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

SAMSUNG DISPLAY CO., LTD. Plaintiff, v. BOE TECHNOLOGY GROUP CO., LTD., MIANYANG BOE OPTOELECTRONICS TECHNOLOGY CO., LTD., ORDOS YUANSHENG OPTOELECTRONICS CO., LTD., CHENGDU BOE OPTOELECTRONICS TECHNOLOGY CO., LTD., CHONGQING BOE OPTOELECTRONICS TECHNOLOGY CO., LTD., WUHAN BOE OPTOELECTRONICS TECHNOLOGY CO., LTD., YUNNAN INVENSIGHT OPTOELECTRONICS TECHNOLOGY CO., LTD. f/k/a/ BMOT f/k/a KUNMING BOE DISPLAY TECHNOLOGY, and BOE TECHNOLOGY AMERICA, INC. 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., Chongqing BOE Optoelectronics Technology Co., Ltd., Wuhan BOE Optoelectronics Technology Co., Ltd., Yunnan Invensight Optoelectronics Technology Co., Ltd. f/k/a BMOT f/k/a Kunming BOE Display Technology, and BOE Technology America, Inc.

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 and existing 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. Upon information and belief, BOE Technology America, Inc. ("BOEA") is a corporation organized and existing under the laws of the state of California, with its principal place of business located at 2350 Mission College Boulevard, Suite 840, Santa Clara, California 95054. Upon information and belief, BOEA is a subsidiary of BOE Beijing.

12. BOE Beijing, Mianyang BOE, Ordos BOE, Chengdu BOE, Chongqing BOE, Wuhan BOE, BMOT, and BOEA are collectively referred to herein as "BOE" or "Defendants."

13. Upon information and belief, Defendants make and sell OLED displays that infringe one or more claims of U.S. Patent No. 9,299,730 ("the '730 Patent"), U.S. Patent No. 10,541,279 ("the '279 Patent"), U.S. Patent No. 11,500,496 ("the '496 Patent"), and U.S. Patent No. 11,626,066 ("the '066 Patent") (collectively, the "Asserted Patents"). Such OLED displays are hereinafter referred to as the "Accused Products."

JURISDICTION AND VENUE

14. 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.

15. 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).

16. 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 in another recent proceeding that it supplies OLED displays that are imported into the United States. 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 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. 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.

18. 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. 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.

19. 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. 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.

20. 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. 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.

21. 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. 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. Samsung Display's claims for patent infringement arise directly from and/or relate to this activity.

22. On information and belief, Defendant BOEA, 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 BOEA to personal jurisdiction in this Court will not offend traditional notions of fair play and substantial justice. For example, BOEA's website states that

BOEA has a "Houston office (220329 State Highway 249 Suite 180, Houston, TX 77070)." FAQ, https://boe-us.com/faq/ (last accessed April 18, 2025); *see also* "About Us – BOE Global," https://www.boe.com/en/about/BOEGlobal (identifying "Houston Office" located at "220329 State Highway 249 Suite 180, Houston, TX, 77070, USA"). Moreover, BOEA takes affirmative actions to participate in and facilitate Defendants' supply of OLED displays for incorporation into products (such as smartphones) to be sold, offered for sale, imported, and used the United States, the State of Texas, and in this District. *See, e.g.*, FAQ, https://boe-us.com/faq/ (last accessed April 18, 2025) ("[BOEA] serves as a liaison between customers in the US and BOE's R&D, production, commercial teams in Asia."). Upon information and belief, these actions by BOEA include conducting business with and on behalf of Defendants, for example by providing support for Defendants' OLED displays, *id.*, promoting and marketing Defendants' OLED displays to customers, and participating at conferences and events on behalf of Defendants. For example, BOEA's own website touts Defendants' development of OLED displays, including OLED displays supplied to Nubia for use in the Nubia Z60 Ultra product. *See, e.g.*, "BOE Empowers Global Partners at MWC 2024," https://boe-us.com/news/boe-mwc-2024/ (last accessed April 21, 2025) (BOE America website explaining that "Nubia RedMagic 9 Pro and Nubia Z60 ultra feature BOE 6.8-inch OLED displays with Q9 light-emitting materials, delivering a stunning 2480*1116 resolution and a screen-to-body ratio of 93.7%."). BOEA knows or reasonably should know that its participation in and facilitation of Defendants' supply of OLED displays targets and reaches consumers in the State of Texas and in this District. By way of these and other actions BOEA has established continuous and systematic contacts with the States of Texas and with this District. BOEA has also 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. Moreover, BOEA 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 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. Samsung Display's claims for patent infringement arise directly from and/or relate to this activity.

23. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b) against Defendants BOE Beijing, Mianyang BOE, Ordos BOE, Chengdu BOE, Chongqing BOE, Wuhan BOE, and BMOT. 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).

24. Venue is proper in this District against BOEA under 28 U.S.C. § 1391 because BOEA's actions directed towards and/or in this District, including on behalf of Defendants, subject it to this Court's personal jurisdiction. For example, BOEA conducts business on behalf of Defendants who supply OLED displays for incorporation into products (such as smartphones) to be sold, offered for sale, imported, and used the United States, the State of Texas, and in this District. As discussed above, 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. BOEA also facilitates and participates in Defendants' placement of 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.

BOEA's presence in this District and actions directed towards and/or in this District, including on behalf of Defendants, also give rise to the claims set forth herein.

25. 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

26. U.S. Patent No. 9,299,730 ("the '730 Patent") is entitled "Thin Film Transistor Array Substrate And Organic Light-Emitting Diode Display." The '730 Patent discloses, *inter alia*, a novel thin film transistor array substrate. A true and correct copy of the '730 Patent is attached as Exhibit 1.

27. Samsung Display is the sole owner by assignment of all right, title, and interest in the '730 Patent.

28. U.S. Patent No. 10,541,279 ("the '279 Patent") is entitled "Display Device." The '279 Patent discloses, *inter alia*, a novel touch sensing unit for a display device including first and second conductive patterns. A true and correct copy of the '279 Patent is attached as Exhibit 2.

29. Samsung Display is the sole owner by assignment of all right, title, and interest in the '279 Patent.

30. U.S. Patent No. 11,500,496 ("the '496 Patent") is entitled "Display Device." The '496 Patent discloses, *inter alia*, a novel touch sensing unit for a display device including first and second conductive patterns. A true and correct copy of the '496 Patent is attached as Exhibit 3.

31. Samsung Display is the sole owner by assignment of all right, title, and interest in the '496 Patent.

32. U.S. Patent No. 11,626,066 ("the '066 Patent") is entitled "Pixel Arrangement Structure for Organic Light Emitting Diode Display." The '066 Patent discloses, *inter alia*, novel pixel arrangement structures for an OLED display where the pixels are arranged according to novel patterns and layouts in which the pixels are formed in specified locations, formed to have differing surface areas, separated from each other by defined lengths, and/or formed to have particular shapes. A true and correct copy of the '066 Patent is attached as Exhibit 4.

33. Samsung Display is the sole owner by assignment of all right, title, and interest in the '066 Patent.

34. 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 '730 Patent and the '279 Patent. Upon information and belief, Defendants therefore had knowledge of the '730 Patent and the '279 Patent and of their infringement of those patents, at least since receiving the May 2, 2022 letter. In addition, upon information and belief, Defendants had knowledge of the '496 Patent and of their infringement of the '496 Patent since at least the date of its issuance. The '496 Patent issued from an application that was a continuation of an application that issued as the '279 Patent, 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. In addition, upon information and belief, Defendants had knowledge of the '066 Patent and of their infringement of the '066 Patent since at least the date of its issuance. The '066 Patent issued from an application that was a continuation of an application that issued as U.S. Patent No. 10,832,616, 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, Samsung Display marks the Asserted Patents on its website

(https://www.samsungdisplay.com/eng/patents.jsp), and Defendants have had knowledge of the Asserted Patents through their copying of Samsung Display's patented OLED technologies.

35. Defendants have also had knowledge of the '730 Patent, the '279 Patent, the '496 Patent, and the '066 Patent, since at least the filing of this Complaint.

THE ACCUSED PRODUCTS

36. 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.

37. Upon information and belief, the Accused Products are manufactured and assembled by or for Defendants at facilities in China, including by Mianyang BOE. *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.").

38. 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.

39. 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 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 9 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 exclusively supports the upcoming flagship phones of nubia and Redmagic, redefining true full-screen display with new under-display technology" (Nov. 5, 2024), https://boe.com/en/company/dynamic-77d7e5f5e66742b4aeebc594f258aa86/offline (last accessed Apr. 21, 2025) "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).

40. 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. 9,299,730

41. Samsung Display hereby incorporates the allegations of Paragraphs 1 through 40 as fully set forth herein.

42. Upon information and belief, Defendants have infringed and continue to directly infringe the ’730 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”).

43. Independent claim 1 of the ’730 Patent recites:

1. A thin film transistor (TFT) array substrate comprising:

a substrate;

a first insulation layer on the substrate;

a capacitor comprising a lower electrode on the first insulation layer, and an upper electrode arranged to overlap with the whole lower electrode, the upper electrode extending beyond an edge of the lower electrode and having an opening, wherein the upper electrode is insulated from the lower electrode by a second insulation layer;

an inter-layer insulation film covering the capacitor;

a node contact hole in the inter-layer insulation film and the second insulation layer, and within the opening; and

a connection node on the inter-layer insulation film and electrically coupling the lower electrode and at least one TFT to each other through the node contact hole.

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

45. 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

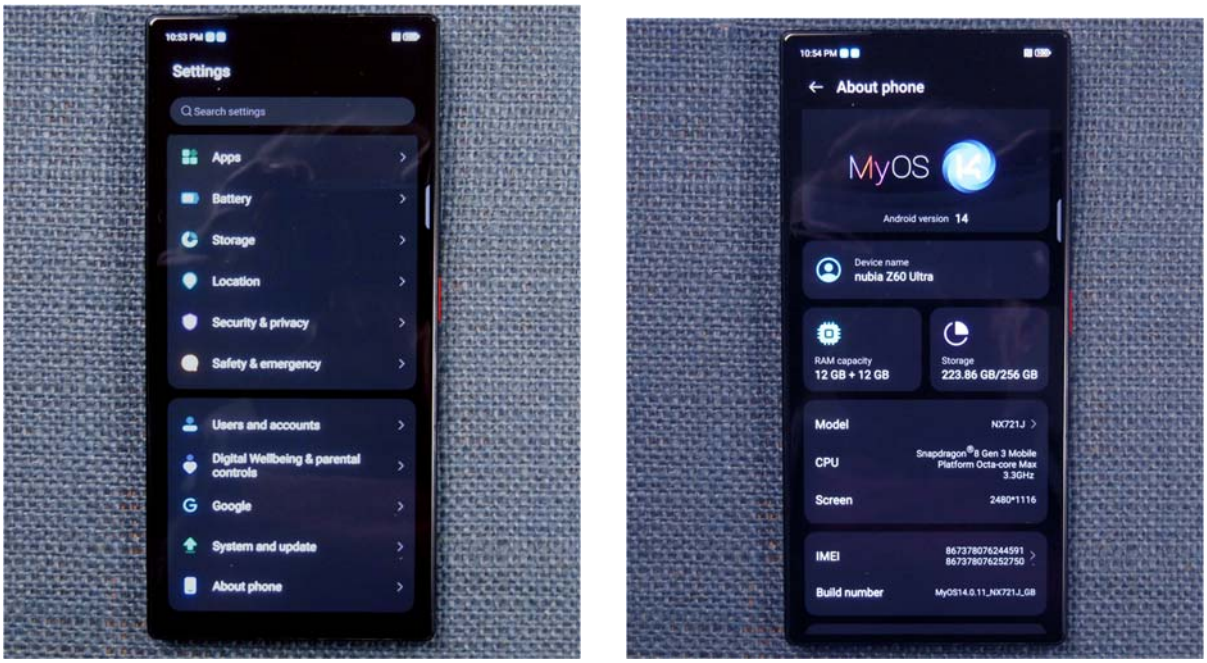

Figure 2

Figure 3

46. The BOE OLED Display comprises a substrate that supports the OLED pixel elements 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 Nubia Z60 Ultra chassis. The display panel substrate is located behind a glass panel, and in the image below (Fig. 4), the display panel substrate can be seen.

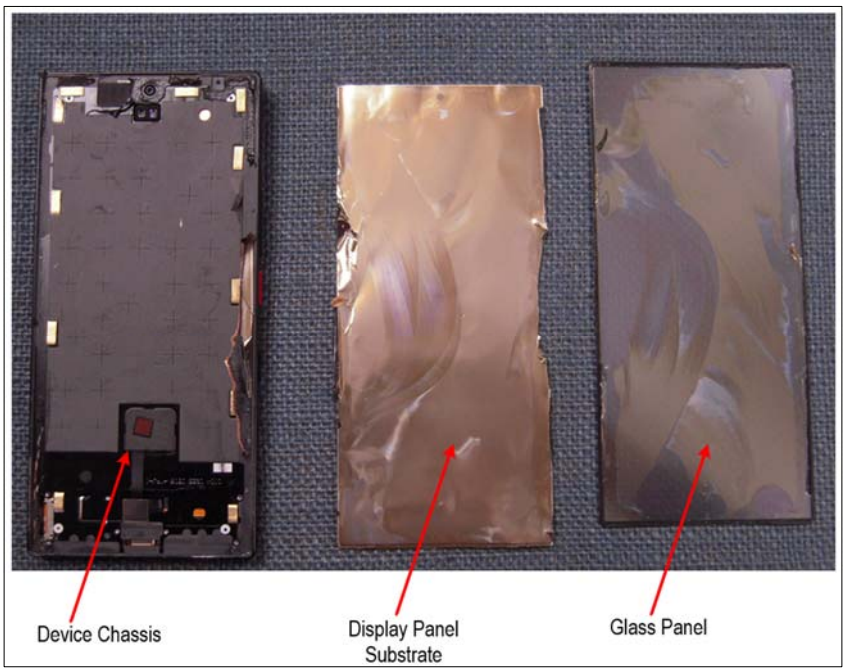

Figure 4

47. The BOE OLED Display comprises a "thin film transistor (TFT) array substrate." In the annotated image below of the back-side of the display panel (Fig. 5), the panel comprises a TFT array where a group of TFTs (T1–T7) are arranged.

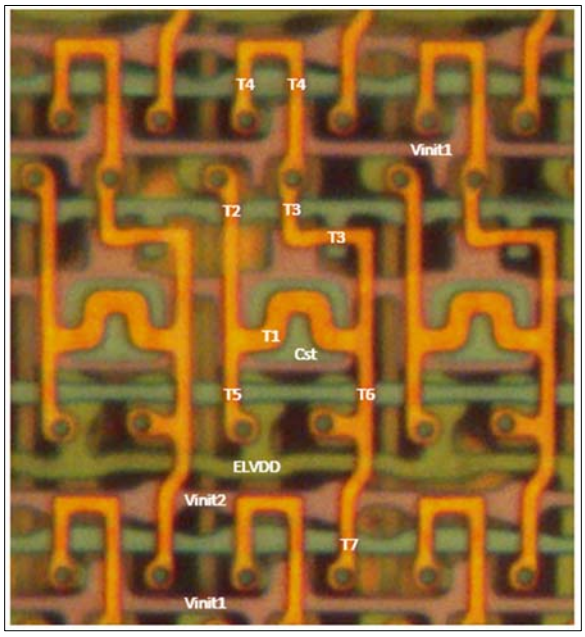

Figure 5

48. The BOE OLED Display comprises "a substrate." In the annotated image below showing a cross-section view of TFT T1 (Fig. 6), the BOE OLED Display has a TFT array substrate.

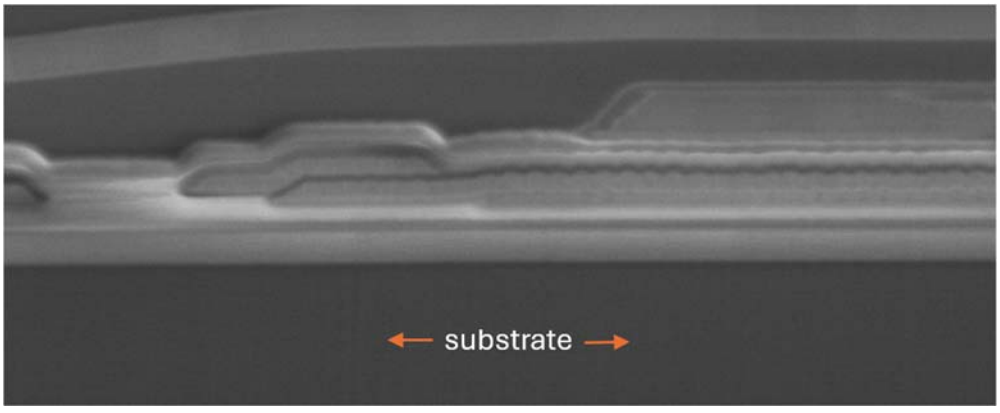

Figure 6

49. The BOE OLED Display's TFT array substrate comprises "a first insulation layer on the substrate" and "a capacitor comprising a lower electrode on the first insulation layer." In the

annotated image below (Fig. 7) (cross-section of BOE OLED Display), an insulation layer is shown on the substrate, upon which appears a capacitor having its lower electrode on the insulation layer.

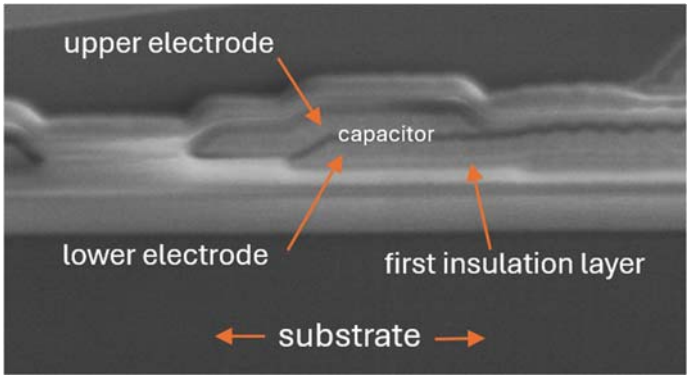

Figure 7

50. The BOE OLED Display's TFT array substrate comprises a capacitor comprising "an upper electrode arranged to overlap with the whole lower electrode" and "the upper electrode extending beyond an edge of the lower electrode and having an opening." In the annotated image below (Fig. 8) (front-side image of the circuit), an upper electrode (red dashed lines) is shown as overlapping with a whole lower electrode (blue dashed lines) and further extending beyond an edge of the lower electrode and having an opening (yellow dashed lines).

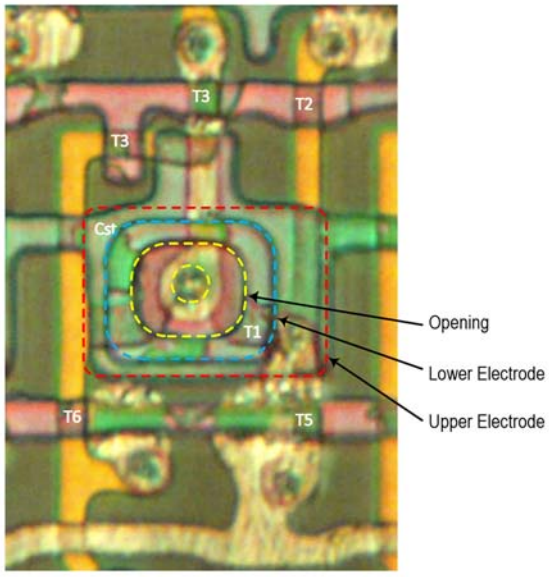

Figure 8

51. The BOE OLED Display's TFT array substrate comprises "the upper electrode" that "is insulated from the lower electrode by a second insulation layer; and an inter-layer insulation film covering the capacitor." In the annotated image below (Fig. 9) (cross-section of BOE OLED Display), the upper electrode is shown as being insulated from the lower electrode by a second insulation layer. The image further shows an inter-layer insulation layer that covers the capacitor.

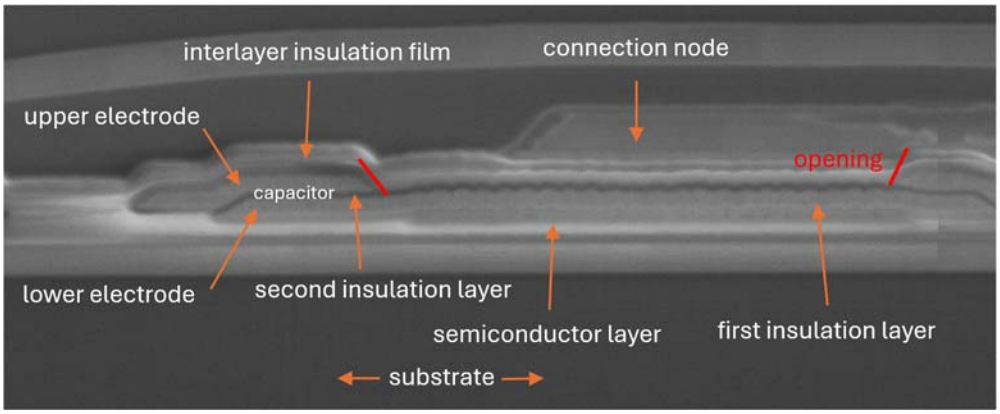

Figure 9

52. The BOE OLED Display's TFT array substrate comprises "a node contact hole in the inter-layer insulation film and the second insulation layer, and within the opening;" and "a connection node on the inter-layer insulation film and electrically coupling the lower electrode and at least one TFT to each other through the node contact hole." In the annotated cross-section image (Fig. 10) and annotated front-side image of the circuit below (Fig. 11), a node contact hole is shown to have been made in the inter-layer insulation film and the second insulation layer, and within the opening. A connection node is shown to be on the inter-layer insulation film and connected to the lower electrode through the node contact hole. In addition, the connection node electrically couples the lower electrode to a TFT (T3) through the node contact hole.

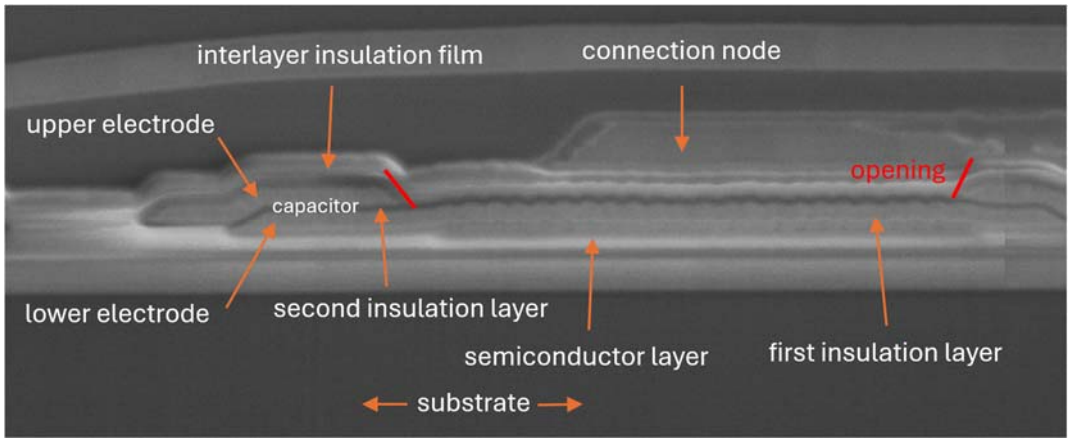

Figure 10

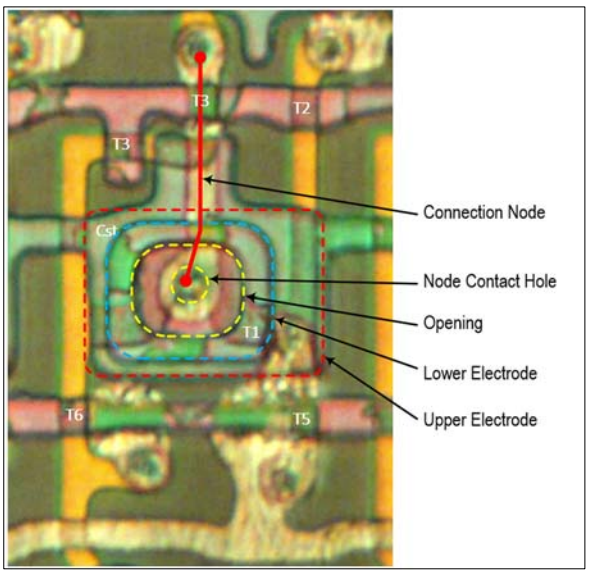

Figure 11

53. Upon information and belief, and as shown above in the example of a BOE OLED Display used in the Nubia Z60 Ultra product, the Accused Products meet every limitation of at least claim 1 of the ’730 Patent.

54. By making, using, selling, offering for sale, and/or importing into the United States the Accused Products, Defendants directly infringe at least claim 1 of the ’730 Patent.

55. BOE has been aware of the ’730 Patent at least as of May 2, 2022, when Samsung Display informed BOE that BOE infringed the ’730 Patent.

56. Upon information and belief, BOE have induced infringement of the ’730 Patent under 35 U.S.C. § 271(b) by knowingly and intentionally inducing others to directly infringe the ’730 Patent. Despite having notice of the ’730 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 ’730 Patent by using, selling, and/or offering to sell in the United States, and/or importing into the United States, products containing infringing BOE OLED displays. BOE’s OLED displays are specially designed to contain features that infringe the ’730 Patent, and the Accused Products have no substantial uses other than ones that infringe the ’730 Patent.

57. 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 ’730 Patent. Upon information and belief, such steps by BOE include, among other things, making or selling the Accused Products, including BOE OLED Displays for at least the Nubia Z60 Ultra products, for importation into or sale in the United States, knowing that such importation or sale would occur. Indeed, Mianyang BOE has admitted in another recent proceeding that it manufactures and sells AMOLED screens that are imported into the United States. Upon information and belief, Mianyang BOE was thus aware that its infringing OLED displays would be imported into the US (and that use of the infringing OLED displays would infringe), yet it sold those displays to those customers anyway. Upon information and belief, BOE has engaged in these activities with

knowledge of the ’730 Patent and knowledge that the induced acts constitute infringement. BOE’s inducement of infringement of the ’730 Patent is ongoing.

58. Upon information and belief, BOE has also contributorily infringed the ’730 Patent under 35 U.S.C. § 271(c) through its supply of infringing BOE OLED displays to customers that incorporate those OLED displays into other products, including at least 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 ’730 Patent. BOE has engaged in these activities despite having notice of the ’730 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 ’730 Patent. BOE’s contributory infringement of the ’730 Patent is ongoing.

59. 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 ’730 Patent and its infringement of the ’730 Patent since at least its receipt of Samsung Display’s May 2, 2022 notice letter specifically alleging that BOE infringes this patent, that BOE must immediately cease its unauthorized use of the patent, and that BOE must provide confirmation that it will in fact do so. Yet BOE has continued its infringing activities.

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 10,541,279

60. Samsung Display hereby incorporates the allegations of Paragraphs 1 through 59 as fully set forth herein.

61. Upon information and belief, BOE has infringed and continues to directly infringe the ’279 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.

62. Independent claim 1 of the ’279 Patent recites:

1. A display device comprising:

a display panel; and

a touch sensing unit on the display panel, the touch sensing unit comprising:

a first conductive pattern on the display panel;

an insulating layer covering the first conductive pattern; and

a second conductive pattern on the insulating layer, partially crossing the first conductive pattern, and comprising:

first touch sensor parts;

second touch sensor parts spaced from the first touch sensor parts; and

first connection parts connecting respective ones of the first touch sensor parts,

wherein the first conductive pattern comprises electrically conductive second connection parts connecting respective ones of the second touch sensor parts, and

wherein the second conductive pattern has a thickness that is greater than a thickness of the second connection parts.

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

64. For example, the images below (Figures 12–14) 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 12

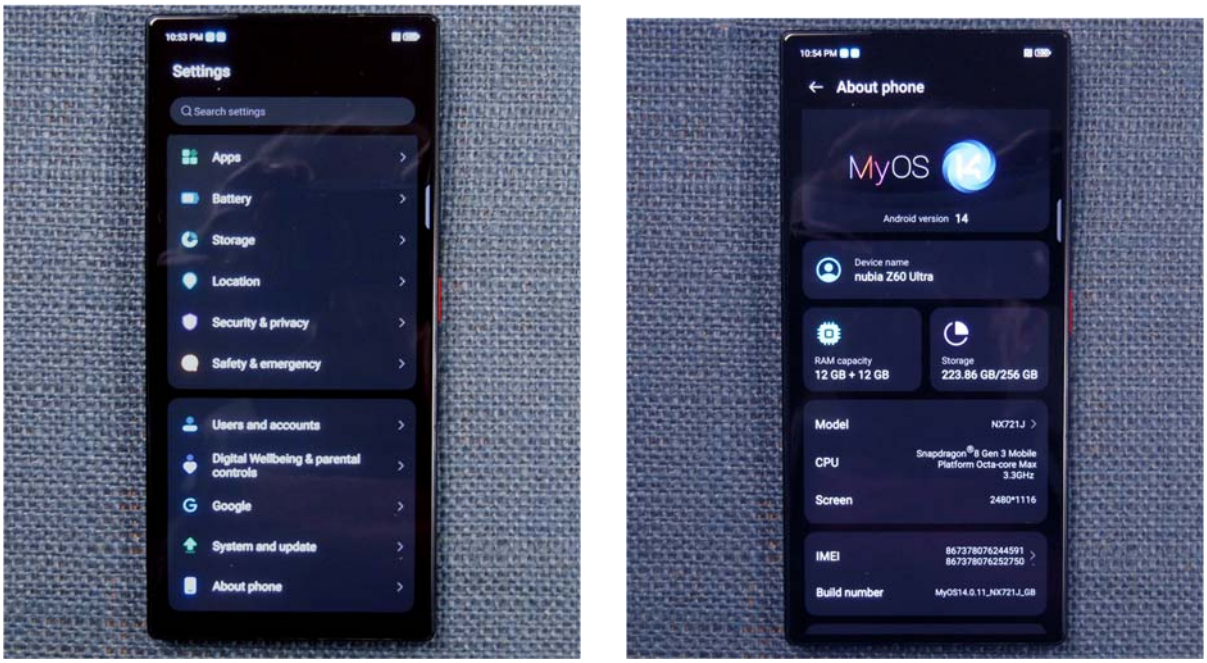

Figure 13

Figure 14

65. The BOE OLED Display is a "display device" that comprises a "display panel." The BOE OLED Display panel is mounted within the Nubia Z60 Ultra chassis and is located behind a glass panel, and in the image below (Fig. 15), the display panel can be seen.

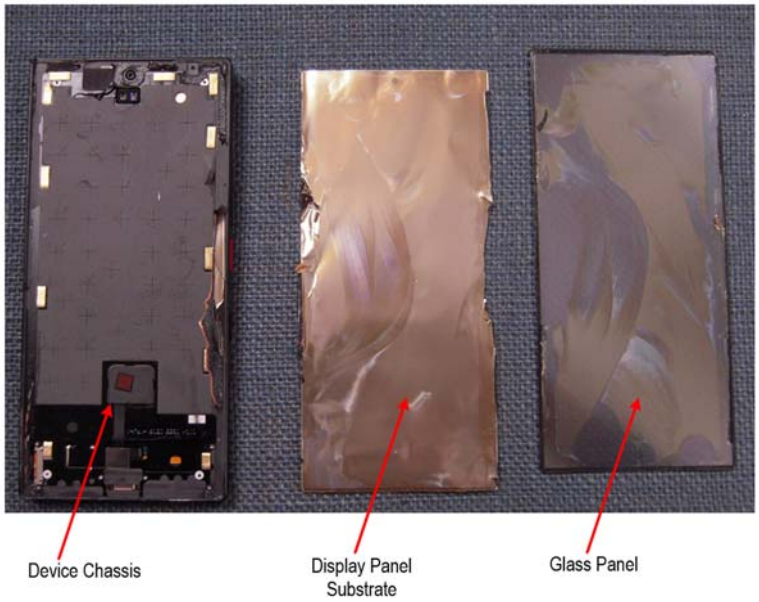

Figure 15

66. The BOE OLED Display panel comprises "a touch sensing unit on the display panel" comprising a conductive metal mesh pattern under the glass panel. In the annotated image below

(Fig. 16), the conductive metal mesh pattern is visible on the display panel (which is under the glass panel).

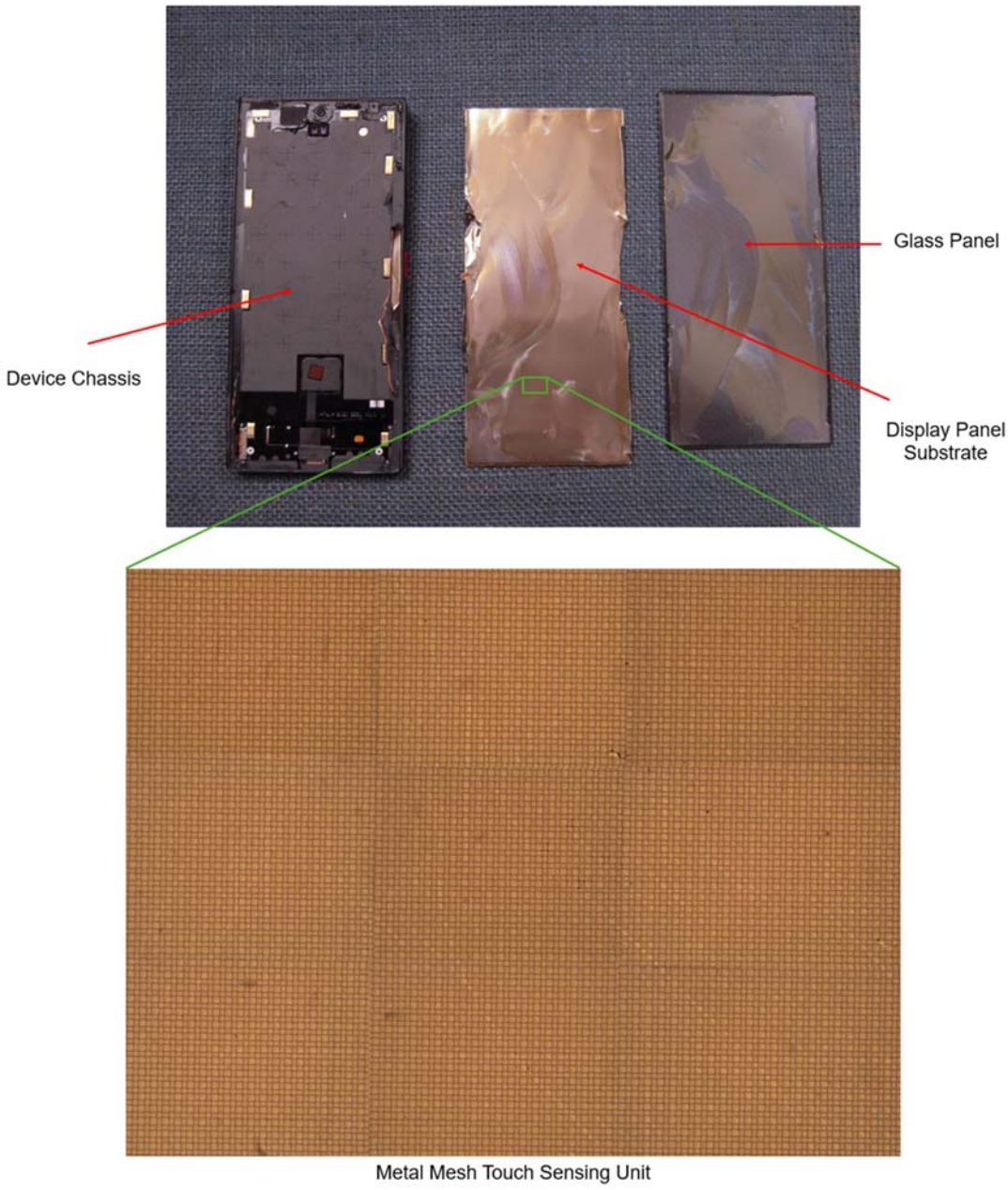

Figure 16

67. The BOE OLED Display panel has a touch sensing unit with "a first conductive pattern on the display panel." In the annotated image below (Fig. 17) (cross-section of BOE OLED Display panel), the first conductive pattern on the display panel is identified.

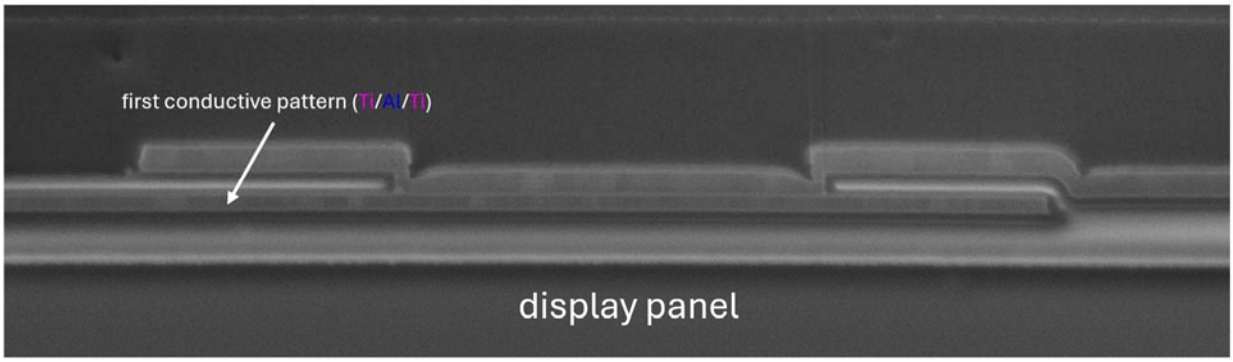

Figure 17

68. In the annotated image below (Fig. 18) (cross-section EDS analysis of BOE OLED Display panel), the first conductive pattern contains aluminum (Al) and titanium (Ti) metal. The first conductive pattern is thus conductive.

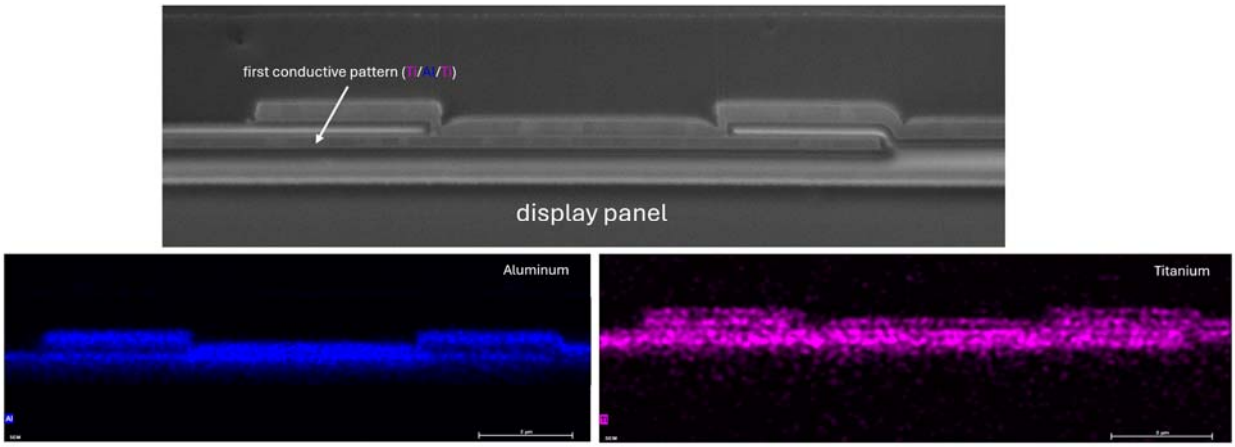

Figure 18

69. The BOE OLED Display panel has a touch sensing unit with "an insulating layer covering the first conductive pattern." In the annotated image below (Fig. 19) (cross-section EDS analysis of BOE OLED Display panel), the insulating layer (shown to contain silicon (Si)) and the

first conductive pattern are identified. As shown below, the insulating layer covers the first conductive pattern.

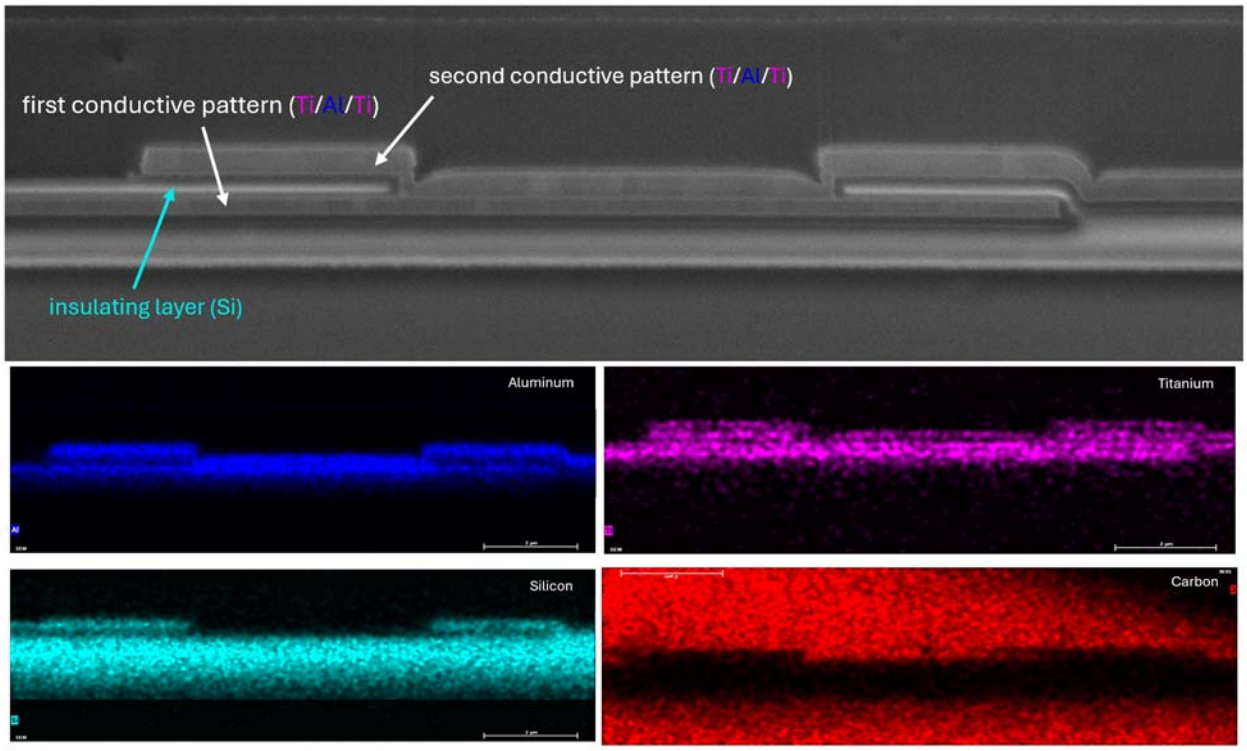

Figure 19

70. The BOE OLED Display panel has a touch sensing unit with "a second conductive pattern on the insulating layer, partially crossing the first conductive pattern." In Figure 19 above, the second conductive pattern is identified, along with the insulating layer and first conductive pattern. As shown in Figure 19, the second conductive pattern is on the insulating layer and partially crosses the first conductive pattern.

71. In the annotated image below (Fig. 20) (cross-section EDS analysis of BOE OLED Display panel), the second conductive pattern contains aluminum (Al) and titanium (Ti) metal. The second conductive pattern is thus conductive.

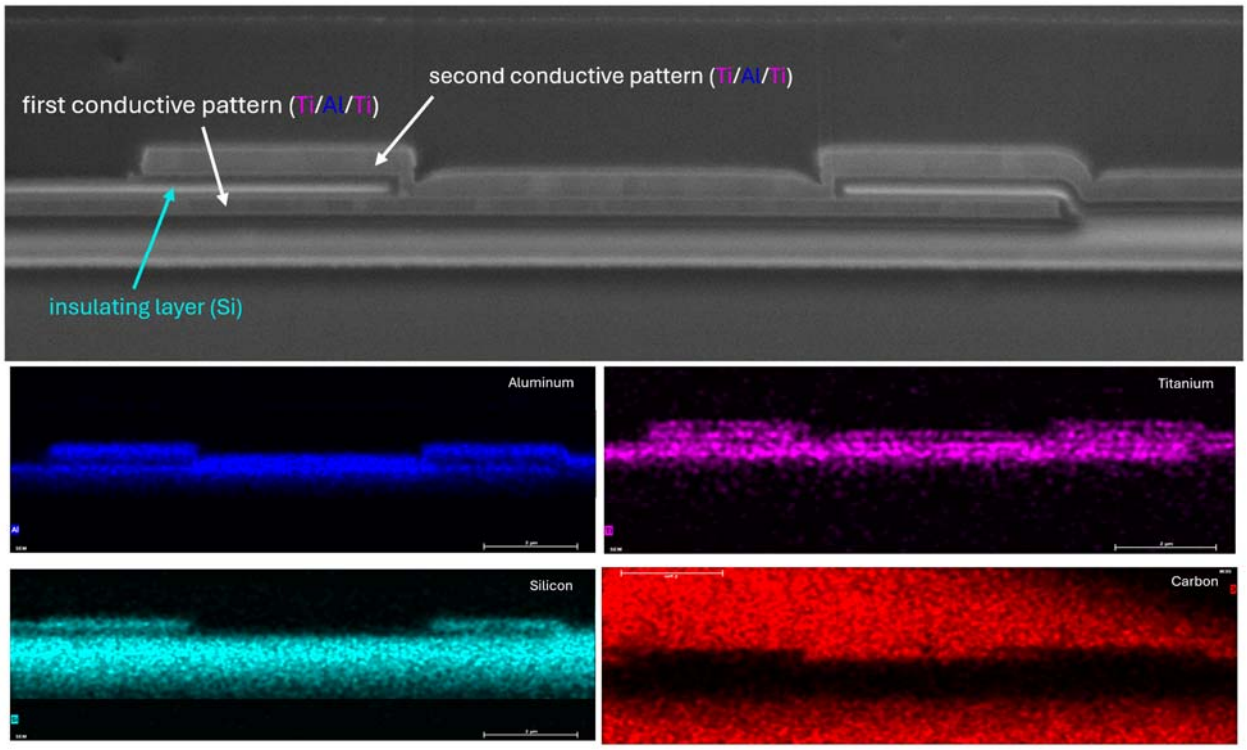

Figure 20

72. In the annotated image below (Fig. 21) (BOE OLED Display panel touch sensing unit), the second conductive pattern is shown as partially crossing the first conductive pattern.

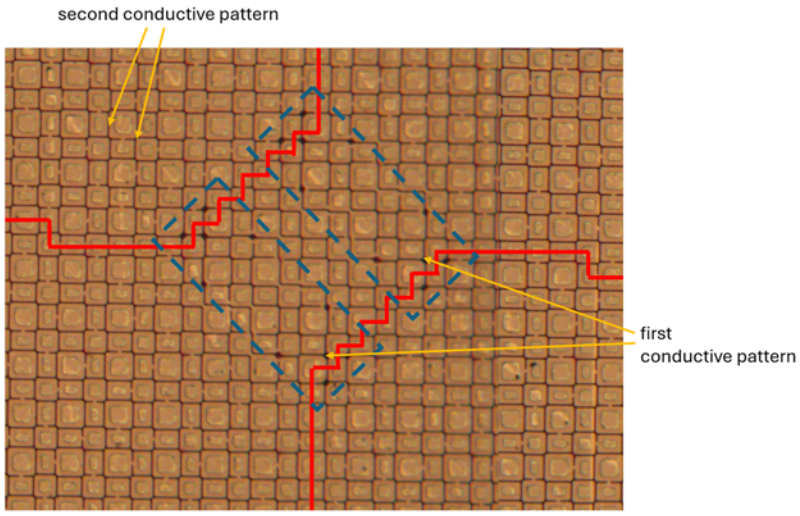

Figure 21

73. The BOE OLED Display panel has a touch sensing unit with a second conductive pattern that comprises "first touch sensor parts." In the annotated image below (Fig. 22) (BOE OLED Display panel touch sensing unit), first touch sensor parts ("1st TSP") are identified.

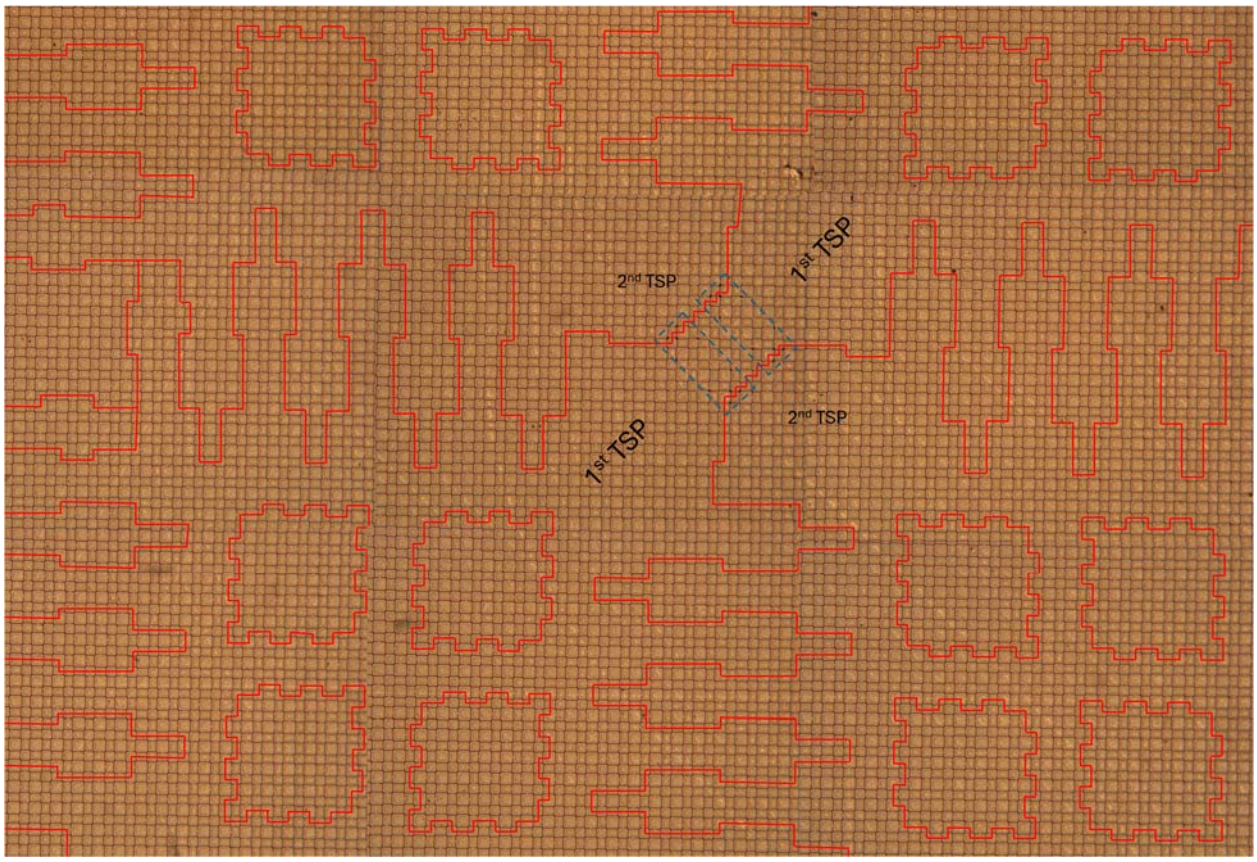

Figure 22

74. The BOE OLED Display panel has a touch sensing unit with a second conductive pattern that comprises "second touch sensor parts spaced from the first touch sensor parts." In the annotated image above (Fig. 22), second touch sensor parts ("2nd TSP") are identified.

75. The BOE OLED Display panel has a touch sensing unit with a second conductive pattern that comprises "first connection parts connecting respective ones of the first touch sensor parts." In the annotated image below (Fig. 23) (BOE OLED Display panel touch sensing unit), a set

of first connection parts ("1st Connection Parts") is identified, with each 1st Connection Part connecting respective ones of the first touch sensor parts ("1st TSP").

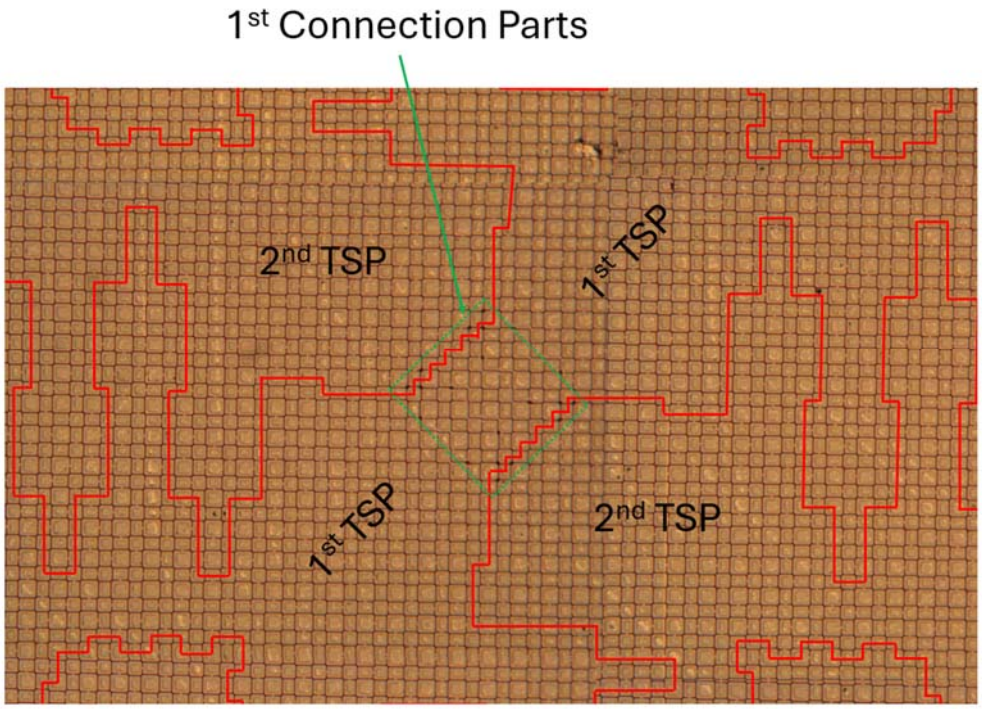

Figure 23

76. The BOE OLED Display panel has a touch sensing unit with a "first conductive pattern [that] comprises electrically conductive second connection parts connecting respective ones of the second touch sensor parts." In the annotated image below (Fig. 24) (cross-section of BOE OLED Display panel), the first conductive pattern comprises second connection parts connecting respective ones of the second touch sensor parts. As shown above in the EDS analysis of Figure 18, the second connection parts are electrically conductive.

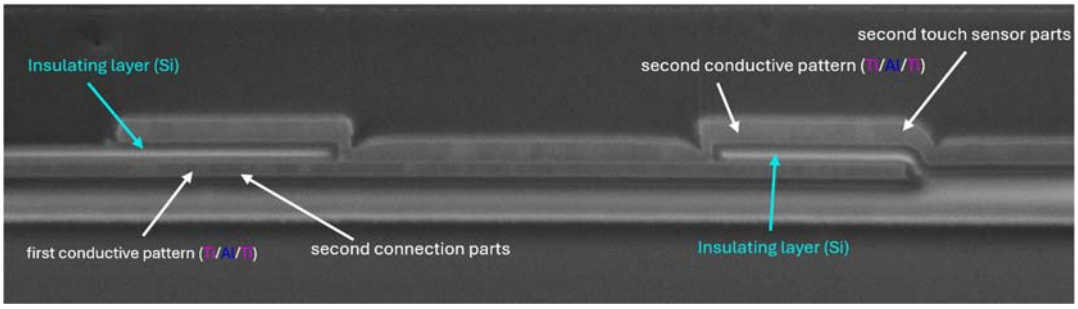

Figure 24

77. In addition, as shown in the annotated image below (Fig. 25) (BOE OLED Display panel touch sensing unit), the second connection parts ("2nd Connection Parts") connect respective ones of the second touch sensor parts ("2nd TSP").

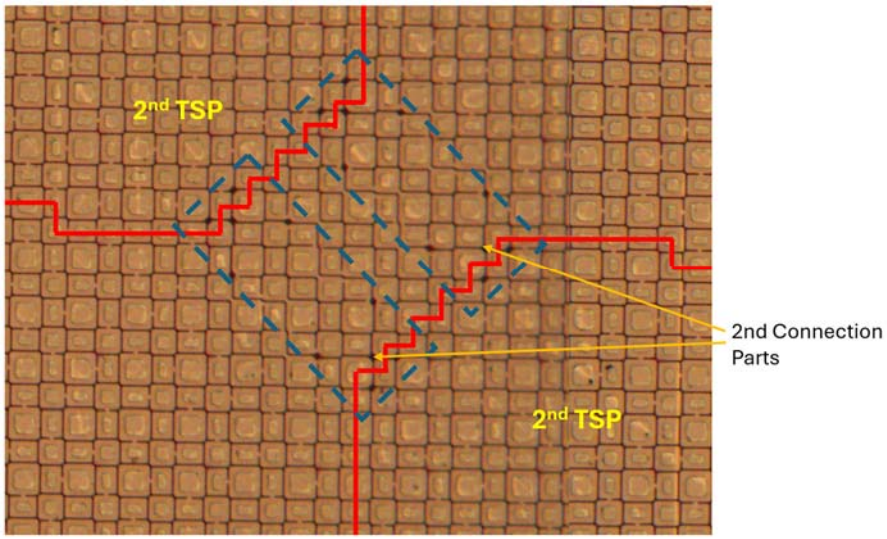

Figure 25

78. The BOE OLED Display panel has a touch sensing unit with a "second conductive pattern [that] has a thickness that is greater than a thickness of the second connection parts." In the annotated image below (Fig. 26) (cross-section of BOE OLED Display panel), the second conductive pattern and second connection parts are identified. As shown in Figure 26, the second conductive pattern has a thickness that is greater than the thickness of the second connection parts.

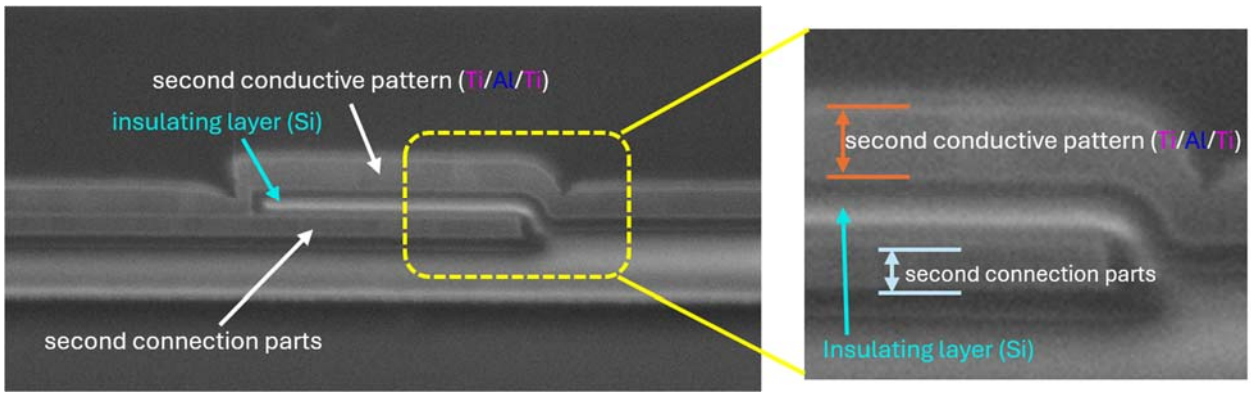

Figure 26

79. Upon information and belief, and as shown above in the example of a BOE OLED Display used in the Nubia Z60 Ultra product, the Accused Products meet every limitation of at least claim 1 of the '279 Patent.

80. 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 '279 Patent.

81. BOE has been aware of the '279 Patent at least as of May 2, 2022, when Samsung Display informed BOE that BOE infringed the '279 Patent.

82. Upon information and belief, BOE has induced infringement of the '279 Patent under 35 U.S.C. § 271(b) by knowingly and intentionally inducing others to directly infringe the '279 Patent. Despite having notice of the '279 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 '279 Patent by using, selling, and/or offering to sell in the United States, and/or importing into the United States, products containing infringing BOE OLED displays. BOE's OLED displays are specially designed to contain features that infringe the '279 Patent, and the Accused Products have no substantial uses other than ones that infringe the '279 Patent.

83. 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 '279 Patent. Upon information and belief, such steps by BOE include, among other things, making or selling the Accused Products, including BOE OLED Displays for at least the Nubia Z60

Ultra products, for importation into or sale in the United States, knowing that such importation or sale would occur. Indeed, Mianyang BOE has admitted in another recent proceeding that it manufactures and sells AMOLED screens that are imported into the United States. Upon information and belief, Mianyang BOE was thus aware that its infringing OLED displays would be imported into the US (and that use of the infringing OLED displays would infringe), yet it sold those displays to those customers anyway. Upon information and belief, BOE has engaged in these activities with knowledge of the ’279 Patent and knowledge that the induced acts constitute infringement. BOE’s inducement of infringement of the ’279 Patent is ongoing.

84. Upon information and belief, BOE has also contributorily infringed the ’279 Patent under 35 U.S.C. § 271(c) through its supply of infringing BOE OLED displays to customers that incorporate those OLED displays into other products, including at least 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 ’279 Patent. BOE has engaged in these activities despite having notice of the ’279 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 ’279 Patent. BOE’s contributory infringement of the ’279 Patent is ongoing.

85. 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 ’279 Patent and its infringement of the ’279 Patent since at least its receipt of Samsung Display’s May 2, 2022 notice letter specifically alleging that BOE infringes this patent, that BOE must immediately cease its unauthorized use of the patent, and that BOE must provide confirmation that it will in fact do so. Yet BOE has continued its infringing activities.

COUNT III – INFRINGEMENT OF U.S. PATENT NO. 11,500,496

86. Samsung Display hereby incorporates the allegations of Paragraphs 1 through 85 as fully set forth herein.

87. Upon information and belief, Defendants have infringed and continue to directly infringe the ’496 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.

88. Independent claim 1 of the ’496 Patent recites:

1. A display device comprising:

a display panel, the display panel comprising:

a base layer;

a circuit layer on the base layer;

an organic light emitting device layer on the circuit layer, and the organic light emitting device layer comprising:

a plurality of first light emitting areas to emit red light;

a plurality of second light emitting areas to emit green light; and

a plurality of third light emitting areas to emit blue light,

wherein, viewed in a plan view, the second light emitting areas are a different size than at least one of the first light emitting areas and the third light emitting areas;

a thin film encapsulation layer on the organic light emitting device layer, the thin film encapsulation layer comprising an inorganic layer and an organic layer; and

a touch sensing unit on the display panel, the touch sensing unit comprising:

a first conductive pattern formed directly on a surface of the display panel;

an insulating layer covering the first conductive pattern; and

a second conductive pattern on the insulating layer, and having a thickness above the first conductive pattern in a thickness direction of the display device that is greater than a thickness of the first conductive pattern in the thickness direction of the display device, the second conductive pattern comprising:

first touch sensor parts comprising a plurality of metal mesh lines defining a plurality of mesh holes;

second touch sensor parts comprising a plurality of metal mesh lines defining a plurality of mesh holes; and

first connection parts connecting respective ones of the first touch sensor parts,

wherein, viewed in a plan view, at least one of the plurality of first light emitting areas, at least one of the plurality of second light emitting areas, or at least one of the plurality of third light emitting areas is located within a mesh hole defined by first touch sensor parts such that the metal mesh lines of the first touch sensor parts do not overlap the light emitting areas, and at least one of the plurality of first light emitting areas, at least one of the plurality of second light emitting areas, or at least one of the plurality of third light emitting areas is located within a mesh hole defined by second touch sensor parts such that the metal mesh lines of the second touch sensor parts do not overlap the light emitting area,

wherein the first conductive pattern comprises electrically conductive second connection parts connecting respective ones of the second touch sensor parts, and

wherein a conductive contact hole through the insulating layer connects respective ones of the second connection parts and the second touch sensor parts.

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

90. For example, the images below (Figures 27–29) 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 27

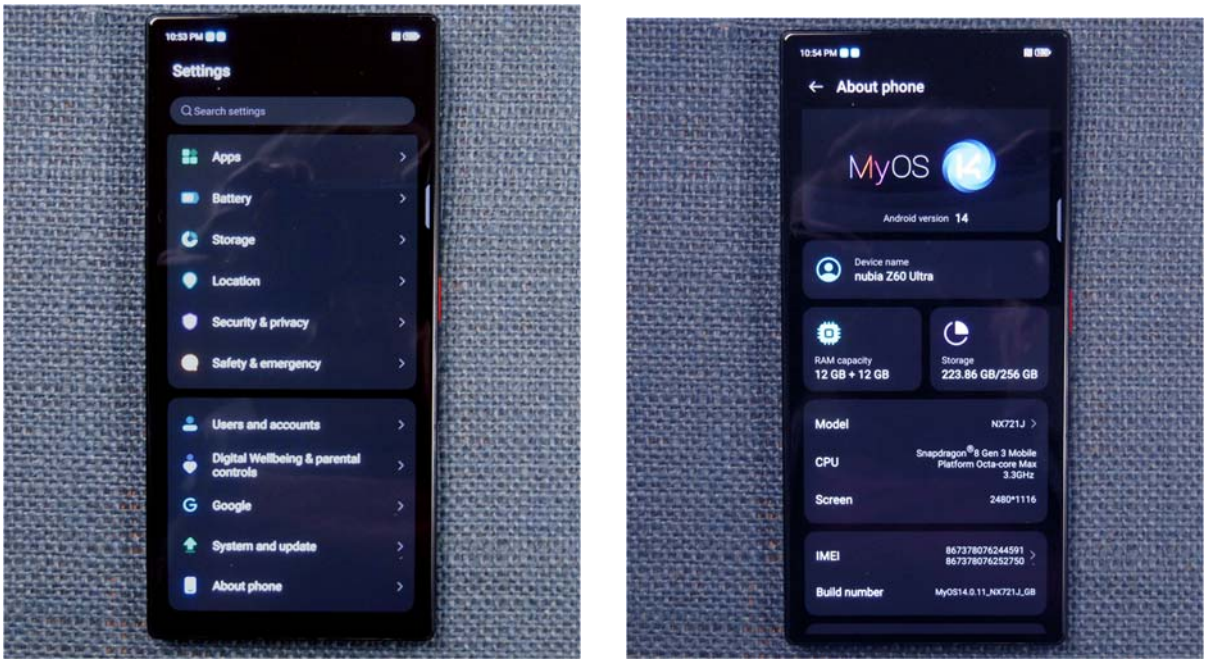

Figure 28

Figure 29

91. The BOE OLED Display is a "display device" that comprises a "display panel." The BOE OLED Display panel is mounted within the Nubia Z60 Ultra chassis and is located behind a glass panel, and in the image below (Fig. 30), the display panel can be seen.

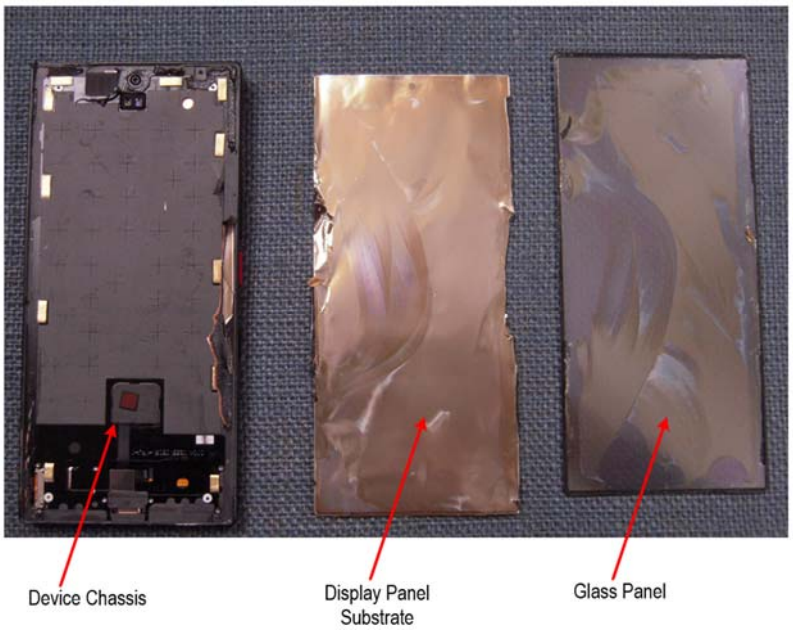

Figure 30

92. The BOE OLED Display panel has "a base layer" and "a circuit layer on the base layer." In the annotated image below (Fig. 31), a base layer and a circuit layer are identified, and the circuit layer is located on top of the base layer.

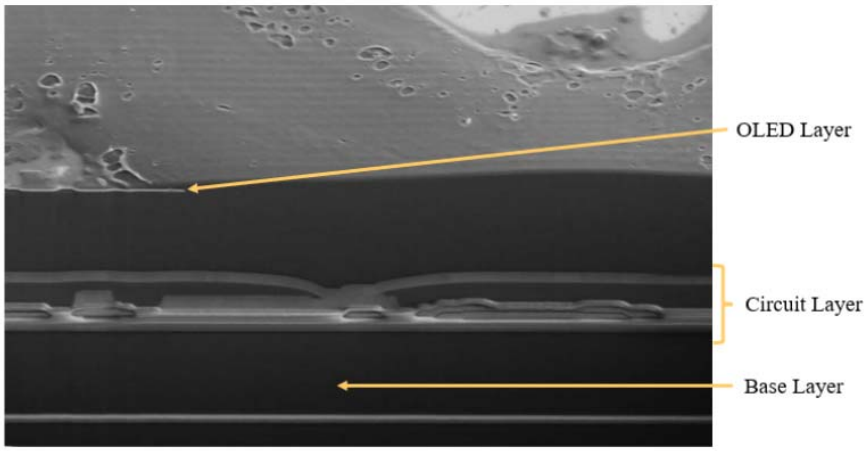

Figure 31

93. The BOE OLED Display panel has "an organic light emitting device layer on the circuit layer." In the annotated image below (Fig. 32) (cross-section of BOE OLED Display panel), the light emitting device layer is identified, along with the circuit layer. As shown in Figure 32, the organic light emitting device layer is on the circuit layer.

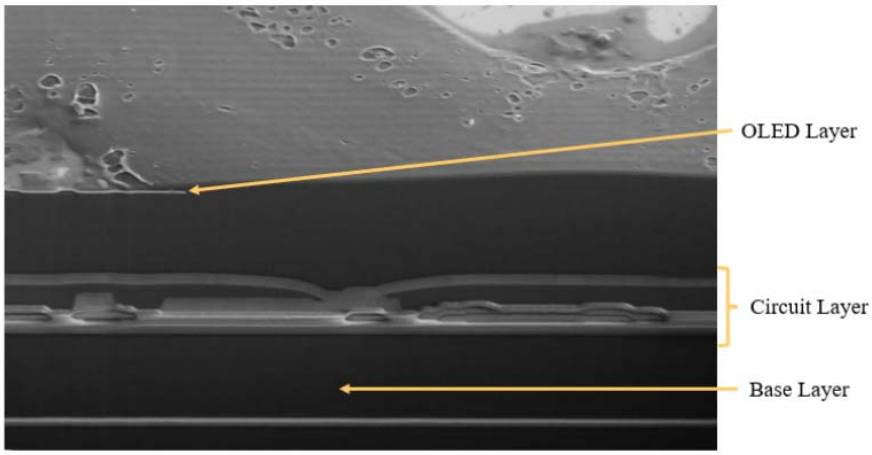

Figure 32

94. "The organic light emitting device layer" in the BOE OLED Display panel comprises "a plurality of first light emitting areas to emit red light; a plurality of second light emitting areas to emit green light; and a plurality of third light emitting areas to emit blue light." As shown in the annotated image below (Fig. 33), the organic light emitting device layer contains first light emitting areas that emit red light, second light emitting areas that emit green light, and third light emitting areas that emit blue light.

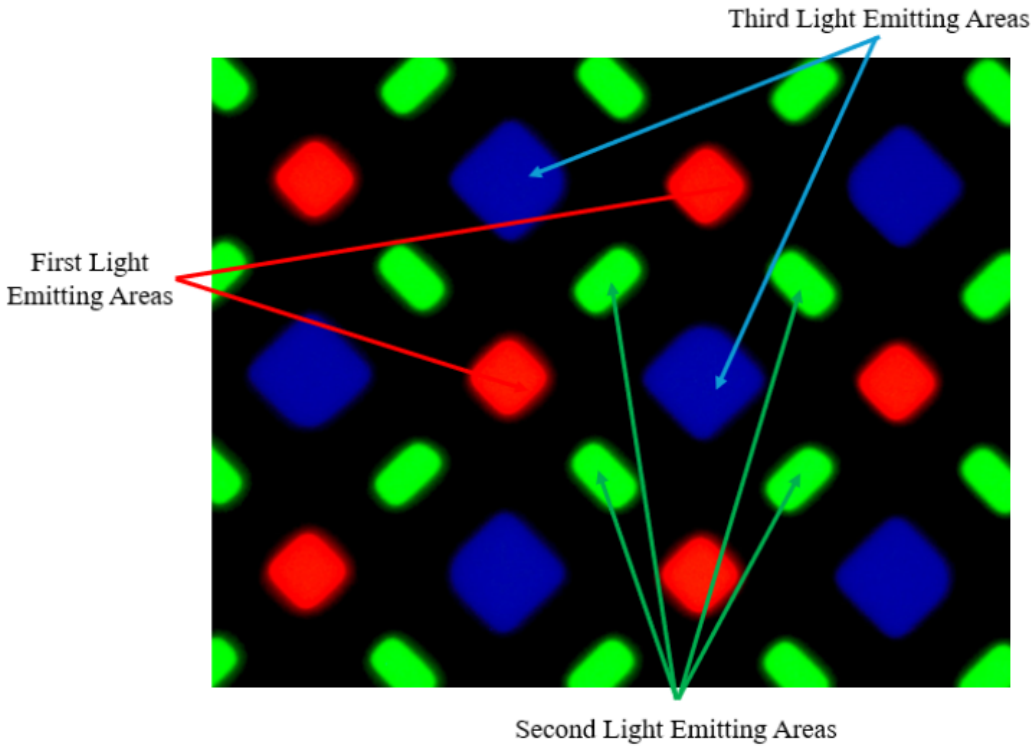

Figure 33

95. In the BOE OLED Display panel, "the second light emitting areas are a different size than at least one of the first light emitting areas and the third light emitting areas" when "viewed in a plan view." As shown in Figure 33 above, the second light emitting areas are a different size than the first light emitting areas and the third light emitting areas.

96. The BOE OLED Display panel contains a "thin film encapsulation layer on the organic light emitting device layer." As shown in the annotated image below (Fig. 34), a thin film

encapsulation layer and an organic light emitting device layer are identified, and the thin film encapsulation layer is located on top of the organic light emitting device layer when the display is assembled.

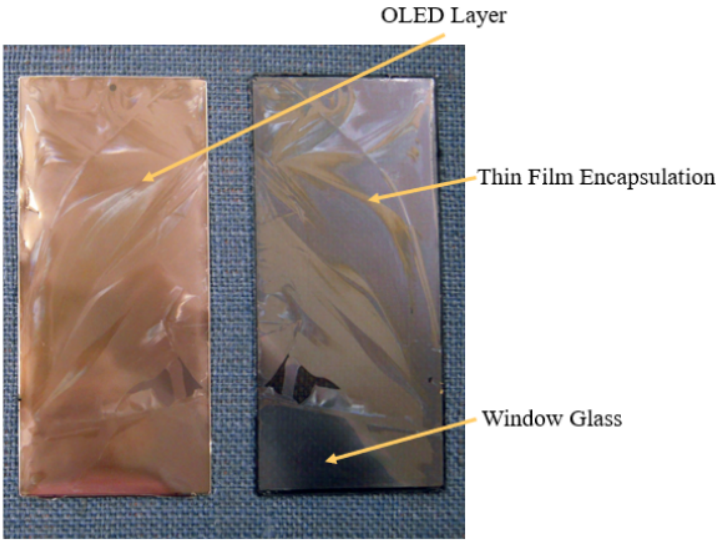

Figure 34

97. The thin film encapsulation layer in the BOE OLED Display panel comprises "an inorganic layer and an organic layer." As shown in the annotated image below (Fig. 35) (cross-section EDS analysis of BOE OLED Display), the thin film encapsulation layer contains at least a layer of silicon (Si), which is inorganic, and at least layer of carbon (C), which is organic.

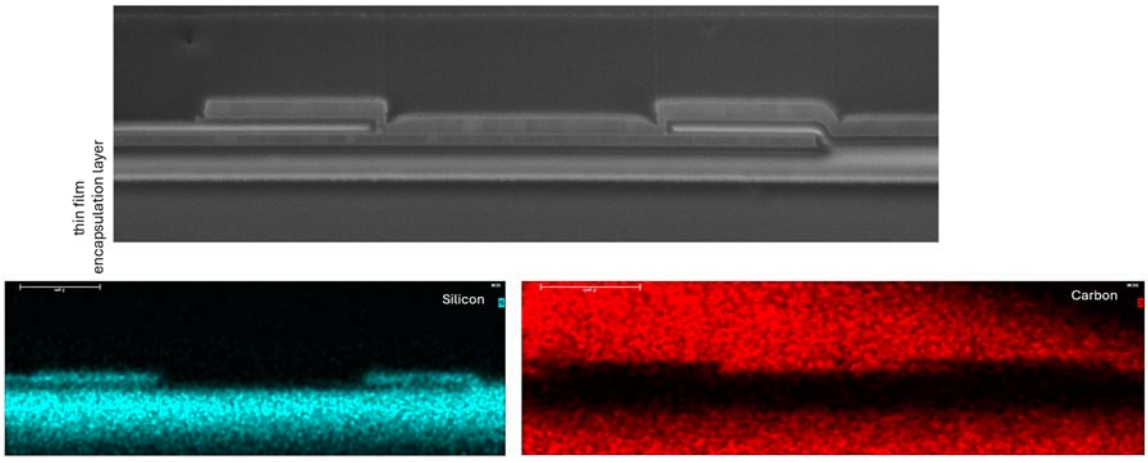

Figure 35

98. The BOE OLED Display panel contains a "touch sensing unit on the display panel." As shown in the annotated image below (Fig. 36), a touch sensing unit and a display panel are identified, and the touch sensing unit is located on top of the display panel when the display is assembled.

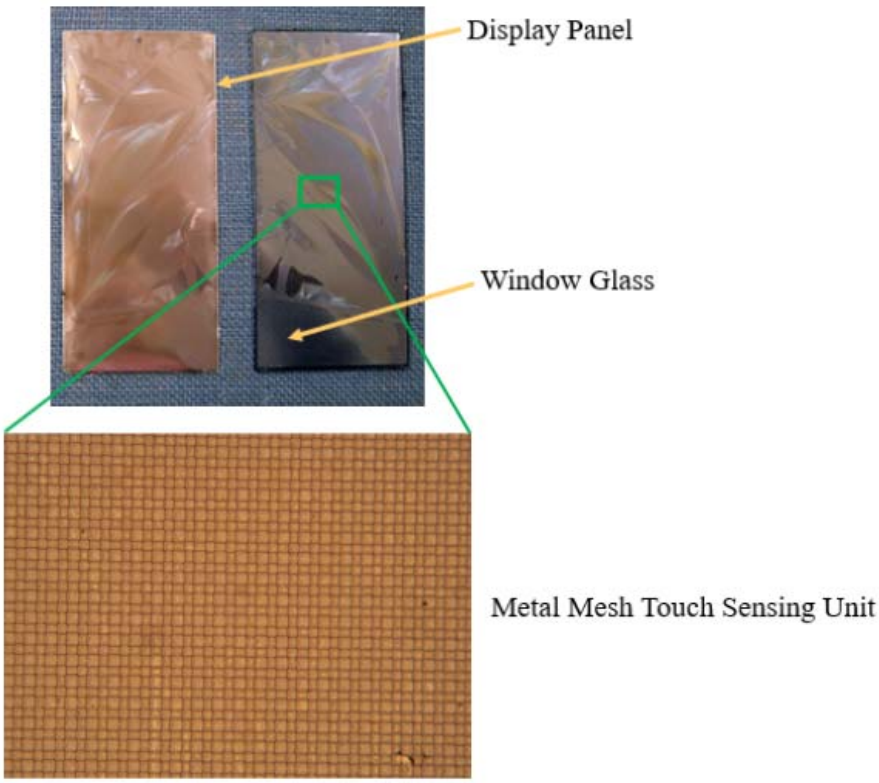

Figure 36

99. The touch sensing unit of the BOE OLED Display panel contains "a first conductive pattern formed directly on a surface of the display panel; an insulating layer covering the first conductive pattern; and a second conductive pattern on the insulating layer." In Figure 37 below (BOE OLED Display panel touch sensing unit), a first conductive pattern and a second conductive pattern are identified on the touch sensing unit. And as shown in Figure 38 below (cross-section EDS analysis of BOE OLED Display panel), the first conductive pattern (containing titanium (Ti) and aluminum (Al), both conductive materials) is formed directly on a surface of the display panel; the

insulating layer (containing silicon (Si)) covers the first conductive pattern; and the second conductive pattern (containing titanium (Ti) and aluminum (Al), both conductive materials) is located on top of the insulating layer.

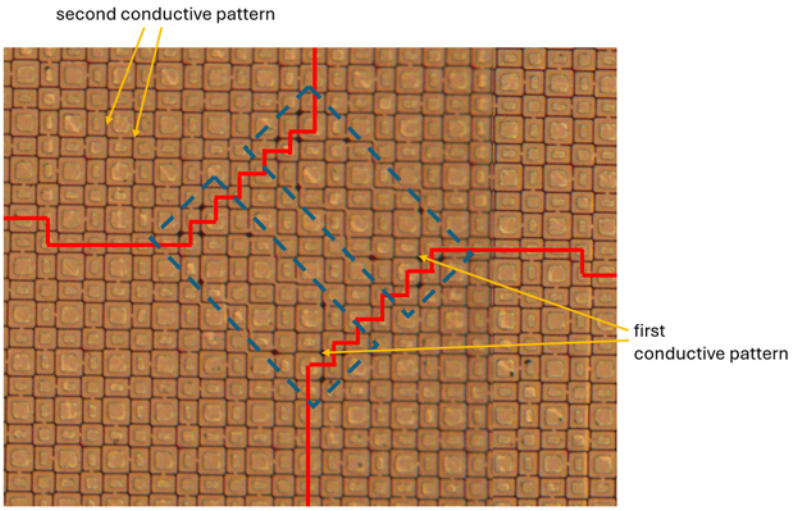

Figure 37

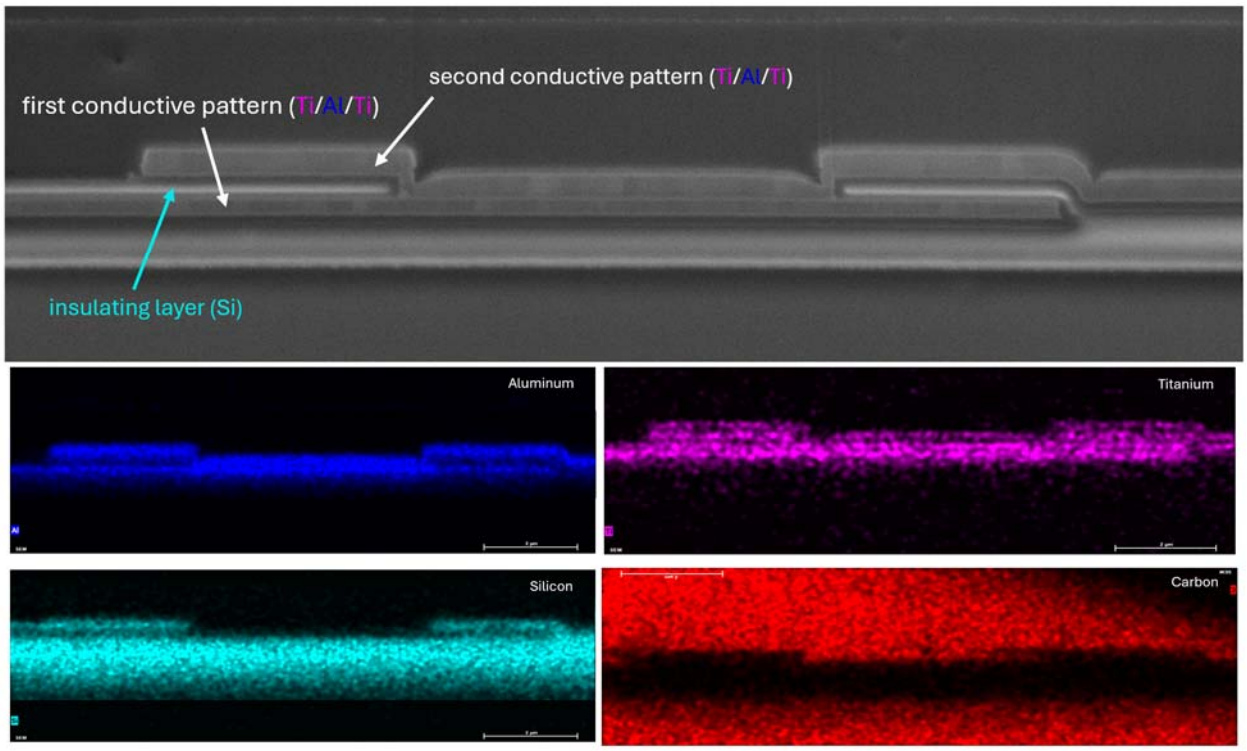

Figure 38

100. The BOE OLED Display panel contains a second conductive pattern "having a thickness above the first conductive pattern in a thickness direction of the display device that is greater than a thickness of the first conductive pattern in the thickness direction of the display device." As shown below in Figure 39 (cross-section of BOE OLED Display panel), the second conductive pattern has a thickness that is greater along the thickness direction of the display device than the thickness of the first conductive pattern.

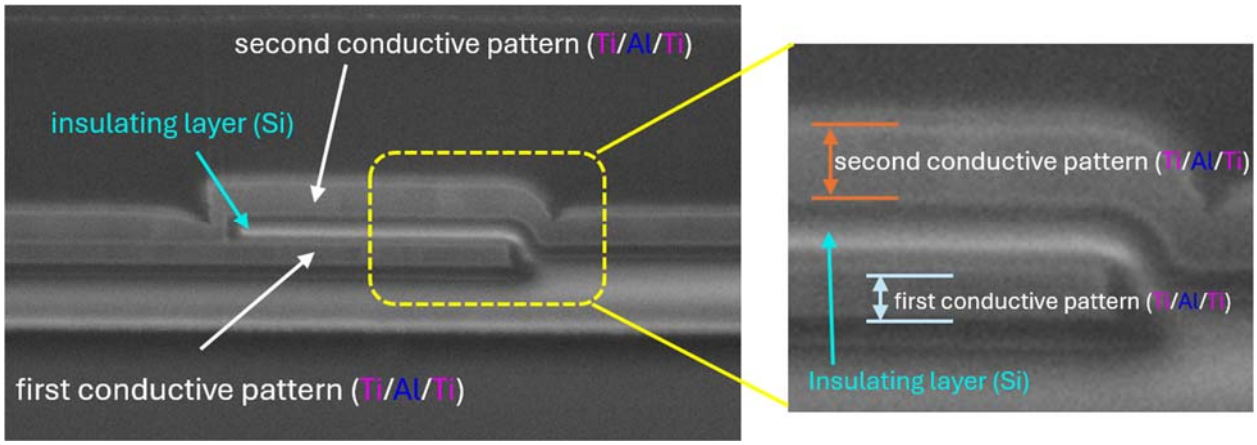

Figure 39

101. The second conductive pattern in the BOE OLED Display panel also comprises "first touch sensor parts comprising a plurality of metal mesh lines defining a plurality of mesh holes; second touch sensor parts comprising a plurality of metal mesh lines defining a plurality of mesh holes; and first connection parts connecting respective ones of the first touch sensor parts." As shown below in Figure 40 (BOE OLED Display panel touch sensing unit), the second conductive pattern contains first touch sensing parts ("1st TSP") and second touch sensing parts ("2nd TSP"), with first connection parts ("1st Connection Parts") that connect two individual first touch sensing parts. In addition, as shown in Figure 41 (BOE OLED Display panel touch sensing unit), the first touch sensor parts and second touch sensor parts contain metal mesh lines that define metal mesh holes.

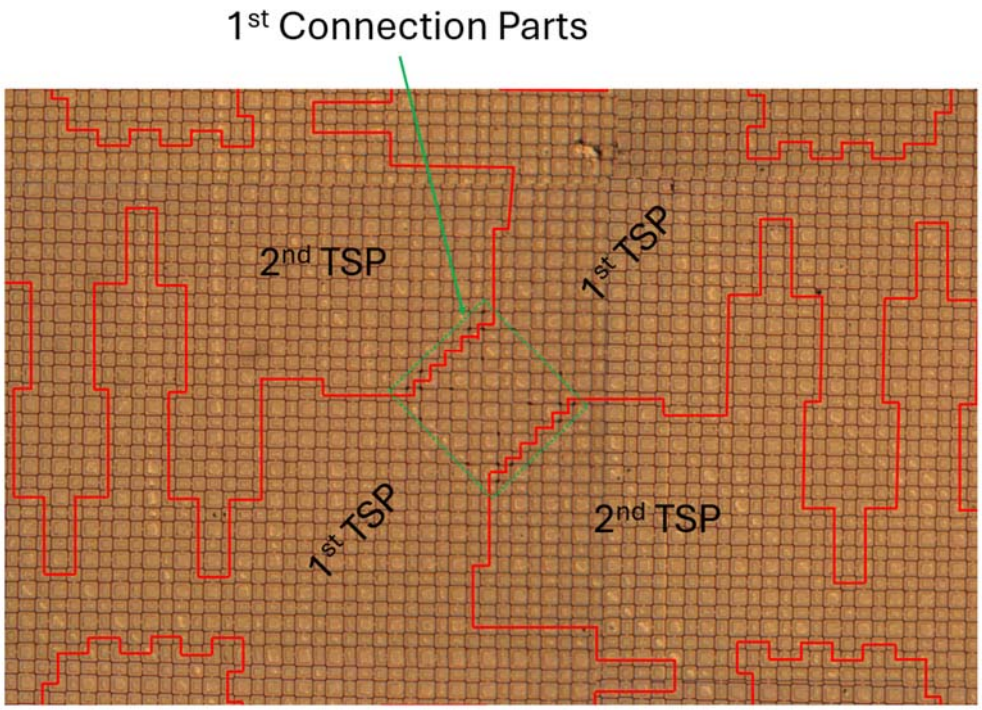

Figure 40

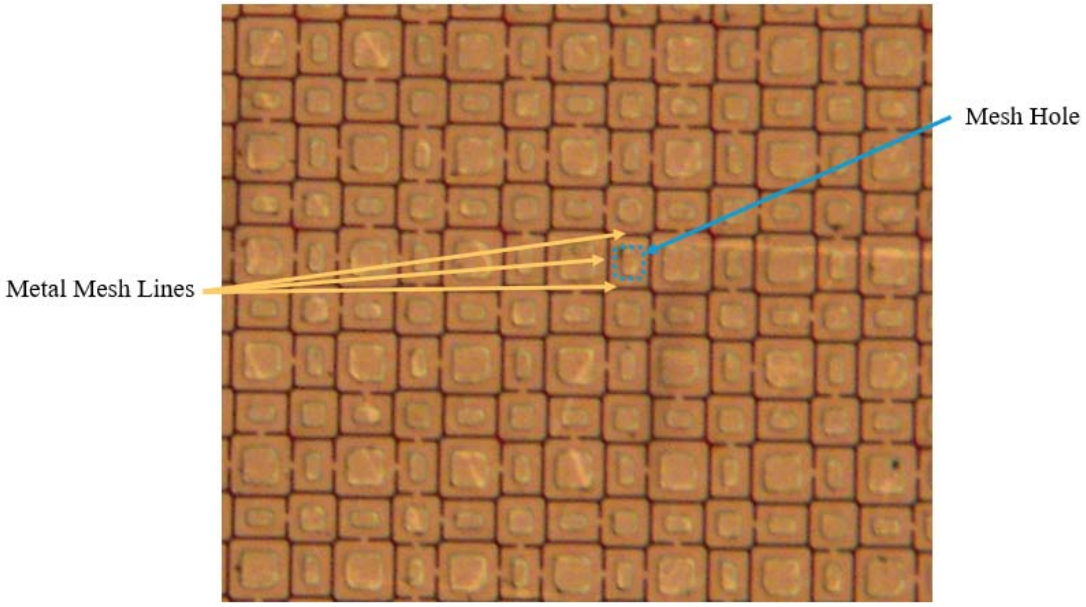

Figure 41

102. In the BOE OLED Display panel, "at least one of the plurality of first light emitting areas, at least one of the plurality of second light emitting areas, or at least one of the plurality of

third light emitting areas is located within a mesh hole defined by first touch sensor parts such that the metal mesh lines of the first touch sensor parts do not overlap the light emitting areas," when "viewed in a plan view." As shown in the annotated figure below (Fig. 42), the metal mesh lines of the touch sensor create mesh holes, and the light emitting areas are located within the mesh holes and do not overlap with the metal mesh lines throughout the touch sensor, such that a metal mesh hole defined by first touch sensor parts creates a mesh hole that surrounds a light emitting area and the metal mesh lines of the first touch sensor parts do not overlap with the light emitting area.

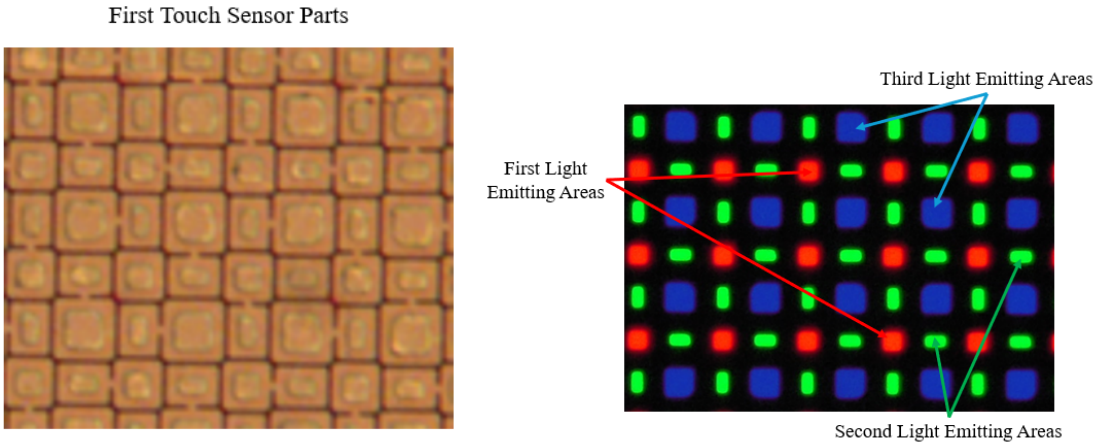

Figure 42

103. In the BOE OLED Display panel, "at least one of the plurality of first light emitting areas, at least one of the plurality of second light emitting areas, or at least one of the plurality of third light emitting areas is located within a mesh hole defined by second touch sensor parts such that the metal mesh lines of the second touch sensor parts do not overlap the light emitting area," when viewed in a plan view. As shown in the annotated figures below (Fig. 43), the metal mesh lines of the touch sensor create mesh holes, and the light emitting areas are located within the mesh holes and do not overlap with the metal mesh lines throughout the touch sensor, such that a metal mesh hole defined by second touch sensor parts creates a mesh hole that surrounds a light emitting area and the metal mesh lines of the second touch sensor parts do not overlap with the light emitting area.

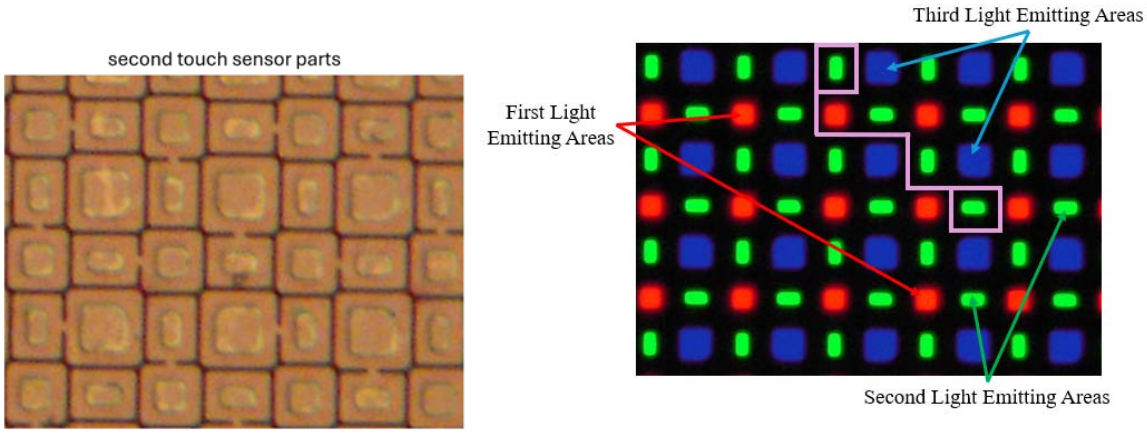

Figure 43

104. In the BOE OLED Display panel, "the first conductive pattern comprises electrically conductive second connection parts connecting respective ones of the second touch sensor parts." As shown in the annotated image below (Fig. 44) (cross-section of BOE OLED Display panel), the first conductive pattern comprises second connection parts. As shown in the EDS analysis of Figure 38 above, the second connection parts contain titanium (Ti) and aluminum (Al) and are electrically conductive.

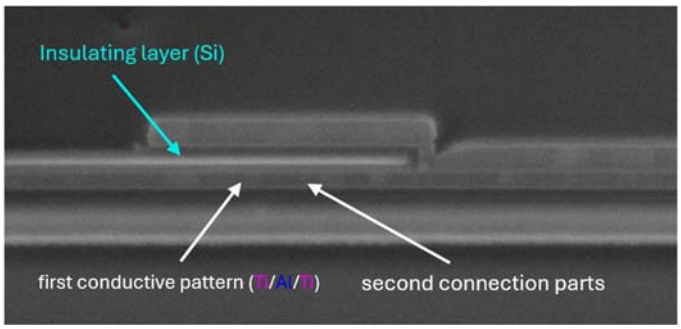

Figure 44

105. In addition, as shown in the annotated images below (Fig. 45) (BOE OLED Display panel touch sensing unit), the second connection parts ("2nd Connection Parts") connect respective ones of the second touch sensor parts ("2nd TSP").

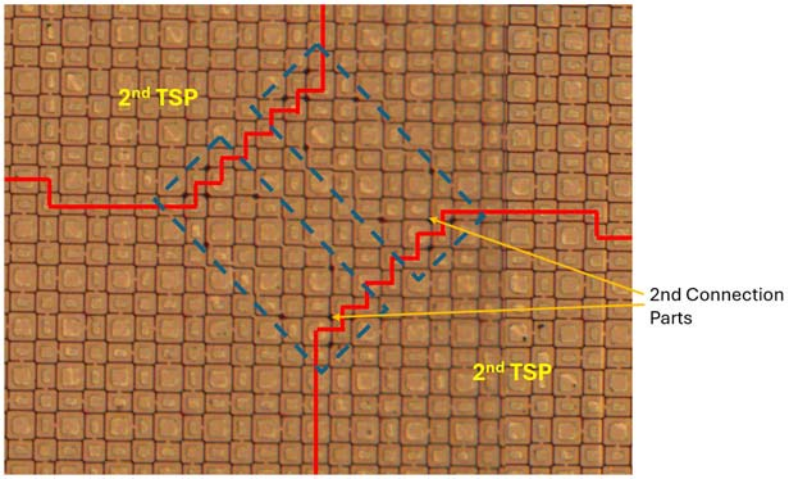

Figure 45

106. In the BOE OLED Display panel, "a conductive contact hole through the insulating layer connects respective ones of the second connection parts and the second touch sensor parts." As shown in the annotated images below (Fig. 46) (cross-section EDS analysis of BOE OLED Display panel), the BOE OLED Display has a conductive contact hole (containing conductive titanium (Ti) and aluminum (Al)) through the insulating layer that connects the second connection parts and the second touch sensor parts.

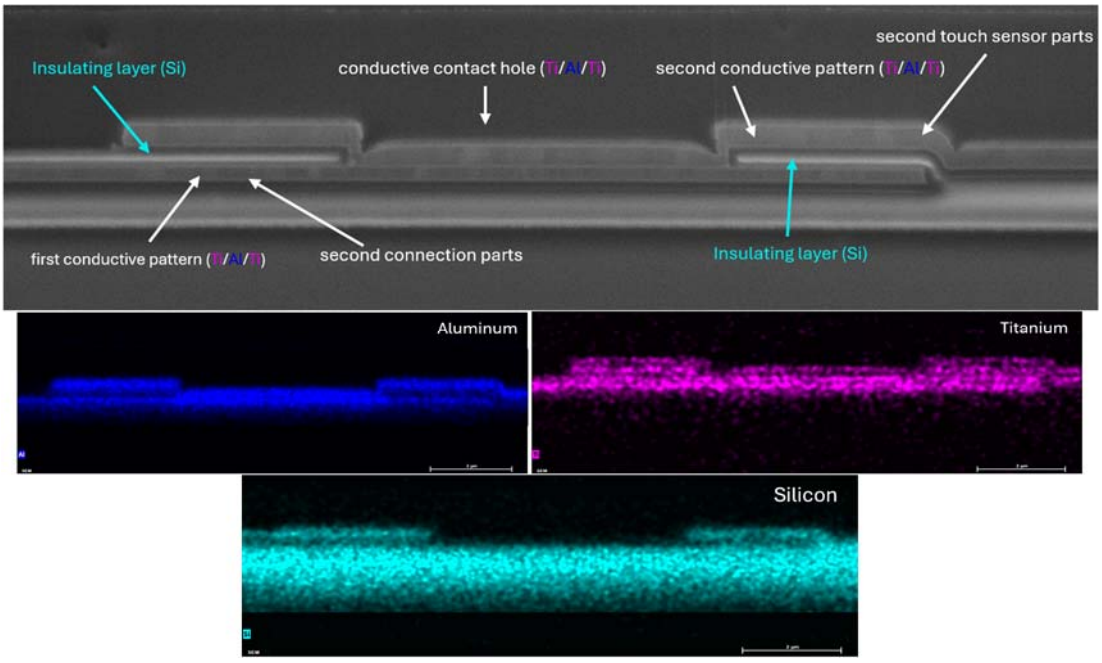

Figure 46

107. Upon information and belief, and as shown above in the example of a BOE OLED Display used in the Nubia Z60 Ultra product, the Accused Products meet every limitation of at least claim 1 of the '496 Patent.

108. 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 '496 Patent.

109. Upon information and belief, BOE has induced infringement of the '496 Patent under 35 U.S.C. § 271(b) by knowingly and intentionally inducing others to directly infringe the '496 Patent. Upon information and belief, BOE has had notice of the '496 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 '496 Patent by using, selling, and/or offering to sell in the United States, and/or importing into the United States, products containing infringing BOE OLED displays. BOE's OLED displays are specially designed to contain features that infringe the '496 Patent and the Accused Products have no substantial uses other than ones that infringe the '496 Patent.

110. 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 '496 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, Mianyang BOE has admitted in another recent proceeding that it manufactures and sells AMOLED screens that are imported into the United States. Upon information and belief,

Mianyang BOE was thus aware that its infringing OLED displays would be imported into the US (and that use of the infringing OLED displays would infringe), yet it sold those displays to those customers anyway. Upon information and belief, BOE has engaged in these activities with knowledge of the '496 Patent and knowledge that the induced acts constitute infringement. BOE's inducement of infringement of the '496 Patent is ongoing.

111. Upon information and belief, BOE has also contributorily infringed the '496 Patent under 35 U.S.C. § 271(c) through its supply of infringing BOE OLED displays to customers that incorporate those OLED displays into other products, including at least 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 '496 Patent. BOE has engaged in these activities despite having notice of the '496 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 '496 Patent. BOE's contributory infringement of the '496 Patent is ongoing.

112. 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 '496 Patent and its infringement of the '496 Patent since at least the issuance of the '496 Patent and yet has continued its infringing activities.

COUNT IV – INFRINGEMENT OF U.S. PATENT NO. 11,626,066

113. Samsung Display hereby incorporates the allegations of Paragraphs 1 through 112 as fully set forth herein.

114. Upon information and belief, Defendants have infringed and continue to directly infringe the '066 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.

115. Independent claim 1 of the ’066 Patent recites:

1. An organic light emitting diode (OLED) display, comprising:

a plurality of individually addressable pixels for displaying an image, the individually addressable pixels being minimum addressable units of the OLED display and comprising:

a plurality of red pixels comprising an organic emission layer for emitting red light;

a plurality of blue pixels comprising an organic emission layer for emitting blue light; and

a plurality of green pixels comprising an organic emission layer for emitting green light,

wherein the OLED display comprises a pixel defining layer defining areas of the plurality of red pixels, the plurality of blue pixels, and the plurality of green pixels,

wherein each of the plurality of red pixels, the plurality of blue pixels, and the plurality of green pixels are spaced apart from each other,

wherein a first green pixel of the plurality of green pixels has a center coinciding with a center of a virtual square, each vertex of the virtual square coinciding with a center of a different one of the plurality of green pixels and each edge of the virtual square overlapping three consecutive green pixels,

wherein at least two blue pixels of the plurality of blue pixels and at least two red pixels of the plurality of red pixels are located entirely within boundaries of the virtual square,

wherein each of the at least two blue pixels has a larger area than each of the at least two red pixels,

wherein each of the at least two blue pixels has a larger area than that of the first green pixel,

wherein the first green pixel has a convex shape such that a line bisecting the first green pixel along a long axis thereof has a greater length than a line bisecting the first green pixel along a short axis thereof, and

wherein a shortest distance between two nearest ones of the plurality of green pixels is greater than a width of a first red pixel of the plurality of red pixels along a first direction parallel to the short axis of the first green pixel.

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

117. For example, the images below (Figures 47–49) 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 47

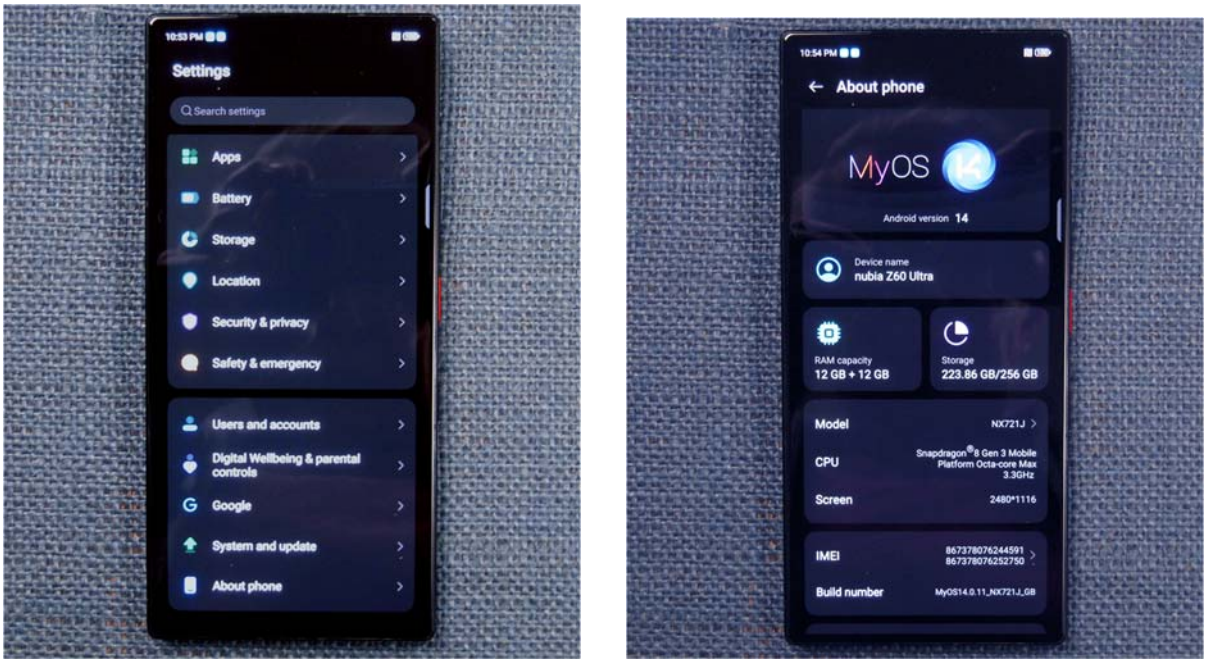

Figure 48

Figure 49

118. The BOE OLED Display is an "organic light emitting diode (OLED) display." It comprises a substrate that supports the OLED pixel elements 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 Nubia Z60 Ultra chassis. The display panel substrate is located behind a glass panel, and in the image below (Fig. 50), the display panel substrate can be seen.

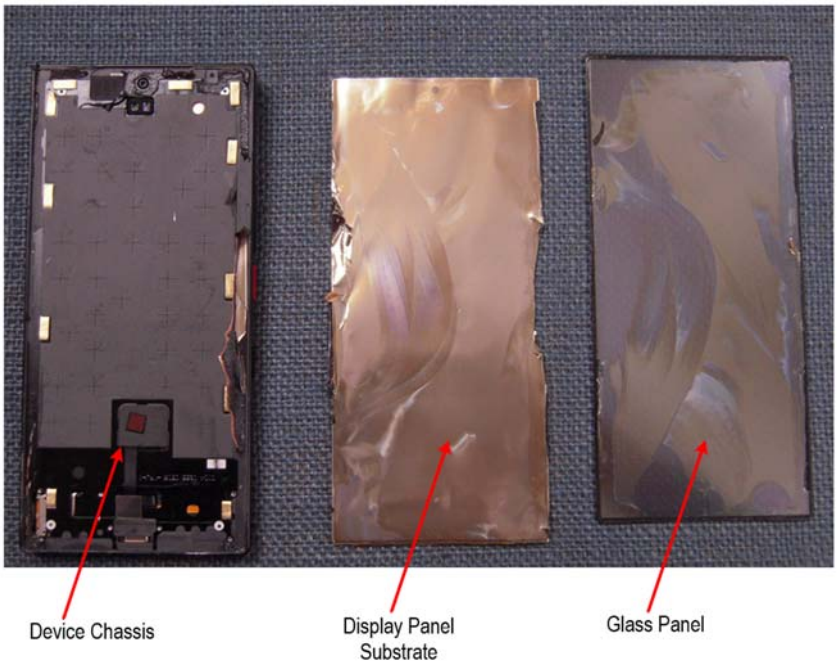

Figure 50

119. The BOE OLED Display comprises "a plurality of individually addressable pixels for displaying an image, the individually addressable pixels being minimum addressable units of the OLED display." As shown in the annotated image below (Fig. 51), the BOE OLED Display has a plurality of pixels for displaying images. In addition, as shown in Figure 52, the pixel circuits corresponding to the pixels are aligned in rows and columns, with a data line (Dm) corresponding to each column and a scan line (Sn) corresponding to each row.

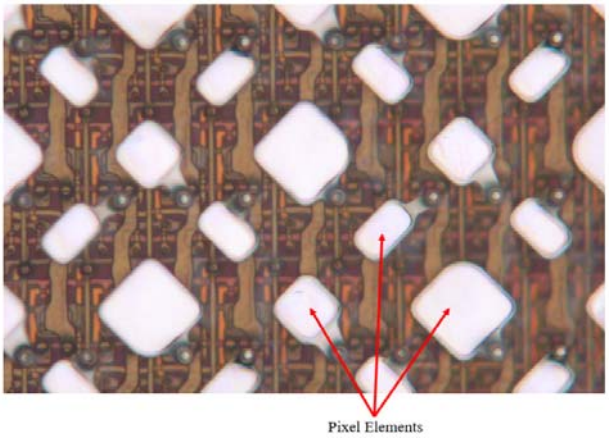

Figure 51

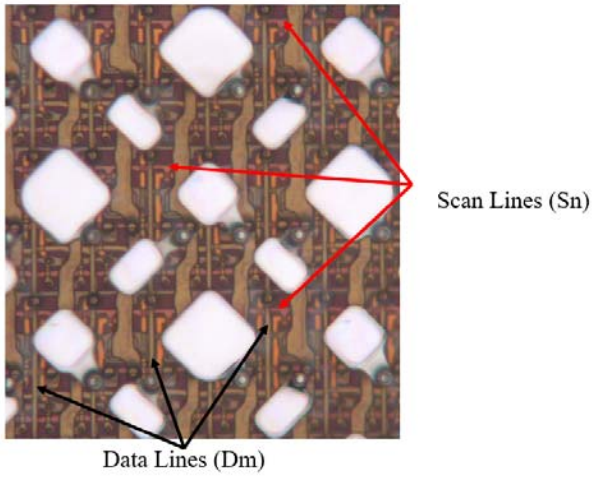

Figure 52

In addition, as shown in the annotated image below (Fig. 53), each pixel circuit includes multiple transistors, including a switching transistor (T2), for addressing the pixel. The use of switching transistors in combination with data lines and scan lines allows each pixel to be individually addressed. The individually addressable pixels are the minimum addressable units of the OLED.

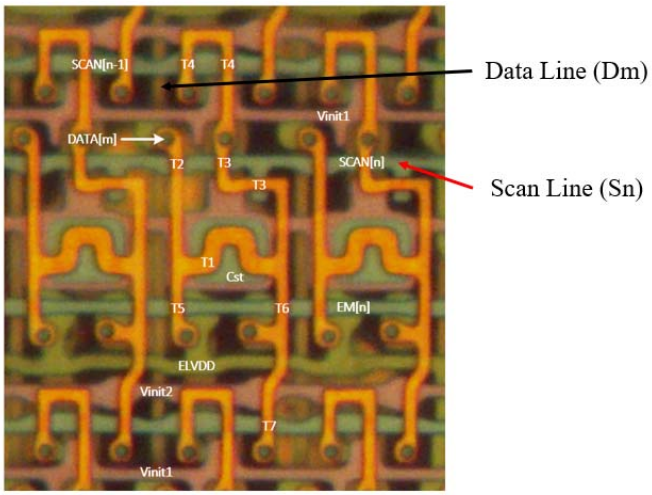

Figure 53

120. The pixels of the BOE OLED Display comprise "a plurality of red pixels comprising an organic emission layer for emitting red light; a plurality of blue pixels comprising an organic emission layer for emitting blue light; and a plurality of green pixels comprising an organic emission layer for emitting green light." As shown in the annotated figure below (Fig. 54), the BOE OLED Display contains multiple red pixels for emitting red light, multiple blue pixels for emitting blue light, and multiple green pixels for emitting green light.

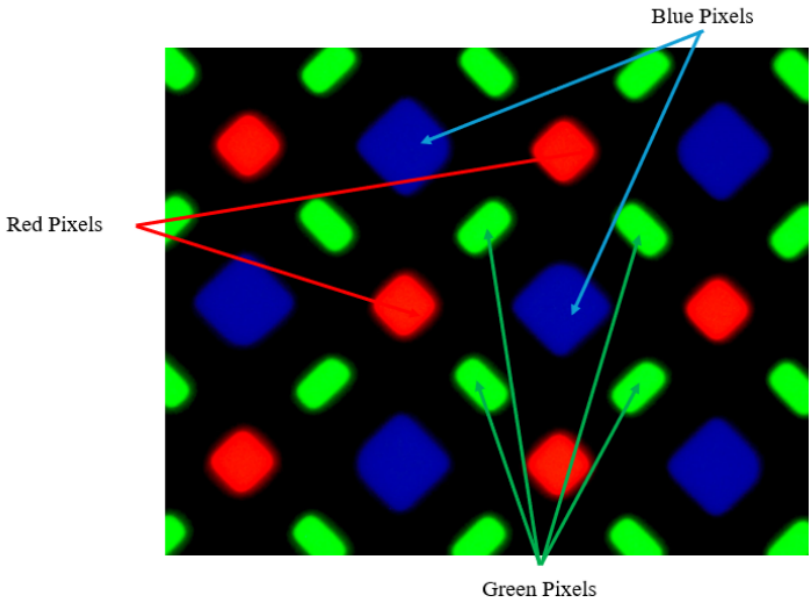

Figure 54

121. In addition, as shown in Figures 55 and 56 below, each pixel comprises an organic emission layer for emitting each pixel's respective color of light.

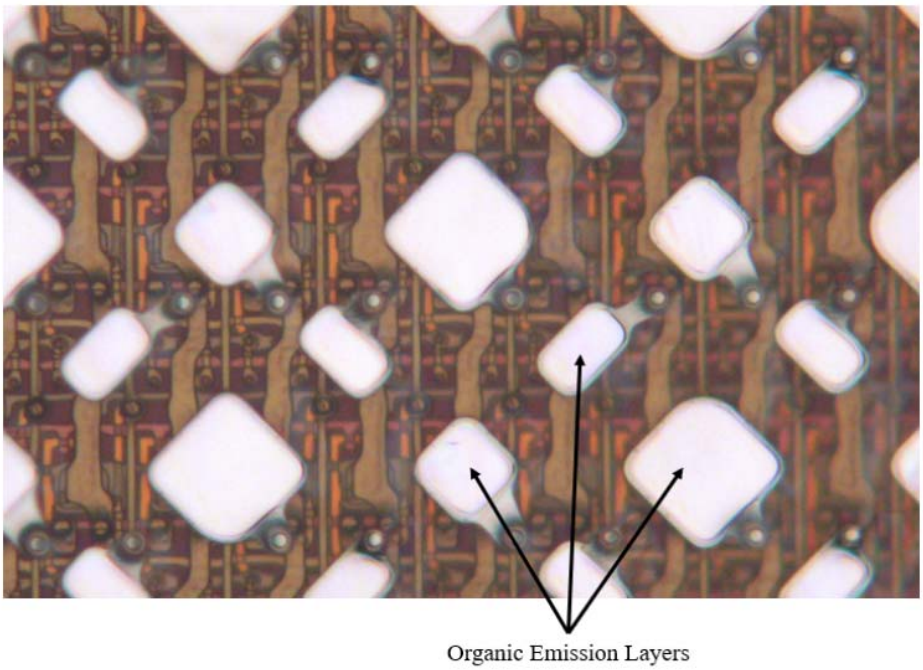

Figure 55

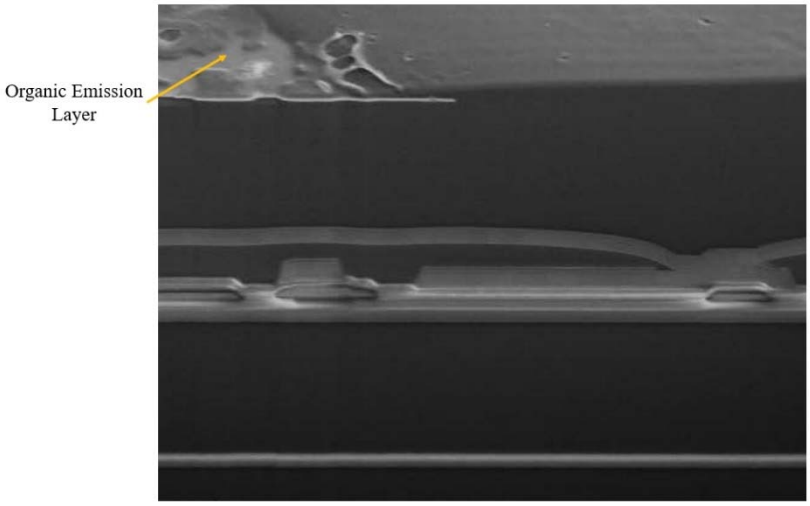

Figure 56

122. The BOE OLED Display comprises "a pixel defining layer defining areas of the plurality of red pixels, the plurality of blue pixels, and the plurality of green pixels." As shown in the annotated figures below (Fig. 57 and 58), the BOE OLED Display contains a pixel defining layer that defines the areas of the pixels.

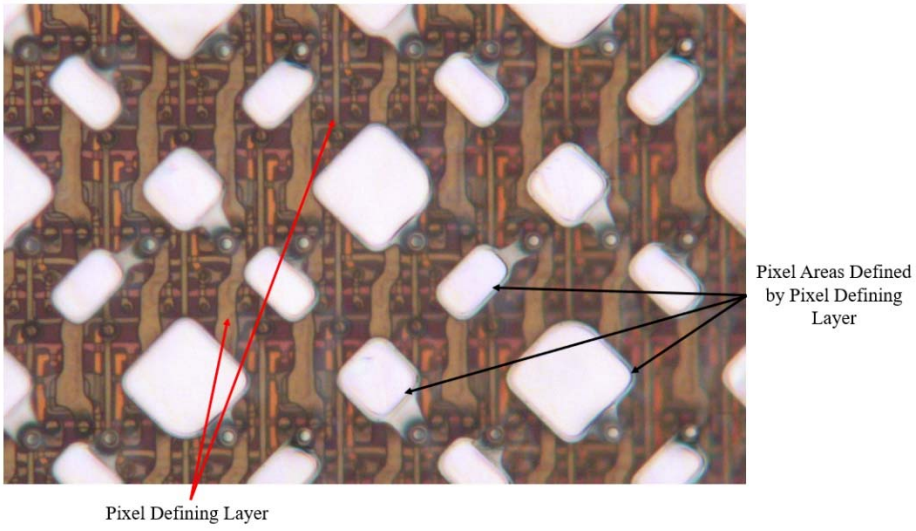

Figure 57

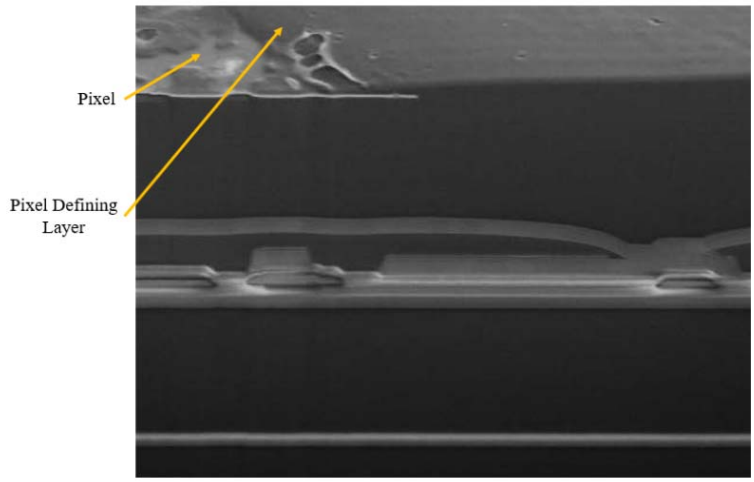

Figure 58

123. In the BOE OLED Display, "each of the plurality of red pixels, the plurality of blue pixels, and the plurality of green pixels are spaced apart from each other." For example, in the annotated figure below (Fig. 59), the BOE OLED Display contains pixels that are spaced apart from each other.

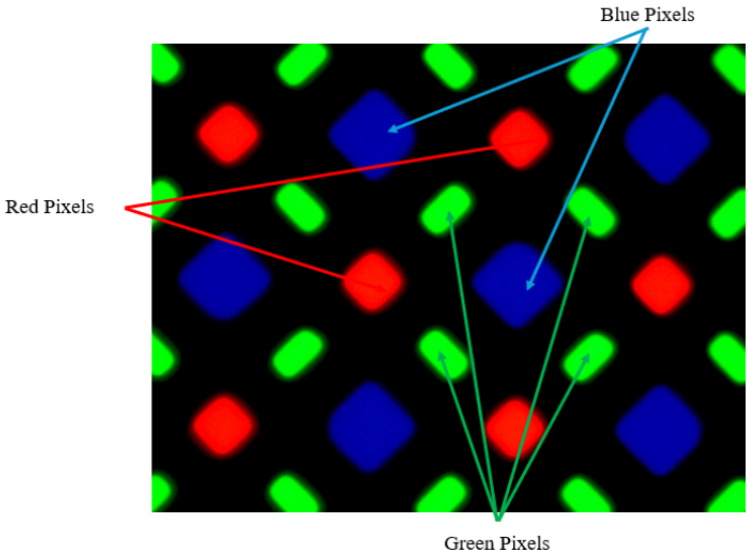

Figure 59

124. In the BOE OLED Display, "a first green pixel of the plurality of green pixels has a center coinciding with a center of a virtual square, each vertex of the virtual square coinciding with a center of a different one of the plurality of green pixels and each edge of the virtual square overlapping three consecutive green pixels." For example, in the annotated figure below (Fig. 60), the BOE OLED Display contains a green pixel whose center is at the center of a virtual square, with the vertices of the virtual square at the centers of different green pixels and each edge of the virtual square overlapping three green pixels.

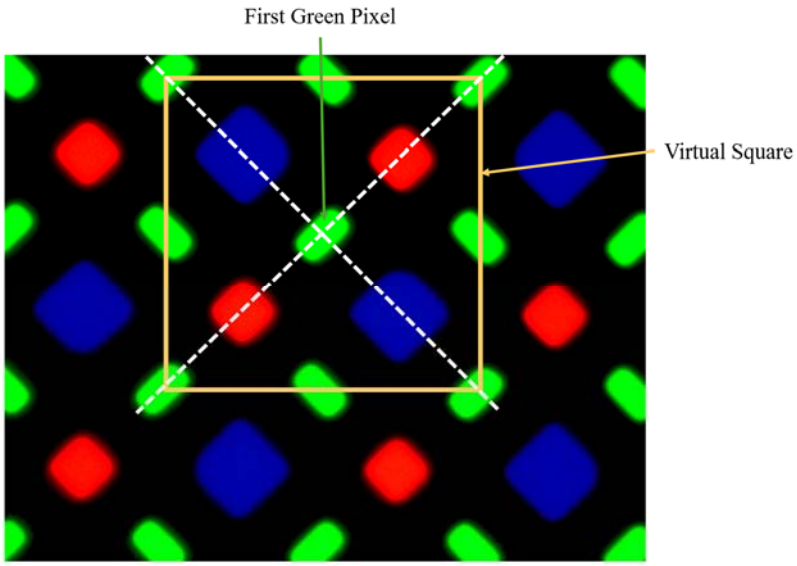

Figure 60

125. In the BOE OLED Display, "at least two blue pixels of the plurality of blue pixels and at least two red pixels of the plurality of red pixels are located entirely within boundaries of the virtual square." For example, in the annotated figure below (Fig. 61), two red pixels and two blue pixels are entirely within the virtual square.

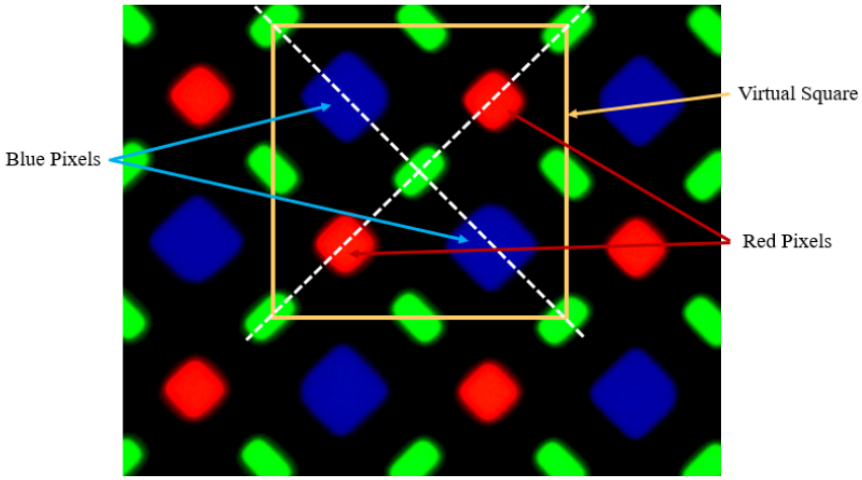

Figure 61

126. In the BOE OLED Display, "each of the at least two blue pixels has a larger area than each of the at least two red pixels," and "each of the at least two blue pixels has a larger area than that of the first green pixel." For example, in the annotated figure below (Fig. 62), the two blue pixels within the virtual square have larger areas than the two red pixels and the first green pixel.

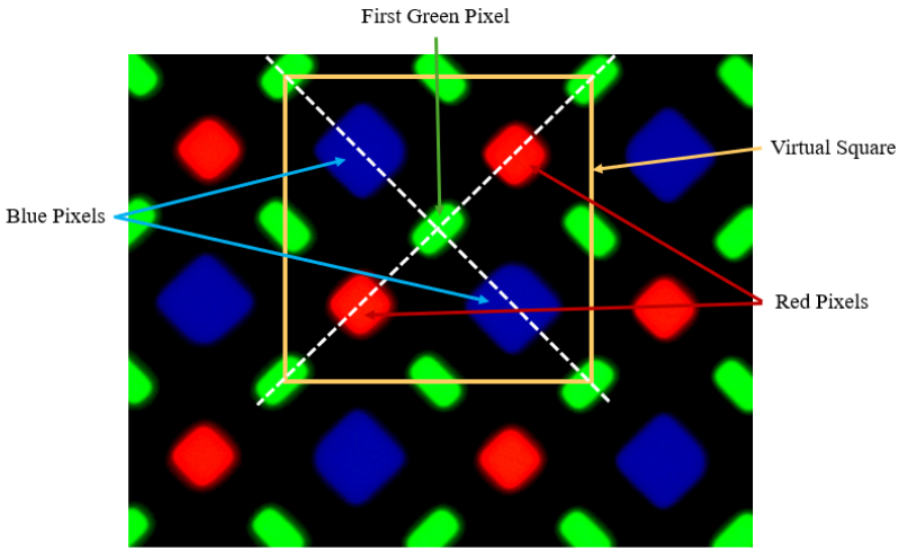

Figure 62

127. In the BOE OLED Display, "the first green pixel has a convex shape such that a line bisecting the first green pixel along a long axis thereof has a greater length than a line bisecting the

first green pixel along a short axis thereof." As shown in the annotated figure below (Fig. 63), the first green pixel is convex in shape, and the line bisecting the pixel's long axis (brown line) is longer than the line bisecting the pixel's short axis (purple line).

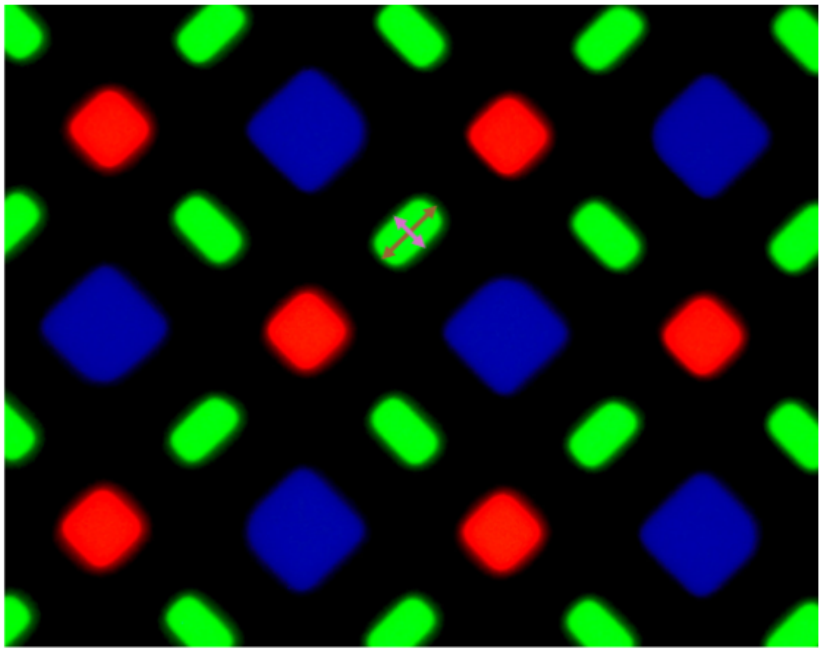

Figure 63

128. In the BOE OLED Display, "a shortest distance between two nearest ones of the plurality of green pixels is greater than a width of a first red pixel of the plurality of red pixels along a first direction parallel to the short axis of the first green pixel." As shown in the annotated figure below (Fig. 64), the distance between the green pixels is greater than the width of the first red pixel along the direction of the green pixel's short axis.

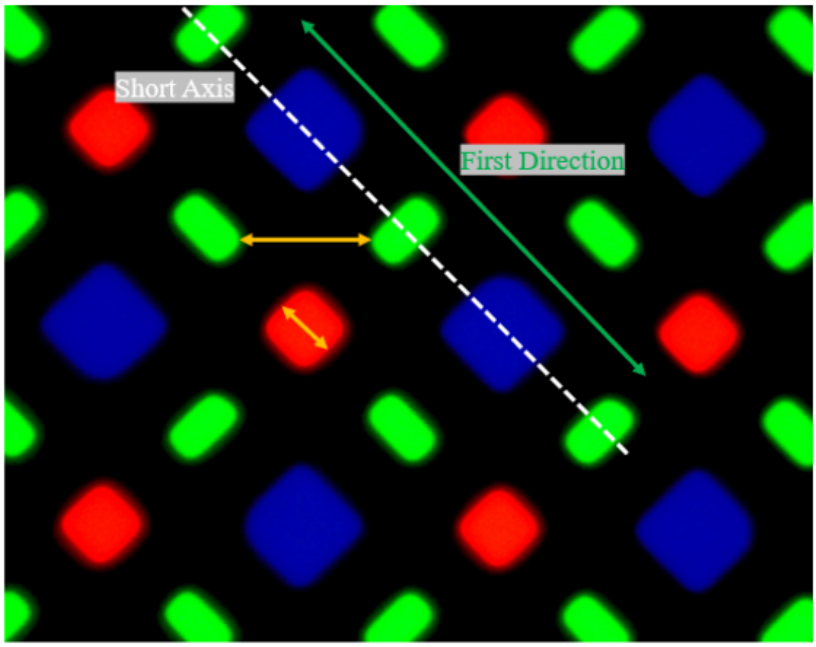

Figure 64

129. Upon information and belief, and as shown above in the example of the BOE OLED Display used in the Nubia Z60 Ultra product, the Accused Products meet every limitation of at least claim 1 of the ’066 Patent.

130. 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 ’066 Patent.

131. Upon information and belief, BOE has induced infringement of the ’066 Patent under 35 U.S.C. § 271(b) by knowingly and intentionally inducing others to directly infringe the ’066 Patent. Upon information and belief, BOE has had notice of the ’066 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 ’066 Patent by using, selling, and/or offering to sell in the United States, and/or importing into the United States, products containing infringing BOE OLED

displays. BOE's OLED displays are specially designed to contain features that infringe the '066 Patent and the Accused Products have no substantial uses other than ones that infringe the '066 Patent.

132. 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 '066 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, Mianyang BOE has admitted in another recent proceeding that it manufactures and sells AMOLED screens that are imported into the United States. Upon information and belief, Mianyang BOE was thus aware that its infringing OLED displays would be imported into the US (and that use of the infringing OLED displays would infringe), yet it sold those displays to those customers anyway. Upon information and belief, BOE has engaged in these activities with knowledge of the '066 Patent and knowledge that the induced acts constitute infringement. BOE's inducement of infringement of the '066 Patent is ongoing.

133. Upon information and belief, BOE has also contributorily infringed the '066 Patent under 35 U.S.C. § 271(c) through its supply of infringing BOE OLED displays to customers that incorporate those OLED displays into other products, including at least 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 '066 Patent. BOE has engaged in these activities despite having notice of the '066 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 '066 Patent. BOE's contributory infringement of the '066 Patent is ongoing.

134. 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 '066 Patent and its infringement of the '066 Patent since at least the issuance of the '066 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 21, 2025

Respectfully submitted,

/s/ Amanda A. Abraham

Amanda A. Abraham
Texas Bar No. 24055077
ROTH & ABRAHAM LAW FIRM
115 N. Wellington St. Ste 200
Marshall, TX 75670
Phone: (903) 935-1665

Jeffrey H. Lerner
Jared R. Frisch
Daniel W. Cho
Kee Young Lee
COVINGTON & BURLING LLP
One CityCenter
850 Tenth Street, NW
Washington, DC 20001
Phone: (202) 662-6000

Robert T. Haslam
COVINGTON & BURLING LLP
3000 El Camino Real
5 Palo Alto Square, 10th Floor
Palo Alto, CA 94306
Phone: (650) 632-4700

Scott A. Schrader
COVINGTON & BURLING LLP
22nd Floor, Meritz Tower
382, Gangnam-daero, Gangnam-gu, Seoul
Republic of Korea
Telephone: +82-2-6281-0000

Jesse Y. Chang
Sean Hong
COVINGTON & BURLING LLP
The New York Times Building
620 Eighth Avenue
New York, NY 10018-1405
Phone: (212) 841 1000

Counsel for Plaintiff Samsung Display Co., Ltd.