FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

OPTRONIC SCIENCES LLC, Plaintiff, v. BOE TECHNOLOGY GROUP CO., LTD., Defendant.	Case No. 2:23-cv-005549-JRG

DISCLOSURE OF ERIC BRETSCHNEIDER, PH.D. IN COMPLIANCE WITH P.R. 4-3(B)

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1. I have been asked by counsel for plaintiff Optronic Sciences, LLC ("Optronic") to provide my opinions concerning certain claim terms found in the claims of U.S. Patent Nos. 7,168,842 (the "'842 patent"), 7,226,801 (the "'801 patent"), 7,568,121 (the "'121 patent"), 7,884,914 (the "'914 patent"), 7,915,117 (the "'117 patent"), 8,158,477 (the "'477 patent"), 8,492,222 (the "'222 patent"), 9,263,509 (the "'509 patent"), and 9,406,733 (the "'733 patent") (collectively, the "Asserted Patents").

2. To the extent I do not mention one of the Asserted Patents below, I have not been asked to provide a claim construction-related opinion about that patent at this time or have determined that the disputed claim construction-related issues do not appear to be based on the understanding of a POSITA. I understand that I may be asked to address other patents (or terms) in the future, and I reserve the right to provide such an opinion in the future.

3. I am being compensated at my standard consulting rate of $500 an hour. I am also being reimbursed for any out-of-pocket expenses. My compensation does not depend in any way on the particular testimony or opinions that I express in this disclosure, or on the outcome of this litigation.

4. For this document, I have been asked to prepare a disclosure of my testimony regarding the meaning of certain terms in dispute as well as to respond to certain of BOE's arguments regarding claim construction, to the extent they are known by counsel for Optronic. I reserve the right to, if asked, submit one or more declarations further expounding on or explaining my opinions in this disclosure in connection with claim construction briefing.

5. I reserve the right to respond to any disclosed opinions, declarations, or arguments made by BOE or its experts during claim construction.

6. I have prepared this disclosure having reviewed the Asserted Patents addressed in my opinions below, their file histories, IPRs petitions filed regarding certain of the Asserted Patents, as addressed below, and both parties' P.R. 4-2 Disclosures and the documents cited therein. I have also reviewed the material specifically cited within this Disclosure. It is my understanding that BOE may rely on the testimony of Dr. Baker and Dr. Neikirk but that, as of the

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signing of this disclosure, this testimony has not been disclosed. I reserve the right to respond to this testimony at a later date, including in any declarations I might prepare regarding claim construction.

I. QUALIFICATIONS

7. My qualifications generally are set forth in my Curriculum Vitae, which is attached as **Appendix A**. Appendix A also includes a list of the publications I have authored and a list of the other cases in which I have testified during the last four years. I have extensive experience in this area as evidenced in my CV. I highlight some of this experience below.

8. I have a broad background in emissive display technologies dating to the 1990s, when I was a participant in the Phosphor Technology Center of Excellence (PCTOE). The PTCOE was a consortium between universities and industry focused on developing phosphor technologies for display applications with a particular emphasis on electroluminescent displays, field emission displays, and plasma displays.

9. In the late 1990s and early 2000s, I worked with companies including Kopin and Microvision to develop miniature backlit displays that were incorporated into the electronic viewfinders of Kodak digital cameras. It was in this time frame that I joined the Society for Information Display (SID) and began developing testing, measurement, and reliability standards for all forms of emissive displays.

10. My expertise in issues related to display technologies was acknowledged by the SID when I was invited to be the keynote speaker for the first three years of SID's "LEDs in Displays" conference.

11. My entire career has been focused on light emitting devices and applications, and began at a time when LEDs were only viable as indicators. In 2000, it was realized that inorganic LEDs had the potential to become the most efficient lighting technology for all applications. Haitz, et al., *The Case for a National Research Program on Semiconductor Lighting*, Sandia Report SAND2000-1612 (July 2000) at 7. Within a few years, the US Department of Energy began a

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dedicated research program to accelerate development of LED technology to enable significant energy savings.

12. At that time, organic LED (OLED) technology lagged significantly behind LED technology in terms of energy efficiency and lifetime, but was included in the DOE solid-state lighting (SSL) research program. Since its inception, I have been involved in the DOE SSL research program as a proposal reviewer and also have provided input and direction to the research programs.

II. MY UNDERSTANDING OF THE RELEVANT CLAIM CONSTRUCTION LEGAL PRINCIPLES

13. It is my understanding that to ascertain the meaning of claims, the Court looks to three primary sources: the claims, the specification, and the prosecution history.

14. It is my understanding that the specification must contain a written description of the invention that enables one of ordinary skill in the art to make and use the invention. It is my further understanding that the patent's claims must be read in view of the specification, and that for claim construction purposes, the description may act as a sort of dictionary, which explains the invention and may define terms used in the claims. In addition, it is my understanding that the patentee is free to be his own lexicographer, but any special definition given to a word must be clearly set forth in the specification.

15. It is my understanding that it is the role of the claims, not the specification, to set forth the limits of the patentee's invention. Otherwise, there would be no need for claims. It is my further understanding that one purpose for examining the specification is to determine if the patentee has limited the scope of the claims. In addition, it is my understanding that although the specification may indicate that certain embodiments are preferred, particular embodiments appearing in the specification will not be read into the claims when the claim language is broader than the embodiments.

16. It is my understanding that the words used in a claim are generally given their plain and ordinary meaning. It is my further understanding that the plain and ordinary meaning of a

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claim term is the meaning that the term would have to a person of ordinary skill in the art at the time of the invention, that is, as of the effective filing date of the patent application. In addition, it is my understanding that the person of ordinary skill in the art is deemed to have read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification, because the claims are part of a fully integrated written instrument.

17. It is my understanding that the prosecution history is intrinsic evidence that is relevant to the determination of how the inventor understood the invention and whether the inventor limited the invention during prosecution by narrowing the scope of the claims. In addition, it is my understanding that to operate as a disclaimer, the statement in the prosecution history must be clear and unambiguous, and constitute a clear disavowal of scope.

18. It is my understanding that extrinsic evidence, such as dictionary definitions or expert testimony, may be considered during claim construction, but that extrinsic evidence is subordinate to the intrinsic record.

19. With respect to indefiniteness, I understand that a claim element is indefinite if, read in light of the specification, and the prosecution history, the claim element fails to inform, with reasonable certainty, those skilled in the art about the scope of the claim element.

20. It is my understanding that it is the burden of the party asserting indefiniteness to demonstrate that a claim element is indefinite.

III. THE LEVEL OF ORDINARY SKILL IN THE ART

21. The general field of technology of the ’801, ’509, and ’733 patents is displays, which is an important consideration in defining the level of ordinary skill in the art. The ’801 patent states, “The present invention relates to a display and, more particularly to a sealant region pattern and fabrication methods thereof.” ’801 patent at 1:7-9. Similarly, the ’509 and ’733 patents state, “The invention relates to a pixel structure and particularly relates to a pixel structure capable of

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improving the overall luminous uniformity of a display panel." '509 patent at 1:17-19.[1]

22. The relevant field of technology of the Asserted Patents addressed in this declaration is displays, and more particularly, I note that the displays are either based on LCD technology (*e.g.*, '801 patent) or LED/OLED technology ('509, '733, '121, '117, '477, and '222 patents). This further informs my opinion about the appropriate level of ordinary skill for a person having ordinary skill in the art (a "POSITA").

23. In my opinion, a POSITA of the Asserted Patents, around the time of each patent's filing, has at least a Bachelors' degree in a field of engineering or physics and at least two years of professional experience related to the design and manufacture of the relevant aspects of flat panel displays. Additional graduate education related to relevant semiconductor manufacturing or flat panel display technology could reduce but not eliminate the time requirement for professional experience.

24. For the '801 patent, the relevant experience is the design and manufacture of LCD displays.

25. For the '509, '733, '121, '117, '477, and '222 patents, the relevant experience is the design and manufacture of LED and OLED pixel technology.

26. I understand that BOE has not yet provided any indications of its position regarding ordinary level of skill in the art in this litigation. However, BOE has provided its positions with respect to the IPR petitions it has filed. Dr. Neikirk, who I understand may offer an opinion regarding claim construction here, offers the level of ordinary skill with respect to the '801 patent: "a Bachelors' degree in electrical or mechanical engineering or a comparable field of study, plus approximately two to three years of professional experience with electronic and optoelectronic device design or other relevant industry experience. Additional graduate education could substitute for professional experience, and significant experience in the field could substitute for formal

[1] The '733 patent resulted from a divisional of the '509 patent and it therefore shares the same specification. Cites to the '509 patent are similarly citing to the '733 patent.

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education." IPR2024-01131, Ex. 1003 at ¶ 36. Dr. Neikirk provides a similar opinion for the other patents he addressed in BOE's IPR petitions.

27. I disagree with Dr. Neikirk's opinion. His proposed level of ordinary skill is overly broad because it allows individuals with no experience or familiarity with LCD technologies or displays to qualify as a POSITA. For example, an individual with a Bachelor's degree in electrical engineering with three years of experience in the design of alternators for automobile engines ("electronic … device design") would qualify as a person of ordinary skill for the '801 patent. Similarly, an individual with the same educational background could have a decade of experience in designing laser systems ("optoelectronic device design") would also qualify as a person of ordinary skill in the art for design of LCD displays. This does not make sense in light of the dislcosures and subject matter of the '801 patent (or any of the Asserted Patents). Similar issues are present for the LED- and OLED-related patents that Dr. Neikirk may address.

28. Dr. Baker, who I also understand could provide expert testimony regarding claim construction, offers a similarly broad definition of a POSITA. In his declaration in support of BOE's IPR petition regarding the '509 patent, Dr. Baker opined: "I conclude that a person of ordinary skill in the art ('POSITA') at the time of the alleged invention of the 509 patent (September 12, 2013), and for that matter, at all subsequent times through the present, would have had a Bachelors' degree in electrical engineering or a comparable field of study, plus approximately one or more years of professional experience with electronic and optoelectronic system design. Additional graduate education could substitute for professional experience, and significant experience in the field could substitute for formal education." IPR2024-01133, Ex. 1003 at ¶ 46; *see also* IPR2024-01134 at ¶ 46 (same opinion for '733 patent). Dr. Baker provides a similar opinion for the other patents he addressed in BOE's IPR petitions.

29. Dr. Baker's definition of the oridnary skill in the art is flawed in same manner as Dr. Neikirk's similar opinion. According to Dr. Baker, individuals with a Bachelor's degree in electrical engineering and a decade of experience in design of automative electrical components or laser systems would easily qualify as a POSITA but they would have no understanding of any

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of the issues associated with design, or even the desired operating parameters, of the OLED pixel technology and displays at issue in the ’509 and ’733 patents. As such, they should not qualify as POSITAs for the ’509 and ’733 patents (or any of the Asserted Patents) in my opinion.

IV. CONSTRUCTION OF DISPUTED CLAIM TERMS

A. Terms That Benefit From Claim Construction

30. After reviewing the disclosures from both Optronic and BOE, I believe that the terms I address in this section would benefit from a claim construction to assist the jury in understanding their meanings to a POSITA.

1. “Layer”: ’801 patent, Claim 9[2]

31. “Layer” is used in Claim 9 of the ’801 patent in the following manner:

> 9. A sealant region pattern for a liquid crystal display, comprising:
>
> [a] a first substrate and a second substrate opposite thereto;
>
> [b] a predetermined material **layer** formed on the first substrate; and
>
> [c] an organic material pattern **layer** having a saw tooth opening formed on the predetermined material **layer** to expose the surface of the predetermined material layer underneath, wherein the surface of the predetermined material **layer** and the sidewall of the organic material pattern **layer** form a predetermined angle.

32. It is my understanding that Optronic has proposed that “layer” should be construed as a “film of a material created during manufacturing.” BOE has not proposed a construction for this term, which I understand means that BOE proposes that this term should be given its plain and ordinary meaning.

33. I agree that “layer” should be given its plain and ordinary meaning, which is consistent with Optronic’s proposed construction as I discuss below. I have been asked to consider

[2] My section headings refer to the claims that I understand are asserted as infringed by Optronic and that contain the term at issue. Other claims in the patent(s) may also contain the same term and I may address them in my explanation.

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BOE's arguments in its IPR petition to determine if BOE's apparent plain and ordinary meaning is consistent with that of a POSITA. I believe that BOE's IPR arguments reveal a dispute. In its IPR petition, BOE argued that the claimed "layer" can be read on "a single layer or combination of layers" where the "combination of layers" can have multiple metals and other materials. IPR2024-01131, Paper 2 at 54 (arguing the Zhang reference invalidates claim 9.b). In other words, BOE appears to argue that the plain meaning of "layer" is something like "one or more films of one or more materials." I disagree with BOE's apparent plain and ordinary meaning of "layer."

34. Claim 9 uses the term in its plain and ordinary meaning to refer to single layers of materials, such as a "predetermined material layer" and an "organic material pattern layer." This is consistent with how a POSITA would understand that modern electronic circuits are built using "successive layers of insulating, conducting, and semiconducting material." Sze, VLSI Technology at 467-68 (2nd Ed. 1988) (Sze is a seminal textbook for how to build modern electronic circuits). Each layer is individually built according to the intended purpose of the layer, such as using a layer of SiO_2 if an insulating layer is desired. A simple manufacturing process for a MOS capacitor is described on pages 469-70 of Sze and summarized in this figure:

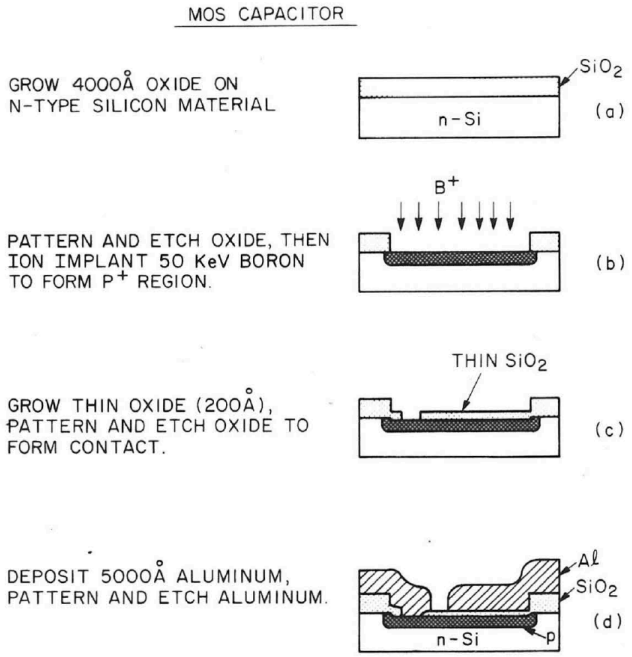


FIGURE 2
Steps to form an MOS capacitor.

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A simple capacitor is formed through laying of materials, doping, and etching. "The capacitor that results from this sequence of steps will only work properly if the individual layers are isolated from each other except where an intentional contact is made." *Id.* at 470. This can be seen where the aluminum layer (shown in Fig. 2(d)) is only allowed to contact the conductor (the doped part of the n-type silicon material layer). The remainder of the aluminum layer is insulated from the conductor by the layer of insulting SiO_2 material.

35. The dependent claims of the '801 patent also support my opinion. Dependent claims 12 and 13 further refine the "predetermined material layer" to having a particular purpose, such as a passivation layer (relating to insulation and shielding of lower layers from environmental effects) or a metal electrode layer. Dependent claim 14 further refines "organic material pattern layer" to using either a polymethyl methacrylate or a photosensitive-methylsilsequiazane.

36. The specification similarly uses "layer" in its plain and ordinary sense to refer to a single film of material created during manufacturing using techniques similar to those described in Sze. For example, the specification describes forming silicon nitride layer 242 on substrate 232, and then forming organic material 244 on top of that:

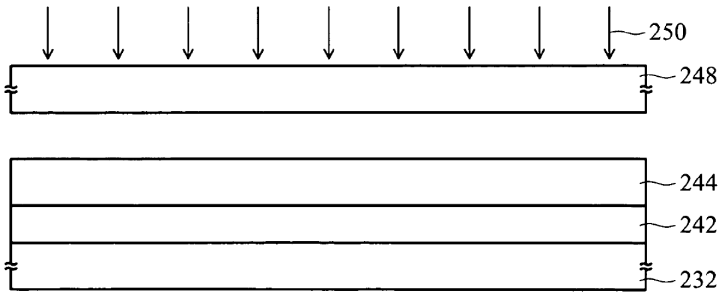


FIG. 2A

'801 patent at Fig. 2A, 2:46-65. A similar usage of layers is shown in Fig. 1C and the related specification description ('801 patent at 2:25-33).

37. Nothing in the file history is inconsistent with my opinion.

38. I also reviewed the transcript of Dr. R. Jacob Baker in connection with certain IPR petitions submitted by BOE. Though Dr. Baker's testimony was not specific to the '801 patent, his

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testimony supports my opinion about the plain and ordinary meaning of "layer." April 2, 2025 Transcript of R. Jacob Baker from IPR2024-01130, 1133, 1134 at 164:21-168:1 (testifying about the ordinary meaning of layer; for example, "[b]ut if they're different materials, they're different layers"); 180:21-24 ("Q Would you consider SE1, SE2 and SE3 to be different layers? A They may be the same material, but they're different places in the process, so yes.").

39. In IPR2024-01131, BOE argues that "Zhang's first covering layer may comprise a single layer or combination of layers," citing paragraph 186 of Dr. Neikirk's declaration (Ex. 1003). IPR2024-01131, Paper 2 at 54. Neither BOE nor Dr. Neikirk explain why a POSITA would understand "layer" as used in the '801 patent to both refer to a "single layer or combination of layers." The cited prior art, Zhang, does not support such an interpretation. Rather, Zhang refers to "layer" similar to how it would be understood by a POSITA. In one embodiment, Zhang at Fig. 3b refers to "single-layer structures" as "the covering layer 370a and covering layer 380a." IPR2024-01131, Ex. 1006 at 7. In an alternative embodiment shown in Fig. 3C, though Zhang still uses a label of "covering layer 370a" to explain its relation to the structure in Fig. 3B, Zhang discards its "single-layer structure" "covering layer" in favor of individual layers, such as "a first metal layer 321, a dielectric layer 322, and a second metal layer 323." *Id.*[3] Zhang does not support BOE's argument that the plain meaning of the claimed "layer" can be a "combination of layers" in the '801 patent.

40. Moreover, BOE's argument that a "layer" can be a combination of layers removes all meaning from the term "layer" because it would allow any arbitrary combination of adjacent materials to be considered a "layer" to suit any argument without regards to form, fit, function, or manufacturing process. A POSITA would not have this understanding.

---

[3] Zhang is not invalidating for this same reason, among other reasons. In the first embodiment, with two monolithic "covering layers," Zhang does not describe either the claimed "predetermined material layer" or the "organic material pattern layer." A "covering layer" does not have meaning in the art, and a POSITA would not ascribe the meaning given to it by BOE without hindsight. This is particularly true where, as I discuss above, BOE's proposed level of ordinary skill requires no particular knowledge with relevant display technology.

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41. It is my understanding, on the day before this disclosure was to be exchanged, BOE disclosed that it intended to argue that "at least" claims 3, 4, and 6 of the '121 patent change the plain meaning of "layer." I do not understand why claim 4 of the '121 patent is relevant. In claims 3 and 6 of the '121 patent, the inventor claimed a "second dielectric layer" comprising a passivation layer, and either a capping layer (claim 3) or a second organic layer (claim 6). The claims of the '121 patent do not change my opinion. **First**, the '121 patent is not related to the '801 patent, and does not share inventors. The inventors of the '801 patent are Yi-Chen Chiang and Kuo-Yu Huang, and the inventor of the '121 patent is Wein-Town Sun. **Second**, claims 3 and 6 of the '121 patent indicate that the inventor of the '121 intended to provide his own definition of the term "second dielectric layer" such that it could include multiple layers of material. It is my understanding that an inventor is permitted under patent law to act as their own lexicographer to define a term specific to their patent. The term "second dielectric layer" is not used in the claims of the '801 patent, the '121 patent is not intrinsic evidence to the '801 patent, and I do not believe a POSITA would have consulted the claims of the '121 patent to determine the plain meaning of "layer" as used in the '801 patent.

42. "Layer" is also modified by "material" in the '801 patent. The '121 patent does not refer to a "material layer" or "material pattern layer" as the '801 patent does. The reference to a "material" layer in the '801 patent is further evidence in support of my opinion regarding the plain meaning of layer not including "one or more" layers because a "material" layer would be of a single material, not multiple materials.

43. While BOE has not proposed a construction for "layer," it has proposed that the phrase "a predetermined material layer formed on the first substrate" should be construed as "one or more material layers formed on the first substrate prior to forming the organic layer."[4] BOE's proposal appears to acknowledge that the plain meaning of a "layer" is "film of a material created

[4] This construction appears intended to support its argument in the IPR Petition. *See* IPR2024-01131, Paper 2 at 54 (arguing that multiple layers of various materials can be "a predetermined material layer").

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during manufacturing" as I have opined. Otherwise, BOE would have used a term other than "layer" in its own proposed construction. Instead BOE's proposal emphasizes that it is proposing that the claimed "predetermined material layer" can actually be multiple layers of multiple materials, a proposal for which I have found no support in the '801 patent or its file history.

44. I disagree with the remainder of BOE's construction of "a predetermined material layer formed on the first substrate." A POSITA would understand that the "predetermined material layer" cannot be "one or more layers." I have been informed that, in patent law, "a" can be understood as "one or more" unless the claim language suggests a different construction to a POSITA. In the context of the intrinsic evidence, a POSTIA would not understand the "predetermined material layer" to actually be multiple layers. In claim 1, only a single layer can be formed "on the first substrate." Subsequent layers would be formed on previous predetermined materials layer. Claims 4 (the predetermined material layer is a passivation layer) and 5 (the predetermined material layer is a metal electrode layer) similarly would inform a POSITA that the predetermined material layer is a single layer given the dependent claims' reference to a specific function. The specification similarly discloses embodiments where the predetermined material layer is a single layer. '801 patent at Figs. 1C, 2A-2C, 2:27-33, 2:46-65.

45. It is my understanding that Dr Neikirk may also submit a declaration in this litigation. It is further my understanding that the only disclosure of the contents of this opinion is that it "may concern the state of the art, ordinary meanings of one or more of the claim terms, including the proposed claim terms identified herein, and what one of ordinary skill in the art would understand those claim terms to mean in view of the intrinsic evidence, including the specifications, patent claims, the file histories of the Asserted Patents, the patents and/or any patent application(s) incorporated by reference in the Asserted Patents, any related patents, the file histories of any related patent applications and the specifications of the patents that issued from those related patent applications, and relevant extrinsic evidence, including dictionary and textbook evidence." BOE's P.R. 4-2 disclosure at 2-3. I reserve the right to address Dr. Neikirk's opinion when it is disclosed.

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46. Accordingly, it is my opinion that "layer" should be construed according to its plain and ordinary meaning, which is a "film of a material created during manufacturing."

2. "Formed On": '801 Patent, Claim 9

47. "Formed on" is used in Claim 9 of the '801 patent in the following manner:

> 9. A sealant region pattern for a liquid crystal display, comprising:
>
> [a] a first substrate and a second substrate opposite thereto;
>
> [b] a predetermined material layer **formed on** the first substrate; and
>
> [c] an organic material pattern layer having a saw tooth opening **formed on** the predetermined material layer to expose the surface of the predetermined material layer underneath, wherein the surface of the predetermined material layer and the sidewall of the organic material pattern layer form a predetermined angle.

48. It is my understanding that Optronic has proposed that "formed on" should be given its plain and ordinary meaning, which is "forming in a manner directly touching the below layer or substrate." It is my understanding that BOE also proposes that this term be given its plain and ordinary meaning but does not explain what that meaning is. I was asked to consider whether the arguments made by BOE in IPR2024-01131 are consistent with the plain and ordinary meaning of the term as BOE now proposes. I disagree that BOE's IPR arguments apply the plain and ordinary meaning of this term. Rather, it appears that BOE may be arguing that "formed on" includes any layer that is "formed above," regardless of contact with the layer it is claimed to be formed on. I disagree with BOE's apparent proposed definition of the plain and ordinary meaning.

49. I describe a POSITA's understanding of the relevant manufacturing process above. As I describe, the manufacturing process involves building layers of materials and doing other processes to create the sought after functionality. Each layer is "formed on" the next. Claim 9 is written consistent with this plain and ordinary meaning. The predetermined material layer is "formed on" the first substrate, and the organic material pattern layer is then "formed on" the predetermined material layer. Nothing in the claim language supports BOE's apparent argument

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that "formed on" should be read as formed "above" regardless of the contact between the layers.

50. The specification is similar, discussing layers being formed on another layer to result in a structure where the various layers are touching. For example, this is demonstrated in Fig. 1C, and the various layers are described at 2:27-33:

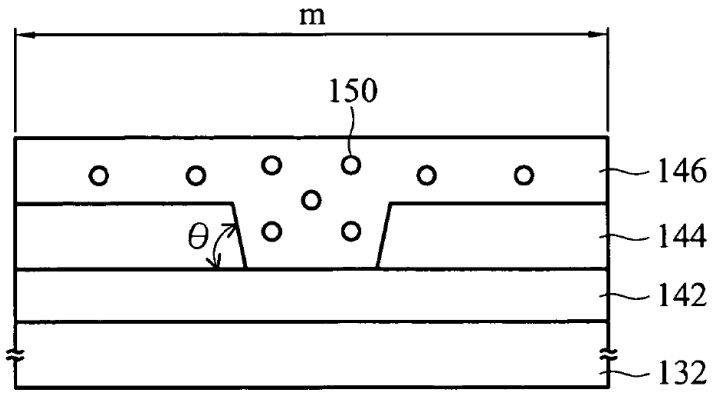


FIG. 1C

Fig. 2C and its related description includes a similar disclosure:

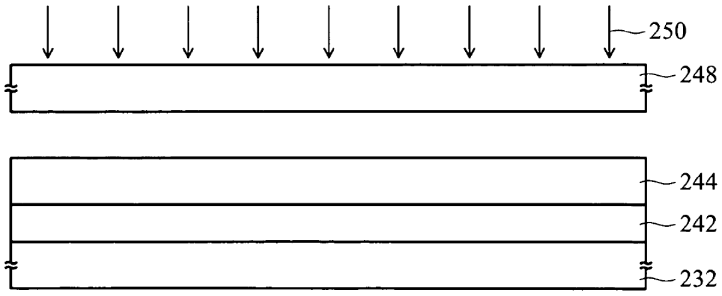


FIG. 2A

'801 patent at Fig. 2A, 2:46-65. The specification is therefore consistent with "formed on" referring to layers directly formed on the preceding layer.

51. The file history does not change my opinion.

52. I did not see any evidence in the claims, specification, or file history that suggests that "formed on" actually means "formed above" as proposed by BOE.

53. It is my understanding that Dr Neikirk may also submit a declaration in this

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litigation. It is further my understanding that the only disclosure of the contents of this opinion is that it "may concern the state of the art, ordinary meanings of one or more of the claim terms, including the proposed claim terms identified herein, and what one of ordinary skill in the art would understand those claim terms to mean in view of the intrinsic evidence, including the specifications, patent claims, the file histories of the Asserted Patents, the patents and/or any patent application(s) incorporated by reference in the Asserted Patents, any related patents, the file histories of any related patent applications and the specifications of the patents that issued from those related patent applications, and relevant extrinsic evidence, including dictionary and textbook evidence." BOE's P.R. 4-2 disclosure at 2-3. I reserve the right to address Dr. Neikirk's opinion when it is disclosed.

54. Accordingly, it is my opinion that "formed on" should be given its plain and ordinary meaning, which is "forming in a manner directly touching the below layer or substrate."

3. "Auxiliary": '509 Patent, Claims 1, 5, 10; '733 Patent, Claim 1

55. "Auxiliary" is used in Claims 1, 5, and 10 of the '509 patent, and claim 1 of the '733 patent. It is used similarly in each of these claims, so I copy claim 1 of the '733 patent as a representative example below:

> 1. A pixel structure, comprising:
>
> [a] a data line and a scan line;
>
> [b] at least one active device electrically connected with the data line and the scan line;
>
> [c] a light emitting device electrically connected with the active device, wherein the light emitting device comprises:
>
> [c.1] a first electrode layer;
>
> [c.2] a light emitting layer disposed on the first electrode layer; and
>
> [c.3] a second electrode layer disposed on the light emitting layer, wherein the second electrode layer is electrically connected with the active device; and

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[d] an **auxiliary** electrode electrically insulated from the active device and disposed at a side of the light emitting device, wherein the **auxiliary** electrode is electrically connected with the first electrode layer of the light emitting device.

56. It is my understanding that Optronic has proposed that "auxiliary" should be given its plain and ordinary meaning, which does not include primary and essential. In other words, an auxiliary electrode is not the primary and essential electrode. BOE has proposed that "auxiliary electrode" be construed as a "supplemental electrode." In its IPR petition, however, BOE has interpreted "supplemental" as any electrode, other than a first electrode, regardless of its function in the system. For example, BOE asserts in its IPR petition that a bus line in a reference, which a POSITA understands is the primary point for power delivery, is "auxiliary" to the first electrode even though it is the primary and essential point for power delivery for the reference.[5] At deposition in the IPR proceedings, Dr. Baker testified even more broadly that "auxiliary" means any "additional electrode" or "additional conductor" other than the claimed "first electrode layer." April 2, 2025 Transcript of R. Jacob Baker from IPR2024-01130, 1133, 1134 at 69:1-70:4. I disagree with BOE's apparent interpretation of an auxiliary electrode as something that can solely provide a primary and essential function for the system.

57. The plain meaning of "auxiliary" is something that is subsidiary or supplemental to another thing. The American Heritage College Dictionary at 94 (3rd Ed. 1997) ("acting as a subsidiary; supplementary"); Webster's New World Dictionary at 94 (3rd College Ed. 1994) ("additional; supplementary; reserve"); Webster's II New College Dictionary at 77 (2001) ("acting as a subsidiary"). For example, "auxiliary" when used in the power context could refer to a back-up power source, like a battery or generator, that would be used to supplement a main power source, like a city power grid.

[5] I disagree with BOE's argument. To the extent Dr. Baker provides opinion regarding the prior art, I refer to and incorporate by reference my IPR-related opinions to be submitted in connections with Optronic's Patent Owner Response.

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58. The definition from the technical-focused dictionary cited by BOE similarly defines an "auxiliary anode" as "a supplementary anode utilized to obtain a better distribution of plating." Wiley Electrical and Electronics Engineering Dictionary at 51 (2004).

59. "Auxiliary" is used in the intrinsic evidence to modify an electrode. In the '733 patent, the "auxiliary" electrode is electrically connected to the first electrode layer (claim 1[d]) and can be electrically insulated from the second electrode layer (claim 5). The claims of the '509 patent are similar except claims 10 and 11 include a second auxiliary electrode that is electrically connected to the first electrode layer. The claims are consistent with the plain and ordinary meaning of "auxiliary." They are contrary, however, to BOE's broader interpretation of "auxiliary" to mean any electrode other than the first electrode. Indeed, independent claim 1 of the '509 patent and independent claim 1 of the '733 patent require an "auxiliary electrode" in addition to a "first electrode layer" and a "second electrode layer." If BOE's proposed ordinary meaning were used, it is unclear what the difference between the "auxiliary electrode" and "second electrode layer" is because they are both "not the first electrode layer." The plain and ordinary meaning, as I have discussed it, has no such issues.

60. The specification also confirms that "auxiliary" is meant to refer to something that is not primary and essential. The specification describes embodiments where the auxiliary electrode can be "coordinated" with the first electrode layer to "reduce the resistance of the first electrode layer 132" and that the design of the "auxiliary electrode" can be coordinated with "other suitable electrode layers or conductive layers." '509 patent at 5:63-6:13, 8:14-33.[6] In an embodiment using a second "auxiliary" electrode, it is also described as providing additional functionality to the first electrode layer. *Id.* at 7:43-60. In other words, consistent with the plain meaning of "auxiliary," the specification describes the "auxiliary electrodes" as providing supplemental functionality to the first electrode layer. It is not simply an additional electrode as

[6] As I say above, the '733 patent resulted from a divisional of the '509 patent and it therefore shares the same specification. Cites to the '509 patent are similarly citing to the '733 patent.

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BOE appears to assert is the plain meaning of "auxiliary."

61. Nothing in the file history changes my opinion.

62. In his IPR declaration, Dr. Baker opines that "the claims do not explicitly state what function or characteristic existed without the auxiliary electrode that has been supplemented with the auxiliary electrode." IPR2024-01134, Ex. 1003 at ¶ 56; *see also* IPR2024-1133, Ex. 1003 at ¶¶ 61-65 (offering the same opinion with respect to the '733 patent). In deposition, Dr. Baker further explained that his opinion was that "auxiliary" electrode is anything other than the claimed first electrode layer. April 2, 2025 Transcript of R. Jacob Baker from IPR2024-01130, 1133, 1134 at 69:1-70:4. I do not agree with Dr. Baker's opinion because he seems to consider "auxiliary electrode" without the context of the remainder of the intrinsic evidence. He does not, for example, address the remainder of the claim language at all. *Id.* at ¶¶ 55-59. As I describe above, the claims, when read in the context of the plain meaning of "auxiliary" and the specification, tell a POSITA that the "function or characteristic" being supplemented by the "auxiliary electrode" is the "function or characteristic" of the first electrode layer. One of the examples used in the specification is a parallel arrangement that would reduce resistance. In that embodiment, the electrode is "auxiliary" because it is not the primary and essential electrode, but provides the supplemental functionality of allowing for the electrodes to reduce the resistance of the pixel structure. Conversely, without the auxiliary electrode in this preferred embodiment, the first electrode layer would still result in an operable pixel structure but it would have higher resistance.

63. This function of a preferred embodiment of the auxiliary electrode is explicitly stated in the specification of the '509 patent. "Therefore, the design of the invention that coordinates the first electrode layer of the light emitting device with the auxiliary electrode decreases the resistance of the first electrode layer through parallel connection, so as to significantly reduce the total resistance of the pixel structure, thereby improving the overall luminous uniformity of the display panel." '509 patent at 2:17-23. Thus, a POSITA reading the specification clearly understands at least one function of the auxiliary electrode in a preferred embodiment, namely to reduce the resistance of the first electrode layer and thereby reduce the

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total resistance of the pixel structure.

64. It is my understanding that Dr. Baker may also submit a declaration in this litigation. It is further my understanding that the only disclosure of the contents of this opinion is that it "may concern the state of the art, ordinary meanings of one or more of the claim terms, including the proposed claim terms identified herein, and what one of ordinary skill in the art would understand those claim terms to mean in view of the intrinsic evidence, including the specifications, patent claims, the file histories of the Asserted Patents, the patents and/or any patent application(s) incorporated by reference in the Asserted Patents, any related patents, the file histories of any related patent applications and the specifications of the patents that issued from those related patent applications, and relevant extrinsic evidence, including dictionary and textbook evidence." BOE's P.R. 4-2 disclosure at 2-3. I do not know if Dr. Baker's opinion will be different than the opinion he provided supporting BOE's IPR petitions. I reserve the right to address Dr. Baker's opinion when it is disclosed.

65. Accordingly, it is my opinion that "auxiliary" should be given its plain and ordinary meaning, which does not include primary and essential.

4. "Electrode": '509 Patent, Claims 1, 5, 10; '733 Patent, Claim 1

66. "Electrode" is used in Claims 1, 5, and 10 of the '509 patent, and claim 1 of the '733 patent. It is used similarly in each of these claims, so I copy claim 1 of the '733 patent as a representative example below:

> 1. A pixel structure, comprising:
>
> [a] a data line and a scan line;
>
> [b] at least one active device electrically connected with the data line and the scan line;
>
> [c] a light emitting device electrically connected with the active device, wherein the light emitting device comprises:
>
> [c.1] a first **electrode** layer;
>
> [c.2] a light emitting layer disposed on the first **electrode** layer; and

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[c.3] a second **electrode** layer disposed on the light emitting layer, wherein the second **electrode** layer is electrically connected with the active device; and

[d] an auxiliary **electrode** electrically insulated from the active device and disposed at a side of the light emitting device, wherein the auxiliary **electrode** is electrically connected with the first **electrode** layer of the light emitting device.

67. It is my understanding that Optronic has proposed that "electrode" should be construed as an "end structure of a conductor for making electrical contact." BOE has proposed that electrode be construed according to its plain and ordinary meaning but has not defined what that meaning is. In the IPRs, BOE appears to assert that the plain meaning of "electrode" applies to anything that conducts current. BOE, and its expert, Dr. Baker, argue that the "Interconnect" wire in a cited reference is an "auxiliary electrode." IPR2024-01134, Paper 2 at 19 ("Hekmatshoar discloses 'an auxiliary electrode (Interconnect)…";

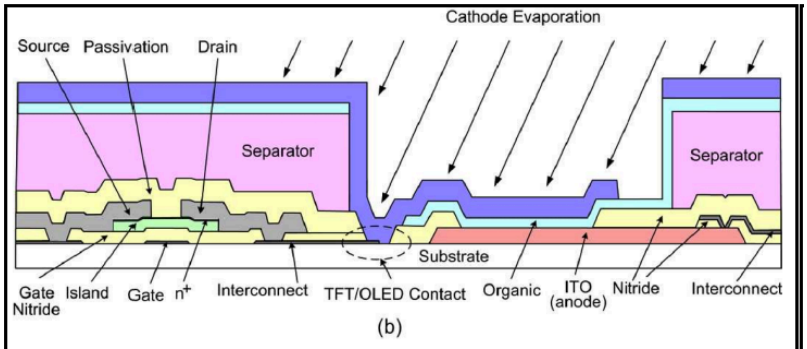


FIGURE 3 — Schematic cross section of the fabricated new "inverted" AMOLED structure of Fig. 1(c), during the evaporation of (a) the organic layers and (b) cathode.

). An interconnect in a circuit is a structure that connects two or more elements (such as transistors) together electrically. Effectively, BOE argues that an electrode can be either the end point or the road to get to the end point (an interconnect). I agree with Optronic's proposed construction and disagree that the plain meaning of electrode is a path like an interconnect.

68. Optronic's proposed construction of "end structure of a conductor for making

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electrical contact" is consistent with the plain and ordinary meaning of "electrode." According to the dictionary cited by BOE, an "electrode" is an electrical conductor that "provides the path for current entering or leaving a medium such as a dielectric [or] semiconductor." Wiley Electrical and Electronics Engineering Dictionary at 237 (2004). The dictionary cited by Optronic has a similar definition. McGraw-Hill Dictionary of Scientific and Technical Terms at 694 (6th Ed. 2003) ("an electric conductor through which an electric current enters or leaves a medium, whether it be an electrolytic solution, solid, molten mass, gas, or vacuum").[7] Both of these definitions are consistent with Optronic's proposed construction and the understanding of the term to a POSITA. Neither of these definitions apply to an intermediary structure, like an interconnect.

69. The claims and specifications similarly do not expand the definition of electrode as BOE appears to propose. In the claims, the "electrode" layers and auxiliary "electrode" are electrically connected to each other, and the first "electrode" layer is electrically connected to the active device. Like its ordinary meaning, "electrode" is used as an end point, not the road to get to an end point. The specification contains a similar disclosure. *E.g.*, '509 patent at 4:5-56, 5:25-6:21, 6:29-58, 7:1-60, 8:4-23.

70. The file histories do not alter the plain meaning of "electrode."

71. Neither BOE nor Dr. Baker explain the basis for their overly broad definition for "electrode" adopted in the IPR petition. The extent of their explanation is the following: "Hekmatshoar discloses 'an auxiliary electrode (Interconnect)…." IPR2024-01134, Paper 2 at 19. BOE and Dr. Baker assert that the reference discloses that the interconnect is an "electrical connection" between the cathode and driver TFT, and that the interconnect is "disposed on (and in electrical contact with)" the first electrode layer. *Id.* at 18, 20. None of the explanations explain why the interconnect meets the plain ordinary meaning of "electrode."

72. It is my understanding that Dr. Baker may also submit a declaration in this

[7] I note that the specific electrode structures in question are anodes for OLED components. A POSITA would be aware that for a diode, the anode is the terminal (structure making contact) toward which current flows from an electrical circuit.

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litigation. It is further my understanding that the only disclosure of the contents of this opinion is that it "may concern the state of the art, ordinary meanings of one or more of the claim terms, including the proposed claim terms identified herein, and what one of ordinary skill in the art would understand those claim terms to mean in view of the intrinsic evidence, including the specifications, patent claims, the file histories of the Asserted Patents, the patents and/or any patent application(s) incorporated by reference in the Asserted Patents, any related patents, the file histories of any related patent applications and the specifications of the patents that issued from those related patent applications, and relevant extrinsic evidence, including dictionary and textbook evidence." BOE's P.R. 4-2 disclosure at 2-3. I do not know if Dr. Baker's opinion will be different than the opinion he provided supporting BOE's IPR petitions. I reserve the right to address Dr. Baker's opinion when it is disclosed.

73. Accordingly, it is my opinion that "electrode" should be given its plain and ordinary meaning, which is an "end structure of a conductor for making electrical contact."

B. Terms That BOE Argues Are Indefinite

74. Below I address the terms that BOE has disclosed that it intends to argue are indefinite. As I say above, it has been explained to me that a claim element is indefinite if, read in light of the specification and the prosecution history, the claim element fails to inform, with reasonable certainty, those skilled in the art about the scope of the claim element. It is further my understanding that BOE has the burden to demonstrate that a term is indefinite.

75. I disagree that any of these terms are indefinite.

1. "Disposed Above": '509 Patent, Claim 1

76. "Disposed above" is used in Claim 1 of the '509 patent in the following manner:

> 1. A pixel structure, comprising:
>
> [a] a data line and a scan line;
>
> [b] at least one active device electrically connected with the data line and the scan line, and each active device comprising a gate, a

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channel layer, a source, and a drain;

[c] a first auxiliary electrode electrically insulated from the active device; and

[d] a light emitting device **disposed above** the first auxiliary electrode, wherein the light emitting device comprises:

[d.1] a first electrode layer electrically connected with the first auxiliary electrode;

[d.2] a light emitting layer disposed on the first electrode layer, and

[d.3] a second electrode layer disposed on the light emitting layer, wherein the second electrode layer is electrically connected with the active device.

77. The meaning of this phrase is reasonably certain to a POSITA and "disposed above" should be given its plain and ordinary meaning, which requires that, in a cross-sectional view, the light emitting device be above the first auxiliary electrode.

78. A POSITA would understand that "directional" terms like "above" are to be considered with the understanding that these devices are to be used in a display device like a computer monitor or a phone screen. A structure is therefore "above" another if, in the line through which light travels from the display to the eye, it is "above." The specification, discussed below, is consistent with the understanding of a POSITA. In the two-dimensional cross-sectional views in the specification, "above" is the "up" direction. "Side" is in the left or right direction.

79. In addition, in the field of semiconductor growth and processing, by convention, the substrate or starting material is considered "down" and subsequent material layers are added to or formed "above" this base or substrate. Thus, the direction "up" or "above" is away from the substrate. This directional nomenclature is consistent with that for displays, and reinforces and supports my opinion that a POSITA would understand the directional term "above."

80. The specification discloses that "[t]he light emitting device 130 is ***located above*** the first auxiliary electrode 120" while describing Figure 2. '509 patent at 4:35-36 (emphasis

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added), 3:43; *see also* Title; Abstract. The "located above" language is used similarly to refer to "channel layer CH_2" being above gate G_2. Fig. 2, reproduced below, is a "schematic cross-sectional view of a pixel structure according to the first embodiment of the invention." '509 patent at 2:39-40. A POSITA would therefore reasonably understand that, in the context of the claim language and specification, the scope of "disposed above."

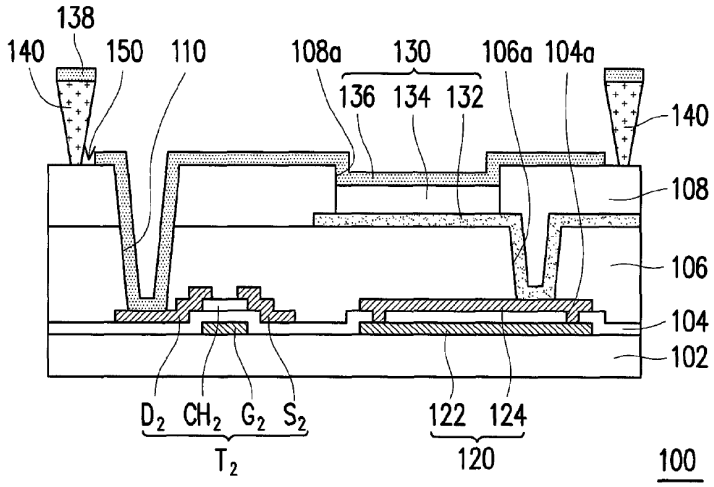


FIG. 2

81. This plain meaning is also consistent with how BOE and Dr. Baker understood "disposed above" in BOE's IPR petition. IPR2024-01133, Paper 2 at 19-20 (using a cross-section provided in Weaver reference to identify a structure above another); IPR2024-01133, Ex. 1003 at ¶¶ 95-96 (same).

82. It is my understanding that BOE has disclosed that it argues that "above" renders this phrase indefinite because it is a directional term, and Claim 1 of the '509 patent does not include a frame of reference. BOE also cites to paragraph 96 of Dr. Baker's IPR declaration in IPR2024-01133 for an explanation of why this supposed issue did not affect Dr. Baker's invalidity analysis.

83. For the reasons expressed above, I disagree that BOE's argument is consistent with the intrinsic evidence. BOE's argument is not consistent with the understanding of a POSITA of what "above" means in this context, and it is also inconsistent with the intrinsic evidence.

84. Dr. Baker's IPR opinion does not support BOE's argument. Dr. Baker does not offer any discussion in his IPR declaration regarding any concerns with reasonably understanding the scope of this phrase. Instead, he simply appears to apply his understanding of the plain and ordinary meaning. IPR2024-01133, Ex. 1003 at ¶¶ 95-96. While Dr. Baker may be opining that certain limitations from Figs. 2-5 of the '509 patent should be imported into this claim limitation, he is not opining that he does not reasonably understand the scope of the language. Contrary to BOE's argument, Dr. Baker's IPR declaration suggests that a POSITA understands this phrase with reasonable certainty.

85. To the extent that BOE later proposes to import the limitations Dr. Baker seeks to import in his IPR declaration, I refer to and incorporate by reference my forthcoming IPR declaration responding to those arguments.

86. I have also been informed that BOE explained their position by using an analogy about their counsel's phone. In particular, I was told that BOE posed a hypothetical question about whether the battery on their cell phone was above or below the screen, implying that the answer would change if the phone was physically flipped. I disagree that BOE's analogy is relevant here. Claim 1 claims a pixel structure. A POSITA would understand that such a structure has an inherent point of view with how it should be viewed, as I discuss above. Whether a display that contains the claimed pixel structure is installed on a wall, in a desk, or on a ceiling does not change the relationship of the devices in the pixel structure itself to a POSITA.

2. "The Second Portion Extending Above The Light Guiding Plate": '842 Patent, Claim 7

87. "The second portion extending above the light guiding plate" used in Claim 7 of the '842 patent in the following manner:

> 7. A backlight package comprising:
>
> [a] a light guiding plate having a first side;
>
> [b] a first fastener having a first portion and a second portion, the first portion extending along the first side of the light guiding plate,

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and **the second portion extending above the light guiding plate** wherein the first portion and the second portion are arranged in a substantially perpendicular relationship to form a substantially L-shaped structure;

[c] a light emitting device disposed on the first portion of the first fastener for emitting a light toward the light guiding plate; and

[d] a circuit board connecting the second portion of the first fastener, and

[e] a conducting wire electrically coupling the light emitting device to the circuit board.

88. It is my understanding that BOE's argument with respect to this phrase is the same as BOE's argument with respect to the "disposed above" phrase. For the same reasons as explained above, I disagree that a POSITA would not reasonably understand the appropriate frame of reference to judge "extending above." Nothing in the claims, specification, or file history of the '842 patent contradicts the plain and ordinary meaning of this phrase to a POSITA.

89. It is my understand that BOE has disclosed that it argues that "above" renders this phrase indefinite because it is a directional term and Claim 7 of the '847 patent does not include a frame of reference. BOE also cites to paragraphs 66-69, 96-98 of Dr. Baker's IPR declaration in IPR2024-01130 for an explanation of why this supposed issue did not affect Dr. Baker's invalidity analysis. Dr. Baker's opinion does not support BOE's argument. Instead, Dr. Baker opined that this claim language had a plain and ordinary meaning, which he applied. IPR2024-001130, Ex. 1002 at ¶¶ 66. He was also asked by his counsel to apply "an alternative construction of 'above' that encompasses the only disclosed embodiment in the 842 patent," but he does not opine that a POSITA would understand this "alternative construction" to be correct. *Id.* at ¶¶ 66-69. Contrary to BOE's argument, Dr. Baker's IPR declaration suggests that a POSITA understands this phrase with reasonable certainty.

3. "Disposed At A Side Of": '509 Patent, Claim 10; '733 Patent, Claim 1

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90. "Disposed at a side of" is used in Claim 10 of the '509 patent, and claim 1 of the '733 patent. It is used similarly in each of these claims, so I copy claim 1 of the '733 patent as a representative example below:

> 1. A pixel structure, comprising:
>
> [a] a data line and a scan line;
>
> [b] at least one active device electrically connected with the data line and the scan line;
>
> [c] a light emitting device electrically connected with the active device, wherein the light emitting device comprises:
>
> [c.1] a first electrode layer;
>
> [c.2] a light emitting layer disposed on the first electrode layer; and
>
> [c.3] a second electrode layer disposed on the light emitting layer, wherein the second electrode layer is electrically connected with the active device; and
>
> [d] an auxiliary electrode electrically insulated from the active device and **disposed at a side of** the light emitting device, wherein the auxiliary electrode is electrically connected with the first electrode layer of the light emitting device.

91. The meaning of this phrase is reasonably certain to a POSITA and "disposed at a side of" should be given its plain and ordinary meaning in this claim, which requires that, in a cross-sectional view, the auxiliary electrode be disposed of the side of the light emitting device.

92. As I discuss with respect to the previous term, a POSITA would understand that displays are meant to be viewed and that this viewing direction is a well understood reference direction. Directions perpendicular to this viewing direction of a display device (or perpendicular to the substrate) would be understood by a POSITA to be to the "side of" a pixel using the intended viewing direction as a reference. In the cross-sections in the patent figures, this is left or right. This understanding is confirmed by the intrinsic evidence, as discussed below.

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93. In the specification, when describing Fig. 5, the specification discloses that "second auxiliary electrode 460 is … located at a side of the light emitting device 130." '509 patent at 7:1-5. Fig. 5 is a cross-sectional view of a preferred embodiment. I prepared an annotated version of Fig. 5 is shown below.

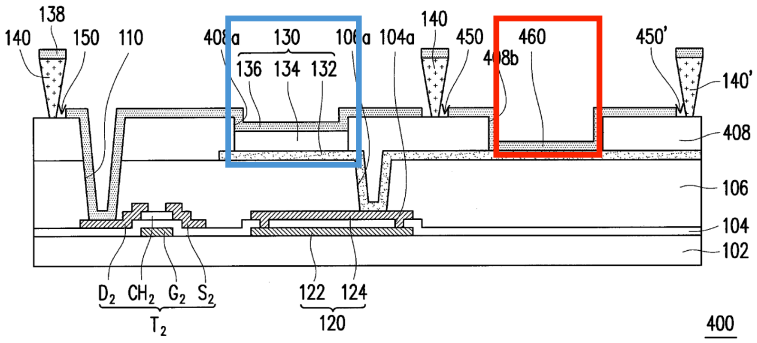


FIG. 5

I marked LED 130 with a blue box, and second auxiliary electrode 460 with a red box. The second auxiliary electrode is obviously "to the side of" the LED. *See also id.* at Fig. 6, 8:4-8 (showing similar relationship between a second auxiliary electrode "at a side of" an LED). The specification also describes a "second isolating structure 140' that is located at a side of the first isolating structure 140" in Fig. 5 (*id.* at 7:22-24) that again has a relationship consistent with the understanding of a POSITA of what "side" means.

94. It is my understanding that BOE has disclosed that it argues that "side" renders this phrase indefinite because it is a directional term, and Claim 10 of the '509 patent and claim 1 of the '733 patent do not include a frame of reference. For the reasons expressed above, I disagree that BOE's argument is consistent with the intrinsic evidence.

95. Dr. Baker's opinion in BOE's IPR petition does not support BOE's argument.

96. In his '509 patent IPR declaration, Dr. Baker does not offer any discussion in his declaration regarding any concerns with reasonably understanding the scope of this phrase. Instead, he simply appears to apply his understanding of the plain and ordinary meaning. IPR2024-01133, Ex. 1003 at ¶¶ 179-180, 182-183. While Dr. Baker may be opining that certain limitations

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from Figs. 2-5 of the ’509 patent should be imported into this claim limitation for the purposes of the IPR, he is not opining that he does not reasonably understand the scope of the language.

97. In his ’733 patent IPR declaration, Dr. Baker also does not express an inability to reasonably understand this phrase. Instead, he argues that the phrase should be construed by importing certain limitations from the intrinsic evidence because, otherwise, “claim 1 would not read on any of the disclosed embodiments.” IPR2024-001134, Ex. 1003 at ¶¶ 60-63. Dr. Baker does not express any issue in reasonably understanding the scope of the claim limitation.

98. Contrary to BOE’s argument, Dr. Baker’s IPR declaration suggests that a POSITA understands this phrase with reasonable certainty.

99. To the extent that BOE later proposes to import the limitations Dr. Baker seeks to import in his IPR declaration, I refer to and incorporate by reference my forthcoming IPR declaration responding to those arguments.

100. I understand that BOE raised the same cell phone screen and battery hypothetical I address in the previous term to explain its position with this phrase as well. I disagree with the applicability of this analogy for the same reason as above.

C. Other Terms For Which BOE Has Indicated It Will Rely On Expert Testimony

1. “A Predetermined Material Layer Formed On The First Substrate”: ’801 Patent, Claim 9

101. “A predetermined material layer formed on the first substrate” is used in Claim 9 of the ’801 patent in the following manner:

> 9. A sealant region pattern for a liquid crystal display, comprising:
>
> [a] a first substrate and a second substrate opposite thereto;
>
> [b] **a predetermined material layer formed on the first substrate**; and
>
> [c] an organic material pattern layer having a saw tooth opening formed on the predetermined material layer to expose the surface of the predetermined material layer underneath, wherein the surface of the

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predetermined material layer and the sidewall of the organic material pattern layer form a predetermined angle.

102. It is my understanding that Optronic has proposed that this phrase be given its plain and ordinary meaning, though I note that I address the constructions of "layer" and "formed on" above. BOE proposes that this phrase be construed as "one or more material layers formed on the first substrate prior to forming the organic layer."

103. Other than "layer" and "formed on," I do not believe that this phrase needs to be construed. I refer to and incorporate by reference my opinions regarding "layer" and "formed on" above.

104. I disagree that BOE's proposed construction is consistent with the plain and ordinary meaning of this phrase. BOE's construction of the "a predetermined material layer" portion of this phase to be "one or more material layers" is not consistent with the understanding of a POSITA. As I discuss above, the claim language does not use "layer" to refer to multiple layers. A POSITA would not have replaced "a predetermined" with "one or more" as proposed by BOE, and the intrinsic evidence does not provide any evidence of the inventors' intent to change the plain meaning of the claim language.

105. BOE also proposes to add the limitation "prior to forming the organic layer." The claim does not expressly contain any such limitation. The imported limitation proposed by BOE is a manufacturing detail not required by the claim language. A POSITA would understand that, so long as the resulting device met the claim limitations, the order in which such layers were built during manufacturing would not matter. For example, if the "predetermined material layer" was built at the same time as the "organic material pattern layer" during manufacturing, the resulting device would still infringe if the resulting devices had an organic material pattern layer formed on the preexisting material layer. I have not seen any intrinsic evidence that suggests the inventors had the intent to import a manufacturing limitation into this claim as BOE proposes.

106. It is my understanding that Dr. Neikirk may also submit a declaration in this litigation. It is further my understanding that the only disclosure of the contents of this opinion is

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that it "may concern the state of the art, ordinary meanings of one or more of the claim terms, including the proposed claim terms identified herein, and what one of ordinary skill in the art would understand those claim terms to mean in view of the intrinsic evidence, including the specifications, patent claims, the file histories of the Asserted Patents, the patents and/or any patent application(s) incorporated by reference in the Asserted Patents, any related patents, the file histories of any related patent applications and the specifications of the patents that issued from those related patent applications, and relevant extrinsic evidence, including dictionary and textbook evidence." BOE's P.R. 4-2 disclosure at 2-3. I do not know if Dr. Neikirk's opinion will be different than the opinion he provided supporting BOE's IPR petitions. I reserve the right to address Dr. Neikirk's opinion when it is disclosed.

107. Accordingly, other than the constructions of "layer" and "formed on," it is my opinion that "a predetermined material layer formed on the first substrate" does not need to be construed.

2. "Auxiliary Electrode": '509 Patent, Claims 1, 5, 10; '733 Patent, Claim 1

108. I refer to and incorporate by reference my opinions regarding "auxiliary" and "electrode" above.

109. It is my understanding that Dr. Baker may also submit a declaration in this litigation. It is further my understanding that the only disclosure of the contents of this opinion is that it "may concern the state of the art, ordinary meanings of one or more of the claim terms, including the proposed claim terms identified herein, and what one of ordinary skill in the art would understand those claim terms to mean in view of the intrinsic evidence, including the specifications, patent claims, the file histories of the Asserted Patents, the patents and/or any patent application(s) incorporated by reference in the Asserted Patents, any related patents, the file histories of any related patent applications and the specifications of the patents that issued from those related patent applications, and relevant extrinsic evidence, including dictionary and textbook evidence." BOE's P.R. 4-2 disclosure at 2-3. I do not know if Dr. Baker's opinion will

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be different than the opinion he provided supporting BOE's IPR petitions. I reserve the right to address Dr. Baker's opinion when it is disclosed.

3. Remaining Terms

110. BOE has indicated that it intends to rely on the testimony of Dr. Neikirk to opine that certain preambles in the '801 patent ("A sealant region pattern for a liquid crystal display"/"The sealant region of claim 9") and '914 patent ("An encapsulating structure for a liquid crystal display device"/"The structure claimed in claim 1") are limiting. I reserve the right to address this testimony, which has not yet been disclosed, if asked.

111. BOE has indicated that it intends to rely on the testimony of Dr. Neikirk to opine about the constructions of "comprising / saw tooth opening" in the '801 patent and "comprising / saw tooth pattern" in the '914 patent. I reserve the right to address this testimony, which has not yet been disclosed, if asked.

112. BOE has indicated that it intends to rely on the testimony of Dr. Neikirk to opine about the construction of "directly formed on" in the '121 patent. I reserve the right to address this testimony, which has not yet been disclosed, if asked.

113. BOE has indicated that it intends to rely on the testimony of Dr. Neikirk to opine about the construction of "the gate oxide layer in the first area is formed directly on the substrate" in the '117 patent. I reserve the right to address this testimony, which has not yet been disclosed, if asked.

114. BOE has indicated that it intends to rely on the testimony of Dr. Neikirk to opine about the construction of "is electrically connected to" in the '477 and '222 patents. I reserve the right to address this testimony, which has not yet been disclosed, if asked.

Dated: April 22, 2025



Eric Bretschneider, Ph.D.

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