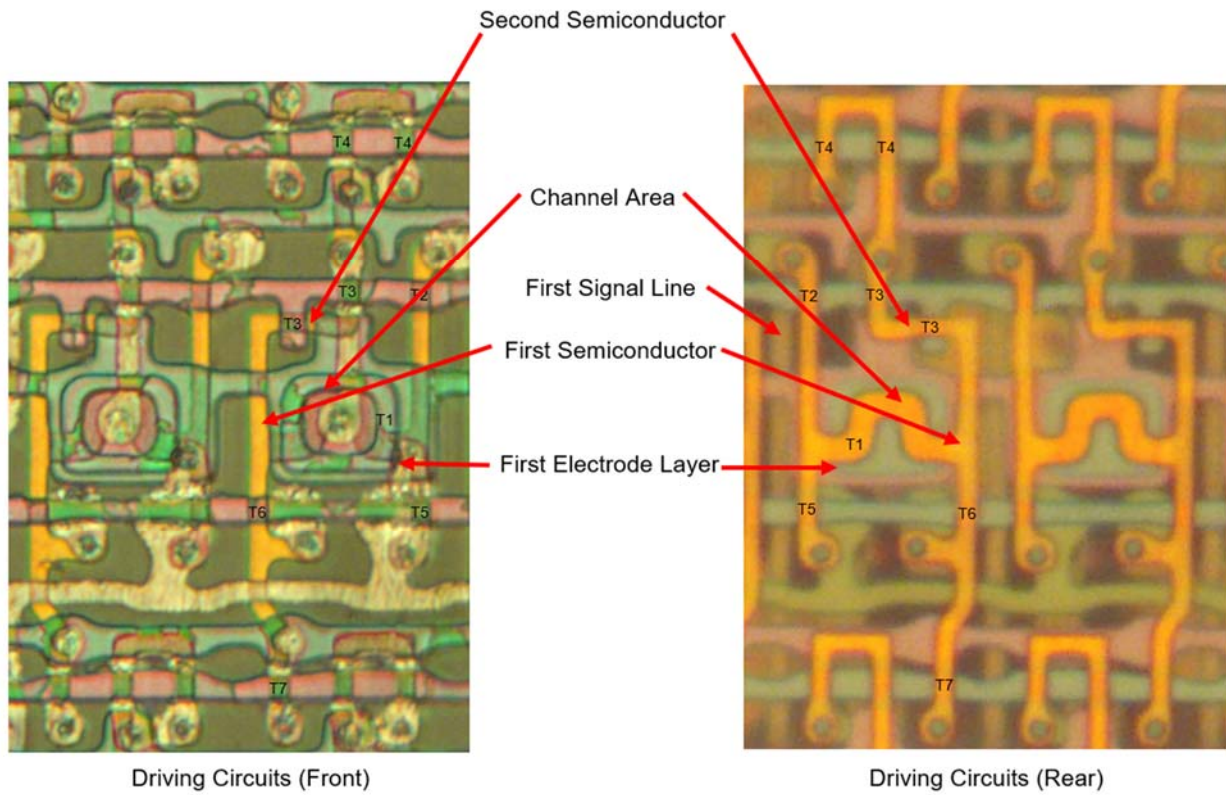


Figure 35

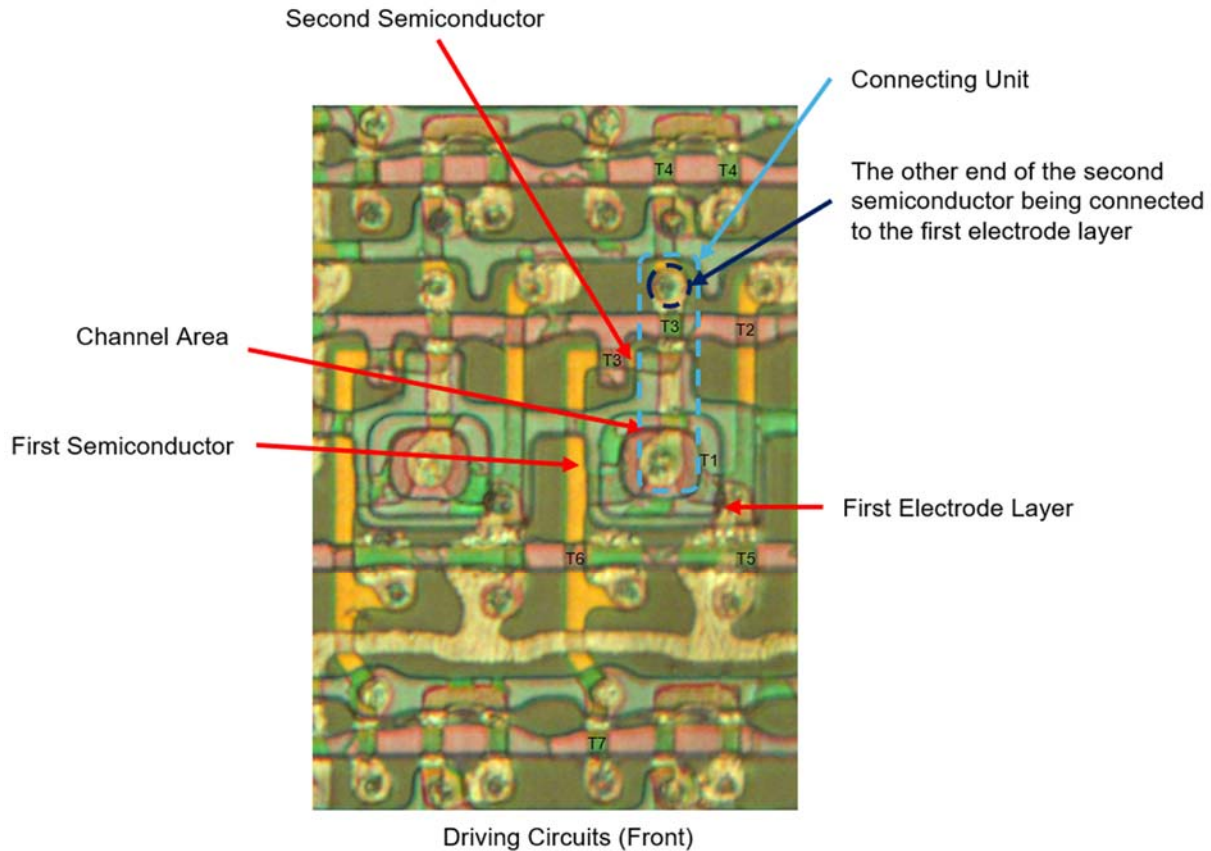


Figure 36

90. The BOE OLED Display comprises “a shield layer in a layer between the first signal line and the second semiconductor and overlapping a part between a first channel area and a second channel area of the second semiconductor.” In the annotated image below (Fig. 37), a shield layer is shown to be in a layer between the first signal line and the second semiconductor. In addition, the shield layer is shown to be overlapping a part between a first channel area and a second channel area.

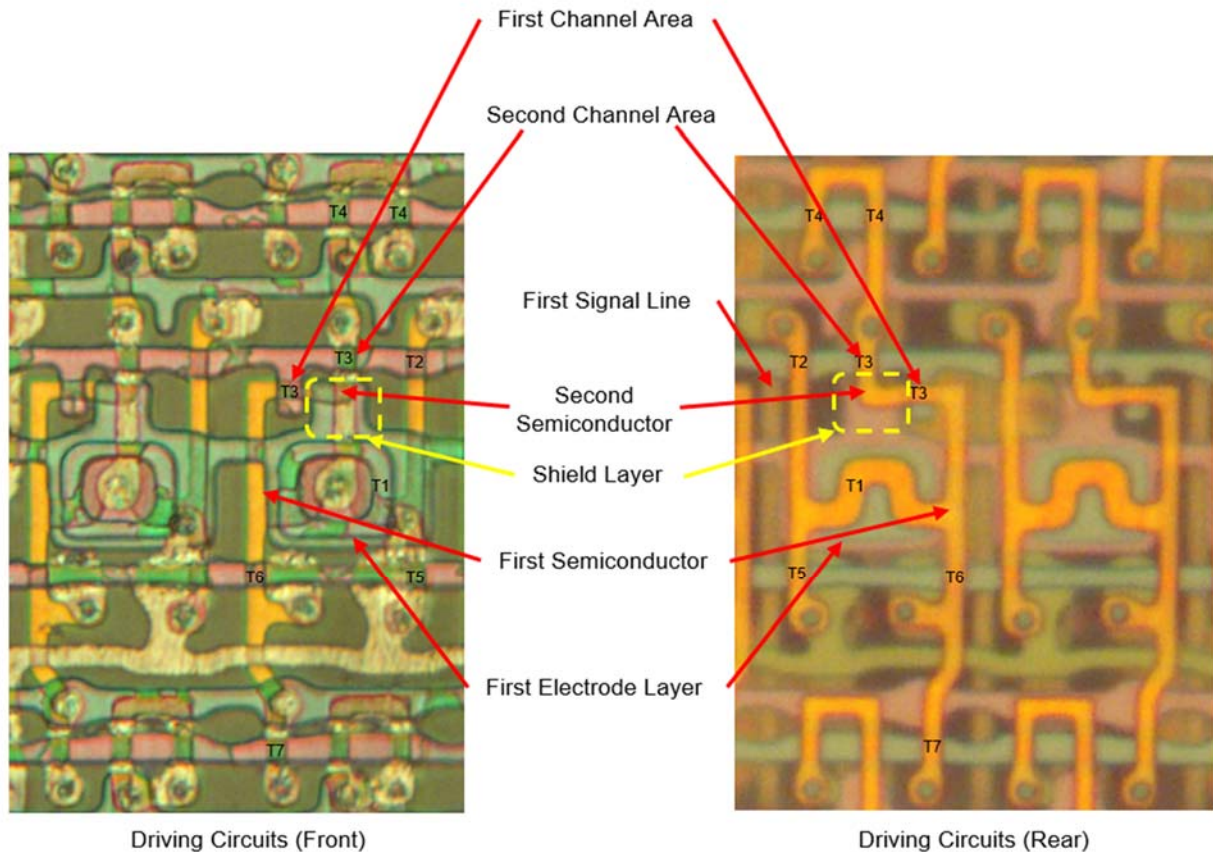


Figure 37

91. Upon information and belief, and as shown above in the example of the BOE OLED Displays used in the Nubia Z60 Ultra product, the Accused Products meet every limitation of at least claim 28 of the '015 Patent.

92. By making, using, selling, offering for sale, and/or importing into the United States the Accused Products, BOE directly infringes at least claim 28 of the '015 Patent.

93. BOE has been aware of the '015 Patent at least as of May 2, 2022, when Samsung Display informed BOE that BOE infringed the '015 Patent.

94. Upon information and belief, BOE has induced infringement of the '015 Patent under 35 U.S.C. § 271(b) by knowingly and intentionally inducing others to directly infringe the '015 Patent. Despite having notice of the '015 Patent—including through at least its receipt of Samsung

Display's May 2, 2022 notice letter specifically informing BOE of its infringing activity—BOE has actively encouraged others to infringe the patent. For example, upon information and belief, BOE has knowingly and intentionally induced third-party manufacturers, shippers, distributors, and/or retailers to directly infringe (literally and/or under the doctrine of equivalents) the '015 Patent by importing into the United States, using, and/or selling and offering to sell in the United States products containing infringing BOE OLED Displays. BOE's OLED displays are specially designed to contain features that infringe the '015 Patent and the Accused Products have no substantial uses other than ones that infringe the '015 Patent.

95. Moreover, upon information and belief, BOE takes active steps, directly and/or through contractual relationships with others, with the specific intent to cause such persons to import, use, sell, and/or or offer to sell products containing BOE OLED Displays that infringe at least claim 28 of the '015 Patent. Upon information and belief, such steps by BOE include, among other things, making or selling the Accused Products, including BOE OLED Displays for Nubia Z60 Ultra products, for importation into or sale in the United States, knowing that such importation or sale would occur. Indeed, in its February 28, 2023 motion to intervene as a respondent in the -1351 ITC Investigation, Mianyang BOE admitted that it “manufactures and sells AMOLED screens to” other entities, and that “some of those screens are thereafter imported into the United States.” Exhibit 1 at 6. Upon information and belief, Mianyang BOE was thus by its own admission aware that its infringing OLED displays would be imported by its customers into the US (and that its customers' downstream products would infringe via its use of the infringing OLED displays), yet it has sold those displays to those customers anyway. Upon information and belief, BOE has engaged in these activities with knowledge of the '015 Patent and knowledge that the induced acts constitute infringement. BOE's inducement of infringement of the '015 Patent is ongoing.

96. Upon information and belief, BOE has also contributorily infringed the '015 Patent under 35 U.S.C. § 271(c) through its supply of the BOE OLED Displays to customers that incorporate those OLED displays into other products, including the Nubia Z60 Ultra product. The BOE OLED Displays have no substantial non-infringing uses and are especially designed and made for use in devices that infringe the '015 Patent. BOE has engaged in these activities despite having notice of the '015 Patent, and the OLED displays that BOE has sold and/or provided to customers embody a material part of the claimed invention of at least claim 28 of the '015 Patent. BOE's contributory infringement of the '015 Patent is ongoing.

97. Upon information and belief, BOE's infringement has been, and continues to be, willful. For example, upon information and belief, BOE has been on notice of the '015 Patent and its infringement of the '015 Patent since at least its receipt of Samsung Display's May 2, 2022 notice letter and yet have continued its infringing activities.

COUNT IV – INFRINGEMENT OF U.S. PATENT NO. 10,013,088

98. Samsung Display hereby incorporates the allegations of Paragraphs 1 through 99 as fully set forth herein.

Upon information and belief, BOE has infringed and continues to directly infringe the '088 Patent by making, using, selling, offering for sale, and/or importing into the United States OLED displays for incorporation into the Accused Products, such as OLED displays incorporated into the Nubia Z60 Ultra product.

99. Independent claim 1 of the '088 Patent recites:

1. A display comprising:

a substrate including a first area having a pixel area and a second area adjacent to the first area;

a plurality of pixels in the pixel area of the substrate;

a sealing thin film covering the first area of the substrate and including an inclined surface at an end of the sealing thin film to inhibit infiltration of oxygen or moisture into the pixels;

a plurality of sensing cells formed over a top surface of the sealing thin film to sense a touch;

a plurality of sensing lines coupled to the sensing cells, the sensing lines comprising a first portion and a second portion;

a driving circuit electrically connected to the sensing cells via the sensing lines; and
an insulating layer,

wherein the inclined surface of the sealing thin film is formed to be inclined downwardly toward the driving circuit,

wherein the sensing lines include inclined portion along the inclined surface of the sealing thin film,

wherein the sensing lines are formed over the top surface of the sealing thin film in the first portion and formed over the substrate in the second portion, and the sensing lines extend from the sensing cells along the inclined surface of the sealing thin film to the second area of the substrate, wherein the sensing lines are electrically connected to the driving circuit,

wherein the sensing cells include a plurality of first sensing cells connected along a first direction by first connection patterns and a plurality of second sensing cells connected along a second direction by second connection patterns, and

wherein the insulating layer is interposed between the first connection patterns and the second connection patterns.

100. Upon information and belief, the BOE OLED Display meets each of the limitations of claim 1.

For example, the images below (Figures 38–40) are of a Nubia Z60 Ultra product sold in Texas that, on information and belief, contains an organic light emitting diode display supplied by BOE.



Figure 38

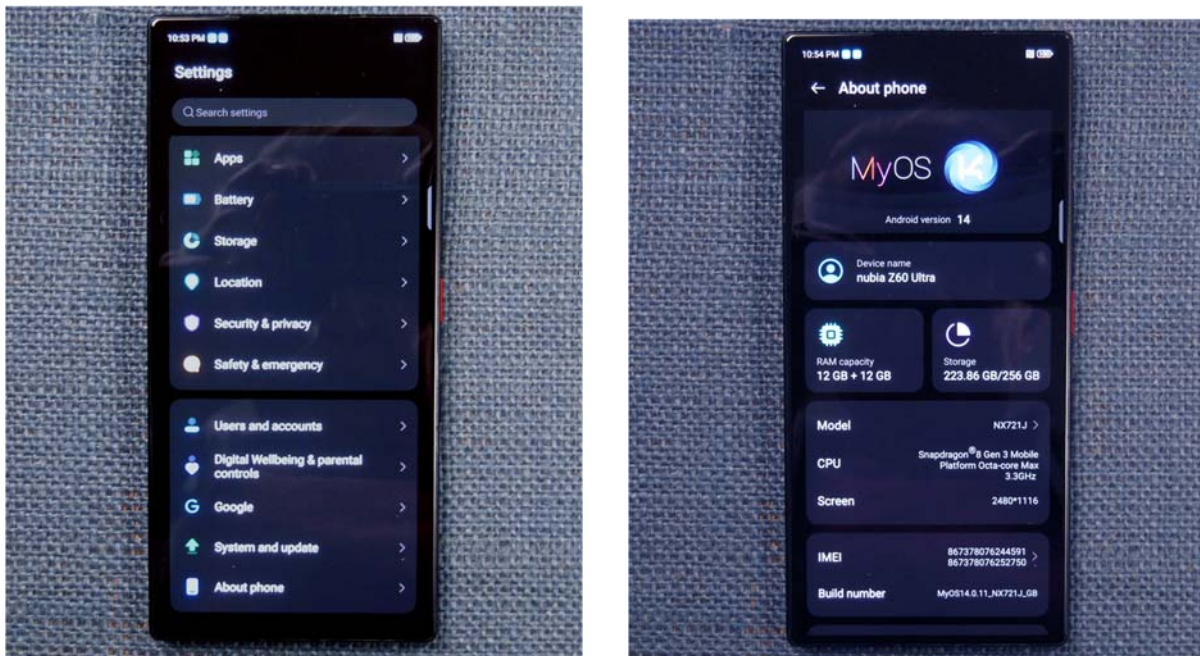


Figure 39



Figure 40

101. The BOE OLED Display is a “display.” It comprises a substrate that supports the OLED pixels that are visible through the glass panel as well as the circuitry that controls the operation of the OLED pixels. The BOE OLED Display panel is mounted within the device chassis and is located behind a glass panel, and in the image below (Fig. 41), the display panel substrate can be seen.

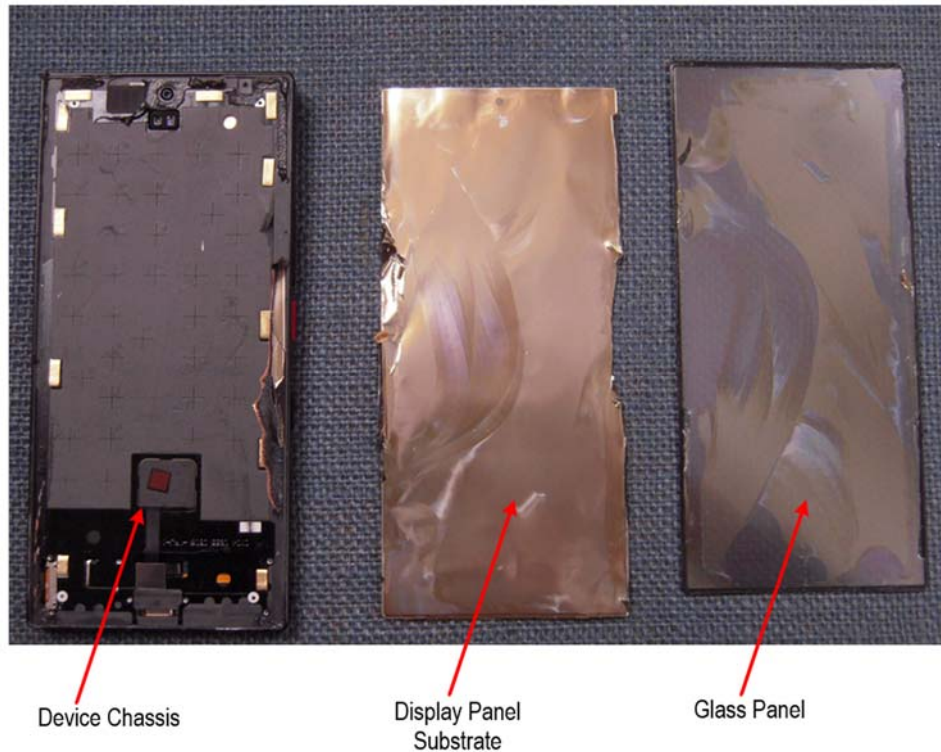


Figure 41

102. The BOE OLED Display comprises “a substrate including a first area having a pixel area and a second area adjacent to the first area.” In the annotated figure below (Fig. 42), the substrate includes a first area having a pixel area and a second area that is adjacent to the first area.

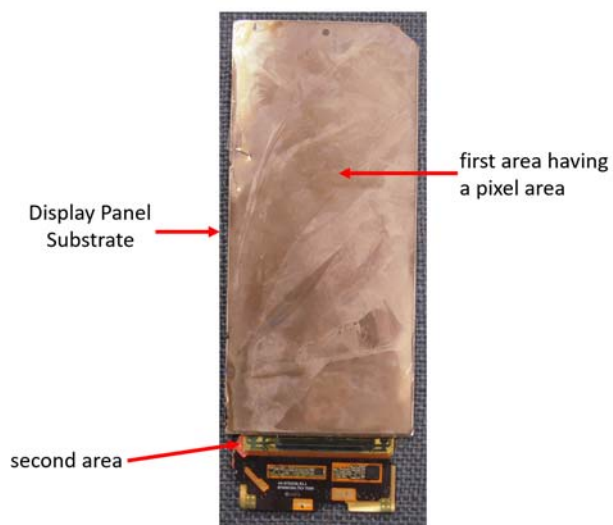


Figure 42

103. The BOE OLED Display comprises “a plurality of pixels in the pixel area of the substrate.” In the annotated figure below (Fig. 43), a plurality of pixels is in the pixel area of the substrate.

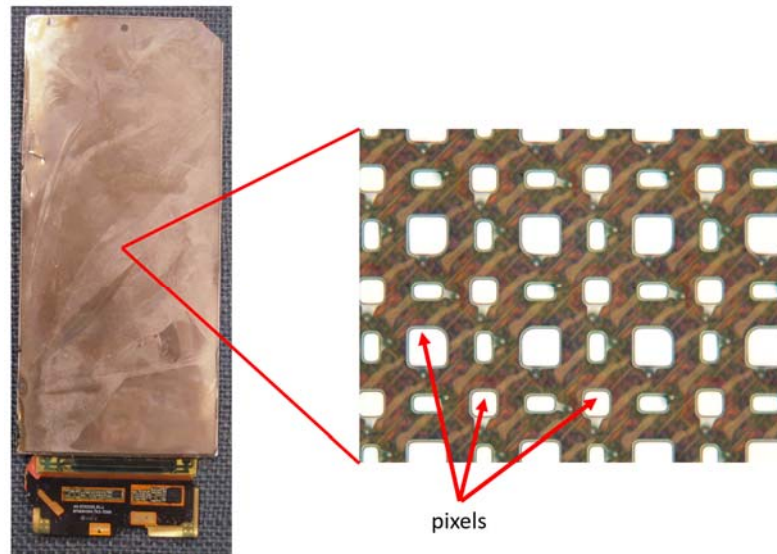


Figure 43

104. The BOE OLED Display comprises “a sealing thin film covering the first area of the substrate and including an inclined surface at an end of the sealing thin film to inhibit infiltration of oxygen or moisture into the pixels.” In the annotated figures below (Figures 44–45), a sealing thin film covers the first area of the substrate and includes an inclined surface at an end of the sealing thin film to inhibit infiltration of oxygen or moisture into the pixels.

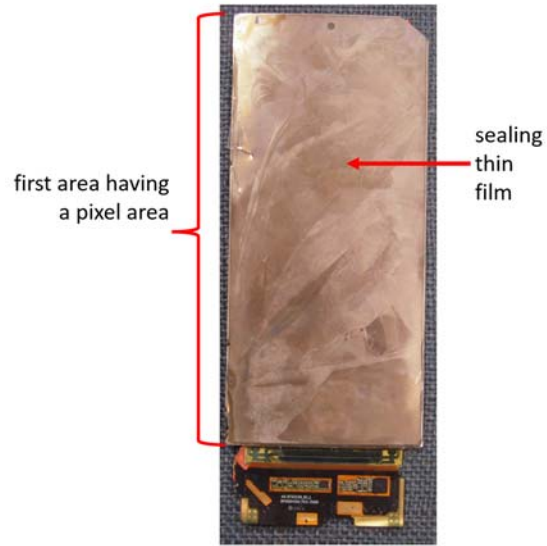


Figure 44

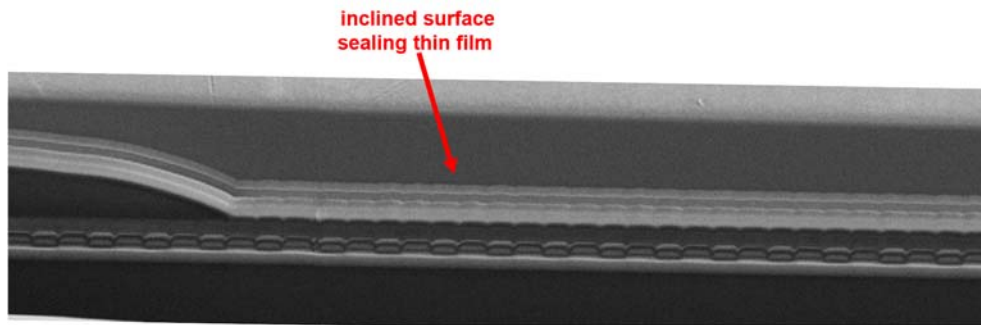


Figure 45

105. The BOE OLED Display comprises “a plurality of sensing cells formed over a top surface of the sealing thin film to sense a touch.” In the annotated figures below (Figures 46–47), a plurality of sensing cells is formed over a top surface of the sealing thin film to sense a touch.

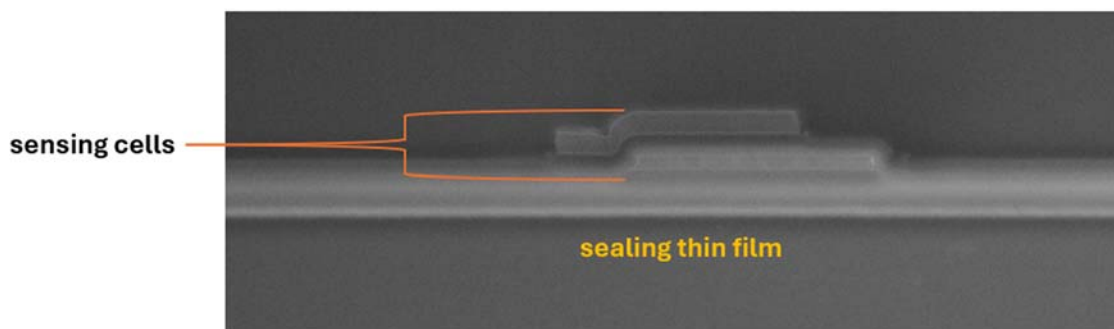
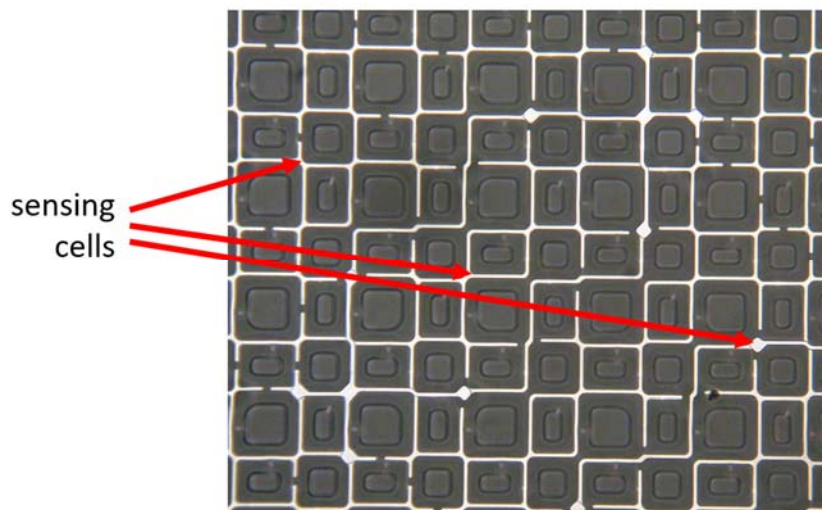
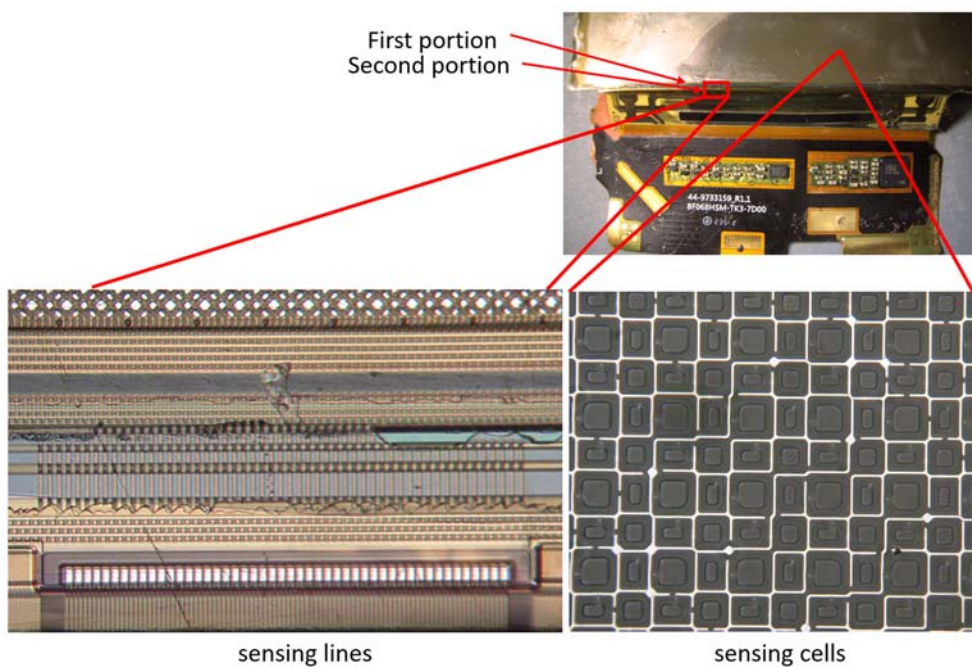


Figure 46

**Figure 47**

106. The BOE OLED Display comprises “a plurality of sensing lines coupled to the sensing cells, the sensing lines comprising a first portion and a second portion.” In the annotated figure below (Fig. 48), a plurality of sensing lines is coupled to the sensing cells, the sensing lines comprising a first portion and a second portion.

**Figure 48**

107. The BOE OLED Display comprises “a driving circuit electrically connected to the sensing cells via the sensing lines.” In the annotated figure below (Fig. 49), a driving circuit is electrically connected to the sensing cells via the sensing lines.

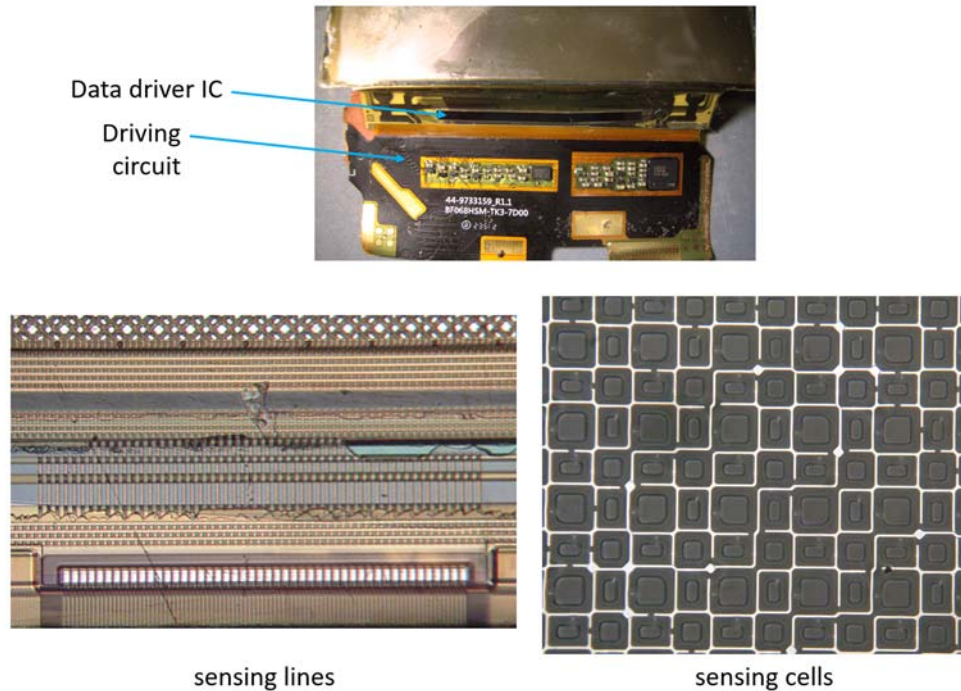


Figure 49

108. The BOE OLED Display also comprises “an insulating layer,” as shown in the annotated figure below (Fig. 50).

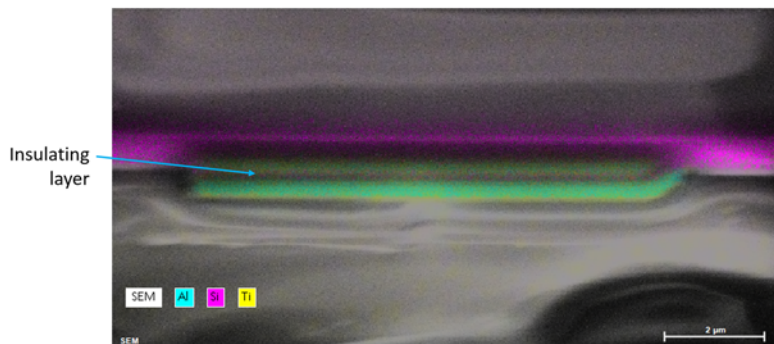
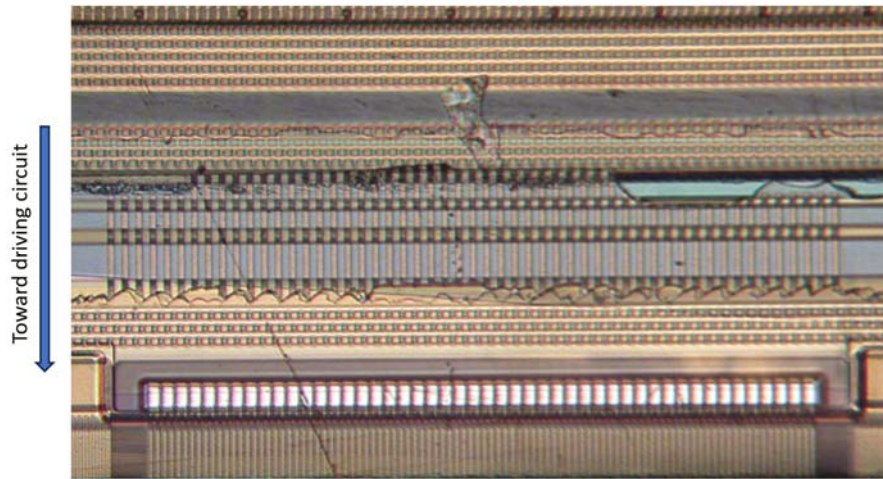


Figure 50

109. In the BOE OLED Display, “the inclined surface of the sealing thin film is formed to be inclined downwardly toward the driving circuit.” In the annotated figures below (Figures 51–52),

the inclined surface of the sealing thin film is formed to be inclined downwardly toward the driving circuit.



sensing lines
Figure 51

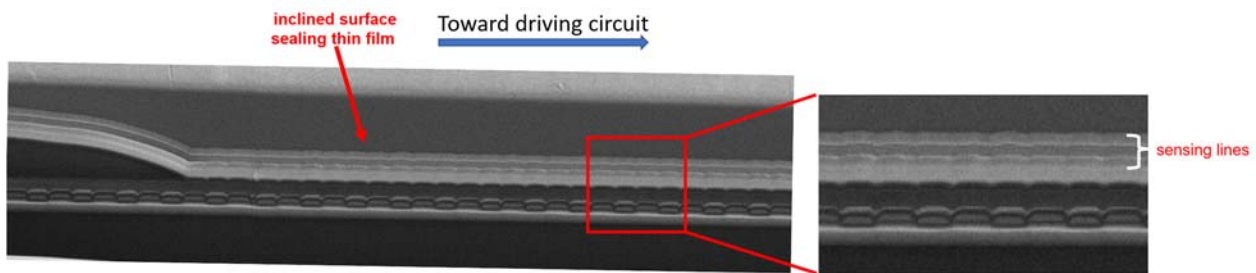


Figure 52

110. In the BOE OLED Display, “the sensing lines include inclined portion along the inclined surface of the sealing thin film.” In the annotated figure below (Fig. 53), a portion of the sensing lines are inclined along the inclined surface of the sealing thin film.

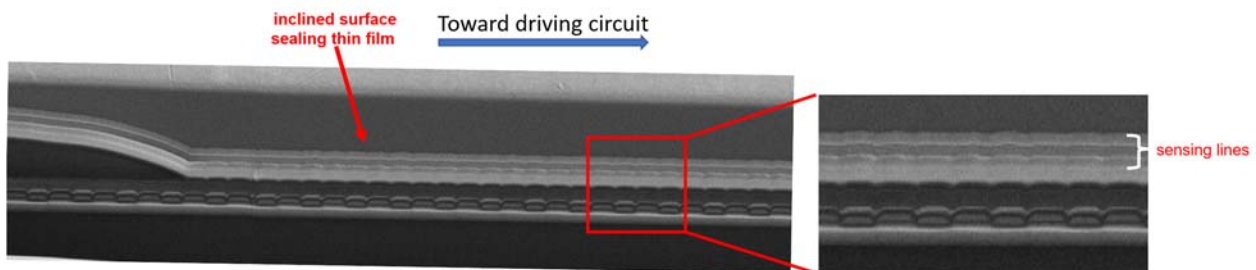


Figure 53

111. In the BOE OLED Display, “the sensing lines are formed over the top surface of the sealing thin film in the first portion and formed over the substrate in the second portion, and the sensing lines extend from the sensing cells along the inclined surface of the sealing thin film to the second area of the substrate, wherein the sensing lines are electrically connected to the driving circuit.” In annotated Figure 49 and the additional annotated figures below (Figures 54–55), the sensing lines are formed over the top surface of the sealing thin film in the first portion and formed over the substrate in the second portion, and the sensing lines extend from the sensing cells along the inclined surface of the sealing thin film to the second area of the substrate, wherein the sensing lines are electrically connected to the driving circuit.

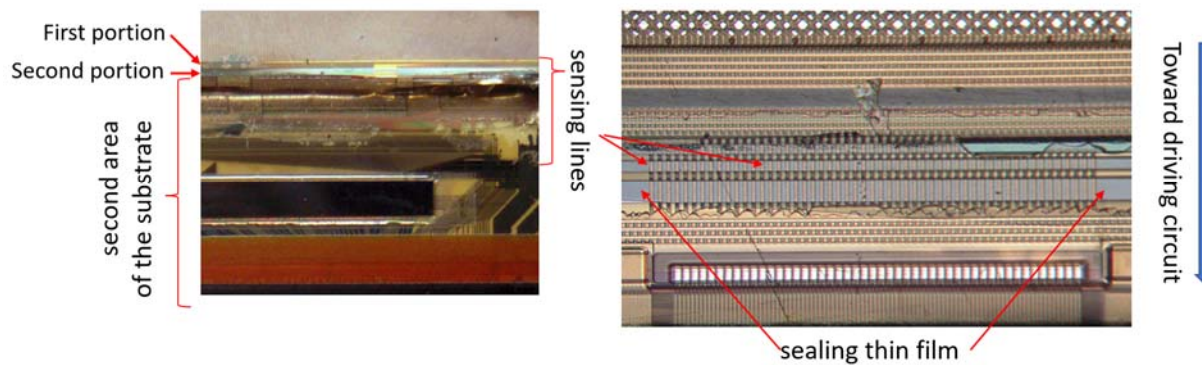


Figure 54

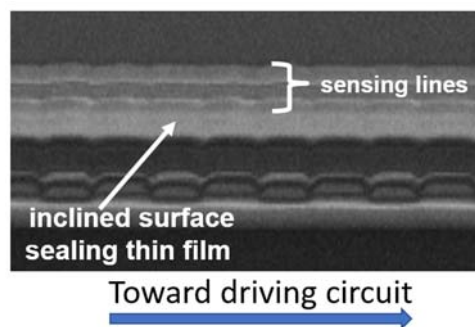


Figure 55

112. In the BOE OLED Display, “the sensing cells include a plurality of first sensing cells connected along a first direction by first connection patterns and a plurality of second sensing cells connected along a second direction by second connection patterns.” In the annotated figure below

(Figure 56), the sensing cells include a plurality of first sensing cells connected along a first direction by first connection patterns and a plurality of second sensing cells connected along a second direction by second connection patterns.

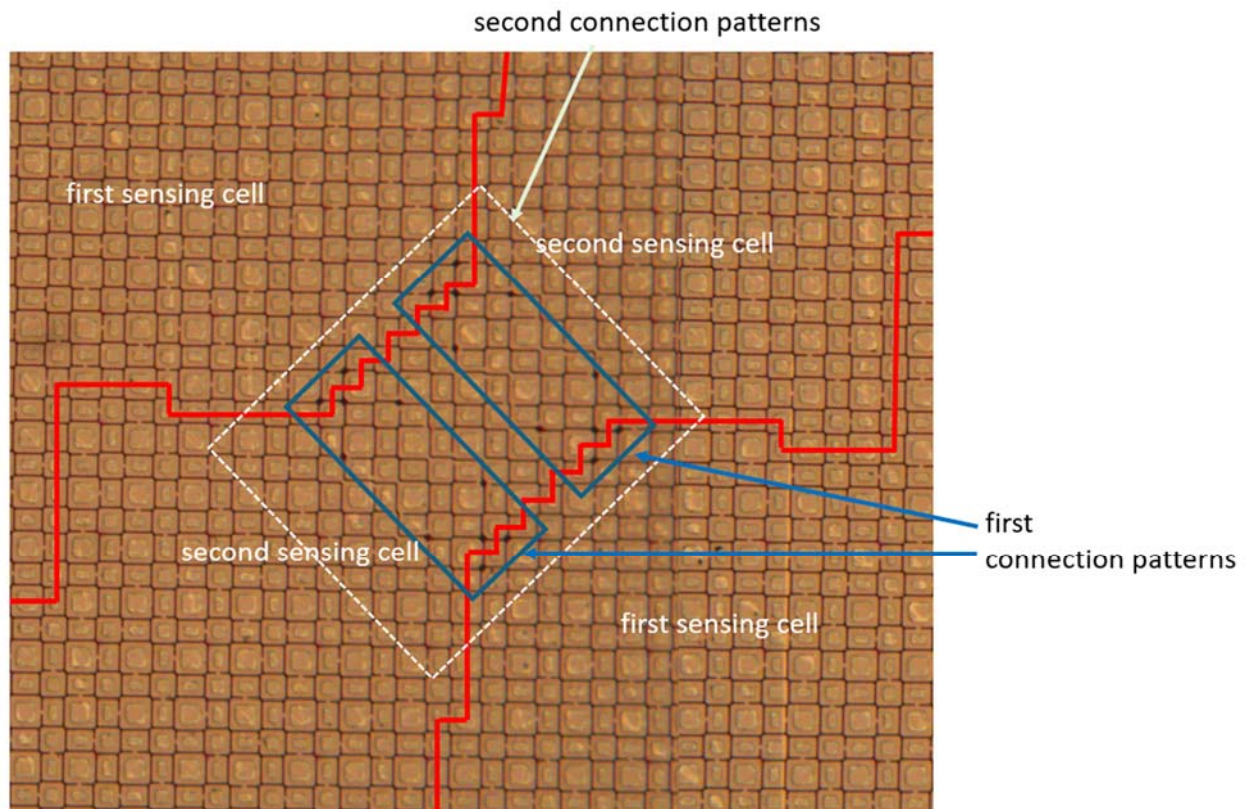


Figure 56

113. In the BOE OLED Display, “the insulating layer is interposed between the first connection patterns and the second connection patterns.” In the annotated figure below (Fig. 57), the insulating layer is interposed between the first connection patterns and the second connection patterns.

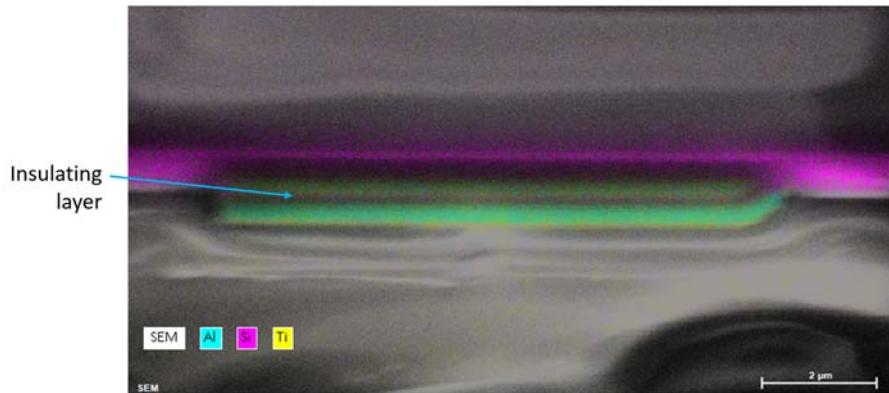


Figure 57

114. Upon information and belief, and as shown above in the example of the BOE OLED Displays used in the Nubia Z60 Ultra product, the Accused Products meet every limitation of at least claim 1 of the '088 Patent.

115. By making, using, selling, offering for sale, and/or importing into the United States the Accused Products, BOE directly infringes at least claim 1 of the '088 Patent.

116. Upon information and belief, BOE has induced infringement of the '088 Patent under 35 U.S.C. § 271(b) by knowingly and intentionally inducing others to directly infringe the '088 Patent. Upon information and belief, BOE has had notice of the '088 Patent from the time of its issuance. Despite such notice, BOE has actively encouraged others to infringe the patent. For example, upon information and belief, BOE has knowingly and intentionally induced third-party manufacturers, shippers, distributors, and/or retailers to directly infringe (literally and/or under the doctrine of equivalents) the '088 Patent by importing into the United States, using, and/or selling and offering to sell in the United States products containing infringing BOE OLED Displays. BOE's OLED Displays are specially designed to contain features that infringe the '088 Patent and the Accused Products have no substantial uses other than ones that infringe the '088 Patent.

117. Moreover, upon information and belief, BOE takes active steps, directly and/or through contractual relationships with others, with the specific intent to cause such persons to import,

use, sell, and/or or offer to sell products containing BOE OLED Displays that infringe at least claim 1 of the '088 Patent. Upon information and belief, such steps by BOE include, among other things, making or selling the Accused Products, including BOE OLED Displays for Nubia Z60 Ultra products, for importation into or sale in the United States, knowing that such importation or sale would occur. Indeed, in its February 28, 2023 motion to intervene as a respondent in the -1351 ITC Investigation, Mianyang BOE admitted that it “manufactures and sells AMOLED screens to” other entities, and that “some of those screens are thereafter imported into the United States.” Exhibit 1 at 6. Upon information and belief, Mianyang BOE was thus by its own admission aware that its infringing OLED displays would be imported by its customers into the US (and that its customers’ downstream products would infringe via their use of the infringing OLED displays), yet it has sold those displays to those customers anyway. Upon information and belief, BOE has engaged in these activities with knowledge of the '088 Patent and knowledge that the induced acts constitute infringement. BOE’s inducement of infringement of the '088 Patent is ongoing.

118. Upon information and belief, BOE has also contributorily infringed the '088 Patent under 35 U.S.C. § 271(c) through its supply of the BOE OLED Displays to customers that incorporate those OLED displays into other products, including the Nubia Z60 Ultra product. The BOE OLED Displays have no substantial non-infringing uses and are especially designed and made for use in devices that infringe the '088 Patent. BOE has engaged in these activities despite having notice of the '088 Patent, and the OLED displays that BOE has sold and/or provided to customers embody a material part of the claimed invention of at least claim 1 of the '088 Patent. BOE’s contributory infringement of the '088 Patent is ongoing.

119. Upon information and belief, BOE’s infringement has been, and continues to be, willful. For example, upon information and belief, BOE has been on notice of the '088 Patent and

its infringement of the '088 Patent since at least the issuance of the '088 Patent and yet has continued its infringing activities.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff Samsung Display prays for relief as follows:

- A. A judgment that each of the Defendants has willfully infringed, directly or indirectly, each of the Asserted Patents;
- B. Compensatory damages in an amount commensurate with Defendants' infringement of the Asserted Patents, including without limitation lost profits and no less than a reasonable royalty;
- C. Pre-judgment interest on all damages awarded to Plaintiff;
- D. Post-judgment interest on all sums awarded to Plaintiff from the date of the judgment;
- E. An award of treble damages pursuant to 35 U.S.C. § 284;
- F. An award of reasonable attorneys' fees pursuant to 35 U.S.C. § 285; and
- G. Any and all other relief that the Court deems just and equitable.

JURY DEMAND

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Plaintiff hereby demands a jury trial on all issues raised by this complaint.

Dated: April 17, 2025

Respectfully submitted,

/s/ Amanda A. Abraham

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