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

OPTRONIC SCIENCES LLC, Plaintiff, v. BOE TECHNOLOGY GROUP CO., LTD., Defendant.	Case No. 2:23-cv-00549-JRG

PLAINTIFF OPTRONIC SCIENCES LLC'S
OPENING CLAIM CONSTRUCTION BRIEF

TABLE OF CONTENTS

I. INTRODUCTION 1
II. LEVEL OF ORDINARY SKILL IN THE ART 2
III. AGREED TERM 3
IV. DISPUTED TERMS 3
A. Comprising/Substantially L-Shaped Structure: '842 Patent, Claims 3 & 7 3
B. Purportedly Indefinite Terms 5
C. Fastener: '842 Patent, Claims 3 & 7 7
D. The Preambles Are Not Limiting 8
E. The Saw Tooth Limitations 10
F. Layer: '801 Patent, Claim 9 11
G. Formed On Terms 14
H. A Predetermined Material Layer Formed On The First Substrate: '801 Patent, Claim 9 16
I. Wherein The Sealant Is Adapted To Contact The First Material Layer And The Second Material Layer Through The Opening, And The Sealant Has Substantially Flat Contact Bottom Surfaces With The First And Second Material Layers Via The Opening: '914 Patent, Claim 1 17
J. Each Pixel / Each Pixel Area: '121 Patent, Claims 1 & 2 18
K. Defining At Least A First Area For Capacitors And A Second Area For A Transistor On The Substrate: '117 Patent, Claim 1; '222 Patent, Claim 1 18
L. Is Electrically Connected To: '222 Patent, Claim 1 19
M. Auxiliary Electrode: '509 Patent, Claims 1, 5 & 10 22
V. CONCLUSION 23

TABLE OF AUTHORITIES

Cases

Abtox, Inc. v. Exitron Corp.,
122 F.3d 1019 (Fed. Cir. 1997)..... 12

Amgen Inc. v. Amneal Pharms. LLC,
945 F.3d 1368 (Fed. Cir. 2020)..... 4, 11, 12

Avid Tech., Inc. v. Harmonic, Inc.,
812 F.3d 1040 (Fed. Cir. 2016)..... 20, 21

Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.,
289 F.3d 801 (Fed. Cir. 2002)..... 8, 9

Dealertrack, Inc. v. Huber,
674 F.3d 1315 (Fed. Cir. 2012)..... 19

Epistar Corp. v. ITC,
566 F.3d 1321 (Fed. Cir. 2009)..... 7, 20

Pitney Bowes, Inc. v. Hewlett-Packard Co.,
182 F.3d 1298 (Fed. Cir. 1999)..... 9

Rowe v. Dror,
112 F.3d 473 (Fed. Cir. 1997)..... 8

TABLE OF EXHIBITS

Ex.	Description
1	U.S. Patent No. 7,168,842 ("'842 patent")
2	U.S. Patent No. 7,226,801 ("'801 patent")
3	U.S. Patent No. 7,586,121 ("'121 patent")
4	U.S. Patent No. 7,884,914 ("'914 patent")
5	U.S. Patent No. 7,915,117 ("'117 patent")
6	U.S. Patent No. 8,492,222 ("'222 patent")
7	U.S. Patent No. 9,263,509 ("'509 patent")
8	Disclosure of Eric Bretschneider, Ph.D. In Compliance With P.R. 4-3(B), dated April 18, 2025 ("Bretschneider Decl.")
9	Declaration of R. Jacob Baker, Ph.D., P.E., dated April 18, 2025 ("Baker Decl.")
10	Declaration of Dean Neikirk, Ph.D., dated April 18, 2025 ("Neikirk Decl.")
11	Excerpts from Baker, R. Jacob, *CMOS: Circuit Design, Layout, and Simulation* (3rd Ed. 2010)
12	Excerpts from the Declaration of Dr. R. Jacob Baker in Support of Petition for Inter Partes Review of U.S. Patent No. 9,263,509, filed as Exhibit 1003 in IPR2024-01133 (July 5, 2024)
13	Excerpts from Webster's II New College Dictionary (2001)
14	Excerpts from Webster's New World Dictionary (3rd College Ed. 1994)
15	Excerpts from the File History of U.S. Patent No. 7,884,914 (OPTRONIC-BOE-00000523)
16	Excerpts from Petition for Inter Partes Review of U.S. Patent No. 7,586,121 Under 35 U.S.C. §§ 311-319 and 37 C.F.R. §§ 42.1-100, Et Seq in IPR2024-01132, dated July 12, 2024
17	U.S. Patent Publication No. 2003/0117059, published on June 26, 2003
18	Excerpts from the File History of U.S. Patent No. 8,158,477 (OPTRONIC-BOE-00001151)

Ex.	Description
19	Defendant's P.R. 4-2 Preliminary Constructions and Extrinsic Evidence, dated April 1, 2025
20	Excerpts from the Petition for Inter Partes Review of U.S. Patent No. 8,158,477 Under 35 U.S.C. §§ 311-319 and 37 C.F.R. §§ 42.1-100, Et Seq in IPR2024-01315, dated August 27, 2024
21	Wiley Electrical and Electronics Engineering Dictionary (2004)
22	Excerpts from the transcript of Russel Jacob Baker, taking in IPR2024-01130, -01133, -01134 on April 2, 2025
23	U.S. Patent No. 9,291,586
24	U.S. Patent No. 8,878,274

I. INTRODUCTION

Plaintiff Optronic Sciences LLC is the owner-by-assignment of the patents-in-suit. The '121, '117, '222, and '509 patents address certain novel aspects of a pixel structure, and the remaining three patents, the '842, '801, and '914 patents, are related to novel improvements to computer displays.[1] Defendant BOE Technology Group Co., Ltd. manufactures and sells displays that infringe the patents-in-suit. BOE's accused displays are used in devices sold in the United States, including mobile phones, laptops, monitors and televisions from companies such as Apple, HP, Dell, LG, and others.

Though the subject matters of the patents address highly technical areas of technology, the claims are not written in a particularly complex manner, and most of the claim language does not need to be construed. Indeed, many of the terms to be construed are typical English words, like "fastener," "layer," "each," and "auxiliary," that would be understood by a POSITA according to their plain English meanings. BOE, however, proposes constructions of these terms, and others, to change their scope in support of its litigation arguments. BOE's proposals are not supported by the intrinsic evidence and should be rejected.

BOE also argues that the terms "above" and "side of" are indefinite because each of the accused devices can be moved to change the direction of gravity's pull on the device, which changes what structure is above another. In other words, in the context of a bike, BOE is arguing that a bike seat is only "above" the pedals when the bike is upright. If the bike is laying down or upside down, BOE argues a bike seat would no longer be understood to be above the pedals by an ordinary person. But no ordinary person would think that because, without an express reason to think otherwise, an ordinary person would understand that "above" applies when the bike is

[1] The '733 and '477 patents were asserted but have since been dismissed.

properly oriented. The same is true of the claimed technology. A POSITA would understand its typical orientation and how to judge whether a limitation is above another. Indeed, this is why BOE's own expert uses the same type of "directional" language in his textbook. These terms are not indefinite.

Accordingly, the Court should adopt the constructions proposed by Optronic, and should deny BOE's arguments.

II. LEVEL OF ORDINARY SKILL IN THE ART

The patents-in-suit are related to displays and pixel technology used in displays. Accordingly, Optronic proposes that the level of ordinary skill in the art include a bachelor's degree in engineering or physics, and at least two years of experience in the field relevant to the patent. Bretschneider Decl. at ¶¶ 21-25.

BOE argues that the level of ordinary skill in the art for most of the patents-in-suit would have a similar education but proposes that a person of ordinary skill in the art need only have experience with designing "electronic and optoelectronic" systems. Neikirk Decl. at ¶¶ 26-27, 30; Baker Decl. at ¶¶ 31-32. Under BOE's argument, the ordinary level of skill in the art includes virtually any electronics design experience, regardless of whether those electronics include display panels. For example, according to BOE, a person with experience designing automobile alternators would be a person of ordinary skill because they have experience with "electronics." *See* Bretschneider Decl. at ¶¶ 27-29. As another example, a solar panel designer would be considered a POSITA under BOE's definition because such an engineer has experience with "optoelectronic" systems. None of this experience, however, is related to the claimed inventions.

BOE has a similarly broad proposed level of ordinary skill for the '509 patent, which is that a POSITA will have "professional experience with electroluminescent display panels." Baker

Decl. at ¶ 35. BOE's argument encompasses most working-age adults with experience using a smartphone, a computer, or any other device with a screen in a professional context. This broad level of ordinary skill is not supported by the '509 patent.

This dispute is particularly important here because some of BOE's proposed constructions, such as its indefiniteness arguments, are based on a lack of basic knowledge of display design and pixel technology. The Court should reject BOE's proposed level of ordinary skill and instead adopt Optronic's proposal that is consistent with the intrinsic evidence.

III. AGREED TERM

BOE proposes to construe "continuous" in claim 1 of the '914 patent as "plain and ordinary meaning, i.e., unbroken" While Optronic does not believe BOE's proposed rewriting is necessary, Optronic agrees to BOE's proposed construction of "continuous" in the '914 patent.

IV. DISPUTED TERMS

A. Comprising/Substantially L-Shaped Structure: '842 Patent, Claims 3 & 7

Optronic	BOE
No construction necessary	Plain and ordinary meaning, i.e., shaped substantially like an L Comprising does not operate to literally encompass other shapes.

The term is straightforward and does not need to be rewritten as proposed by BOE. BOE's proposal significantly broadens the term by removing the "structure" limitation in its entirety. Under BOE's proposal, any L shape would meet this element, regardless of whether it was a structure. This proposal is not consistent with the plain meaning of the term (which requires a structure) and the intrinsic evidence. For example, in the claims, the L-shaped structure limitation applies to a "first fastener," which is a structure. '842 patent at claims 3.b, 7.b. The specification similarly discusses the "L-shaped" limitation applying to the fastener structure. *Id.* at 3:8-40

(repeatedly referring to an "L shaped fastener"). BOE's proposed rewriting of the term should therefore be rejected.

BOE also proposes to construe "comprising" so that it "does not operate to literally encompass other shapes." Comprising has a broad meaning in patent law that "makes clear that the claim does not preclude the presence of components or steps that are in addition to, though not inconsistent with, those recited in the limitations that follow." *E.g.*, *Amgen Inc. v. Amneal Pharms. LLC*, 945 F.3d 1368, 1378-79 (Fed. Cir. 2020). BOE appears to be arguing that "comprising" should be construed to exclude the presence of additional structures that may be argued to create other "shapes," which is contrary to the plain meaning of the "comprising" in patent law. Notably, BOE takes the opposite position with respect to "comprising" when it argues that "comprising" operates to expand the term "layer" to mean "one or more layers" due to the open-ended nature of "comprising." *See supra*; Neikirk Decl. at ¶ 38 (addressing "a predetermined material layer" term in '801 patent: "The use of 'comprise' … discloses to a POSITA that 'a predetermined layer' can comprise multiple layers."). Neither of BOE's applications of "comprising" are appropriate, and BOE has not explained how "comprising" can operate in a narrowing fashion for this term while operating in a manner to expand the plain meaning of other terms. In any event, BOE's proposed construction of "comprising" should be rejected as inconsistent with precedent such as *Amgen*.

The Court should therefore reject BOE's proposed construction.

B. Purportedly Indefinite Terms

Term	Optronic	BOE
"disposed above": '509 patent, claim 1	Plain and ordinary meaning	Indefinite
"the second portion extending above the light guiding plate": '842 patent, claim 7	Plain and ordinary meaning	Indefinite
"disposed at a side of": '509 patent, claim 10	Plain and ordinary meaning	Indefinite

BOE argues that these terms are indefinite because they use "directional" terms ("above" and "a side of") that BOE argues are only "determined relative to gravity," and, as a result, the terms are subjective because an accused device could be examined in unlimited orientations. *E.g.*, Baker Decl. at ¶ 50; *see also id.* at ¶¶ 37, 52, 57, 60, 67, 70. To exemplify its position, during the meet and confer between the parties, BOE explained that an iPhone battery is below the screen when the phone is laying face-up on a table but above the screen when the phone is lying face-down. BOE argues that, because the claims do not expressly provide a further frame of reference, the "directional" terms are indefinite.

BOE's argument should be rejected because a POSITA would be reasonably certain as to the meaning of the terms. The '509 patent uses basic semiconductor-building concepts where layers of material are built on top of a substrate. Bretschneider Decl. at ¶¶ 79 (layers are added to the substrate in the upward direction), 34 (describing basic semiconductor building technique). Figs. 2-6 of the '509 patent are cross-sectional representations showing the various layers of devices resulting from known techniques. When discussing structures in a semiconductor, including a pixel structure, a POSITA would know that "above" is in the direction away from the substrate, and "side" refers to the direction parallel to the substrate. Bretschneider Decl. at ¶¶ 79-84, 92-99. The specification uses this conventional understanding as well. *E.g.*, '509 patent at 2:39-40, 3:43, 4:35-36, 7:1-5, 7:22-24, 8:4-6. Dr. Baker, BOE's expert, also refers to terms like "above"

and "side" with respect to the substrate in his book as well as when analyzing the prior art in support of BOE's IPR petition. Ex. 11 (his book) at 60 (insulator is "under and above the metal2" in Figure 3.2, using the "p-substrate" as a directional guide), 93 (using the "p-substrate" as a reference point to disclose that "metal1 sits on the insulator above fox"; metal1 is the light grey rectangle); 90-91 ("[t]he next step is to grow a spacer oxide on the sides of the gate poly, Fig. 4.7g"; showing new white shapes to the side of each dark grey rectangle when the substrate is the floor); Ex. 12 at ¶¶ 95-96, 179-180, 182-183 (Dr. Baker's IPR declaration analyzing these terms in the prior art consistent with their plain meaning).

The '842 patent addresses packaging of LEDs but whether the "second portion" is "above" a "light guiding plate" is still reasonably certain. These LED packages are designed to be used in a display (like a cellphone screen or a flat panel monitor) and have a natural orientation known to a POSITA. Bretschneider Decl. at ¶¶ 78, 88. The back of the display is the bottom and "above" refers to the direction the light would travel to the observer of the screen. *Id.*[2] The meaning of this term is reasonably certain.

The "directional" terms are therefore not indefinite, and BOE's argument should be rejected.

[2] In a display, the light source shines into a light guiding plate that refracts the light to allow for a display to have uniform luminosity across its expanse. *E.g.*, https://hackaday.com/2023/03/13/a-hackers-introduction-to-diy-light-guide-plates/ (describing a torn-down display under "Industry Practices"). A similar structure is shown in Fig. 4 of the '842 patent. In a display, a user is observing the refracted light that escapes the light-guiding plate, not light directly from the light source.

C. Fastener: '842 Patent, Claims 3 & 7

Optronic	BOE
A feature that attaches something[3]	Structure that fixes the position of the LED relative to the light guide plate and circuit board

Optronic proposes to construe "fastener" according to its plain and ordinary meaning, which is "a feature that attaches something." In the claims, the fastener is described as having a "light emitting device disposed on the first portion" of the fastener. '842 patent at claims 3.c, 7.c. Similarly, in the specification, a preferred embodiment of the fastener is described as having a "surface to which to attach a chip" and another surface "for attachment of a printed circuit board." *Id.* at 4:1-9; *see also id.* at 2:7 ("a chip 32 on top of fastener 33"), 2:31-35 ("fastener of a novel shape, which provides a first surface to which a chip and light emitting device module attach, while also providing a second surface for attachment of a … PCB"). Nothing in the file history alters the plain meaning of the term. The use of fastener in the intrinsic evidence is also consistent with the plain use of "fastener" in dictionaries as well. Ex. 13 at 407 ("fasten" means to "to attach firmly to" or "to make fast or secure"); Ex. 14 at 493 ("fastening" means "the act or way of making something fast, or secure").

BOE proposes to construe fastener by importing limitations related to what is fastened (an LED) and how ("relative" to the light guiding plate and circuit board). BOE has identified no evidence of a clear and unambiguous intent of the inventors to import these limitations. *E.g.*, *Epistar Corp. v. ITC*, 566 F.3d 1321, 1334 (Fed. Cir. 2009) (setting forth standard for importing limitations from the specification). Nor are BOE's proposed limitations consistent with the plain and ordinary meaning of fastener. For example, BOE's proposal seeks to import a limitation

[3] Optronic has simplified its proposal. Optronic originally proposed "one feature whose primary purpose is to attach something."

regarding a circuit board even though no circuit board is claimed in claim 3 of the '842 patent. There is also no intrinsic evidence supporting BOE's proposal that the "fastener" term requires that an LED must be fixed "relative to the light guiding plate and circuit board." Instead, claim 3 only requires that an LED be fixed to the "first portion of the first fastener," and has no limitation regarding how the LED is fixed "relative" to any other aspect of the claim limitations. '842 patent at claims 3.c, 7.c.

Moreover, BOE's proposal of the LED being fixed "relative" to the light guiding plate and circuit board is ambiguous and not helpful to a jury. What does "relative" mean in this context? What positions would be considered "relative" to the light guiding plate or circuit board, and which would not? BOE's proposed construction does not answer these questions and, because the intrinsic evidence does not include any such limitation, the intrinsic evidence does not answer these questions either.

The Court should therefore construe "fastener" as "a feature that attaches something," as proposed by Optronic.

D. The Preambles Are Not Limiting

Term	Optronic	BOE
"A sealant region pattern for a liquid crystal display" / "The sealant region of claim 9"; '801 patent, claims 9 & 10	Not limiting	Preambles are limiting
"An encapsulating structure for a liquid crystal display device" / "The structure claimed in claim 1"; ''914 patent, claims 1 & 5	Not limiting	Preambles are limiting

"[A] preamble is not limiting 'where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.'" *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997)). A preamble can be limiting, on the other hand,

if it is "'necessary to give life, meaning, and vitality' to the claim" or "recites essential structure or steps." *Id.* (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999)). There is no black-and-white test for determining whether a preamble is limiting, but courts have used "guideposts" such as when the preamble is the antecedent basis for a limitation, or the preamble is necessary to understand the claims or distinguish prior art. *Id.* at 808-09.

BOE argues that the preambles are limiting because they "recite the essence of the invention." Neikirk Decl. at ¶¶ 75, 82. BOE's argument, however, is focused on preferred embodiments, not the claims. With respect to the preambles of the '914 patent, BOE does not cite to a single claim limitation that is only understandable in the context of an "encapsulating structure for a liquid crystal display." *Id.* at ¶ 83. The essential aspects of the invention, including a "sealant region," two substrates, and sealant, are claimed in the non-preamble limitations of claim 9 of the '914 patent. BOE also argues that the inventors changed the preamble from a "structure for encapsulating" to an "encapsulating structure" to distinguish prior art or resolve a §112 objection, thereby suggesting the preamble was used for validity purposes during prosecution. Neikirk Decl. at ¶ 85. This argument is not, however, consistent with the file history. The §112 objection had nothing to do with the preamble. Ex. 15 at OPTRONIC-BOE-00000625-27. And the prior art was not distinguished using the preamble. *Id.* at OPTRONIC-BOE-00000652-56.[4] Accordingly, the preambles of the '914 patent are not limiting.

BOE's argument regarding the preambles of the '801 patent is similarly deficient. BOE's argument again focuses on the preferred embodiments disclosed in the specification and not the claims. Neikirk Decl. at ¶¶ 77-78. The critical aspects of the invention are claimed as limitations

[4] BOE also points out that certain Patent Office rejections addressed how the prior art purportedly disclosed the preamble as well as other claim limitations. Because the inventors never use the preamble to distinguish prior art, this argument is irrelevant.

of the claims, a fact that BOE appears to confirm when it argues that it is the claim limitations (not the preamble) that provide the benefits of the invention. '801 patent at claims 9, 10 (claiming, *inter alia*, multiple substrates, a pattern layer, a saw tooth opening, and an angle); Neikirk Decl. at ¶ 78.

Moreover, even if BOE could successfully argue that the "sealant region"/"encapsulating structure" aspects of the preamble were limiting, BOE has presented no argument that the claimed region or structure should be limited to use in liquid crystal displays. The reference to liquid crystal displays is nothing more than a reference to purpose that, under *Catalina*, should not be as limiting. Even if the Court were to find that some aspects of the preambles are limiting, it should not find that the "for a liquid crystal display" aspect of the preambles is limiting.

Accordingly, the Court should reject BOE's argument that the preambles of the '801 and '914 patent are limiting.

E. The Saw Tooth Limitations

Term	Optronic	BOE
"comprising / saw tooth opening"; '801 patent, claim 9	Plain and ordinary meaning	Plain and ordinary meaning, i.e., opening that looks like the teeth of a saw blade Comprising does not operate to literally encompass other shapes.
"comprising / saw tooth pattern"; '914 patent, claim 1	Plain and ordinary meaning	Plain and ordinary meaning, i.e., pattern that looks like the teeth of a saw blade Comprising does not operate to literally encompass other shapes.

The saw tooth limitations do not need to be construed because they are written in plain and understandable language. The claims of the '801 and '914 patents do not use these terms in an unusual manner. Similarly, the specifications do not modify the plain meaning of the "saw tooth"

terms. *E.g.*, '801 patent at Figs. 1A, 1B, 2:9-16, 2:34-35, 3:5-14; '914 patent at Fig. 5, 4:39-48. Indeed, the fact that this same term is used in a consistent manner by unrelated patents with different inventors like the '801 and '914 patents confirms that the term is well understood and need not be construed.

BOE's proposed construction does little more than rewrite the claim limitation in other words and introduce potentially confusing concepts like a "saw blade" that are not otherwise found in the intrinsic evidence. BOE's proposed construction, for example, could be interpreted to require that infringement can only be shown if the accused saw tooth pattern is found on an actual saw blade, which is not consistent with the plain meaning of these terms. BOE has provided no reason why this rewriting is appropriate or necessary here.

BOE also provides the same construction of "comprising" that it proposes above regarding the "L-shaped" limitation in the '842 patent. As explained above, *Amgen* and similar cases clearly define the meaning of "comprising" in patent law. *See* 945 F.3d at 1378-79. BOE has not identified any evidence that the inventors intended to adopt an alternative meaning of this term as used in the '801 and '914 patents.

Accordingly, the Court should reject BOE's proposed constructions.

F. Layer: '801 Patent, Claim 9

Optronic	**BOE**
film of a single material created during manufacturing	one or more layers

In the art, the term "layer" refers to a "film of a single material created during manufacturing." Bretschneider Decl. at ¶¶ 34-36. In simplified form, devices are built by growing or depositing a layer of material on top of another. *Id.* at ¶ 34 (also describing basic techniques like patterning and etching). Claim 9 of the '801 patent describes a predetermined material layer formed on the substrate, and an organic material layer formed on the predetermined material layer.

Claims 12 and 13 limit the predetermined material layer to being either a passivation layer or a metal electrode layer. The specification similarly discloses a "layer" as being a film of a single material (such as silicon nitride or an organic material) in a manner consistent with the plain meaning of "layer." '801 patent at Fig. 2A, 2:46-65; *see also id.* at Fig. 1C, 2:25-33.

BOE proposes to expand the meaning of "layer" to include multiple layers of multiple materials. This is discussed below where BOE proposes to construe "a predetermined material layer" as "one or more material layers." In other words, BOE effectively proposes to transform "layer" into a circle-drawing exercise where any number of layers can be combined to serve its invalidity or non-infringement positions. BOE argues that its construction is correct by arguing that, in patent law, both the article "a" and term "comprising" are open-ended. Neikirk Decl. at ¶¶ 37-38. But BOE's argument ignores the context of the intrinsic evidence, which discloses a predetermined material layer is ***formed on*** the substate and the organic layer ***formed on*** the predetermined material layer. This "formed on" language and reference to the layer having a single "predetermined" or "organic" material is inconsistent with a layer encompassing multiple films of multiple materials as proposed by BOE.[5] *See, e.g.*, *E.g.*, *Amgen*, 945 F.3d at 1378-79 ("comprising" is open-ended unless it conflicts with other claim limitations); *Abtox, Inc. v. Exitron Corp.*, 122 F.3d 1019, 1023-27 (Fed. Cir. 1997) (examining claim language and other intrinsic evidence to find that "a metallic gas-confining chamber" referred to a single chamber in the claims despite general meaning of "a" in a claim). BOE also argues that the specification disclosing that a layer can include a "combination" of materials supports its argument. Neikirk Decl. at ¶ 38 (citing

[5] As addressed below, BOE tries to address this problem by effectively construing "formed on" as "formed above." This is not consistent with the plain meaning of "on." The fact that BOE's argument is only viable if another term is also construed more broadly than its ordinary meaning is further evidence that BOE's argument should be rejected.

'801 patent at 2:50-52). But the plain meaning of the sentence cited by BOE is that a single layer can be made up of a combination of compounds, a reading consistent with the plain meaning of the term and claim language (a combination of compounds used in a single film would still be, for example, a "predetermined material layer").

BOE also argues that its construction is supported because, in claims 3 and 6 of the '121 patent, a "second dielectric layer" is claimed as having two component layers. The '121 patent is unrelated to the '801 patent, has different inventors, and does not describe the "second dielectric layer" using the same language that is discussed above. Nor does the '121 patent change the plain meaning of layer. To the contrary, it demonstrates that, when a POSITA intends to informally use "layer" to encompass multiple layers, the POSITA expressly discloses as much. BOE can point to no such disclosure in the '801 patent. BOE's argument also fails to account for other differences between claim 1 of the '121 patent, and the claims of the '801 patent, including the "formed on" language and the fact that the '801 patent refers to each layer by its composition (a "predetermined material" or a "organic material") as opposed to its functionality as a dielectric.[6]

Accordingly, the Court should adopt the construction proposed by Optronic.

[6] BOE alternatively argues that claims 3, 4, and 6 of the '121 patent are indefinite under Optronic's proposed construction. But neither party has proposed to construe "layer" in the '121 patent. The '121 patent has different intrinsic evidence, and a different plain and ordinary meaning. The fact that the inventors of the '121 patent chose to define their "second dielectric layer" (but not other claimed layers) as having multiple layers in claims 3 and 6 does not render claims 3, 4 and 6 of the '121 patent indefinite because the scope is reasonably understandable to a POSITA.

G. Formed On Terms

Term	Optronic	BOE
"formed on"; '801 patent, claim 9	Plain and ordinary meaning, which is "forming in a manner directly touching the below layer or substrate"	Plain and ordinary meaning
"directly formed on"; '121 patent, claim 1	Plain and ordinary meaning	Plain and ordinary meaning, i.e., formed on without any intervening material
"the gate oxide layer in the first area is formed directly on the substrate"; '117 patent, claim 1	Plain and ordinary meaning	Plain and ordinary meaning, i.e., the gate oxide layer in the first area is formed on the substrate without any intervening material

The plain meaning of "formed on" in the '801 patent is discussed above with respect to layer. The intrinsic evidence discusses "formed on" according to its plain and ordinary meaning where each layer is touching the one below it. '801 patent at Figs. 1C, 2A, 2:25-33, 2:46-65; *see also* Bretschneider Decl. at ¶¶ 48-51. Optronic's proposal is also consistent with how both of its expert have used the term in their own patents. *E.g.*, Ex. 23 (Dr. Neikirk patent) at Fig. 1A, 6:62-63 ("a passivation layer 104 formed on the substrate 102"; passivation layer and substrate are shown as touching in Fig. 1A); *id*. at Fig. 5B, 8:11-12 ("A photoresist and LOR resist 502 are formed on the substrate 102"); Ex. 24 (Dr. Baker patent) at Fig. 4, 4:20-22 ("a first reference plate or layer 302 of conductive or semiconductive material formed on the substrate 102 or silicon wafer"; shown touching in Fig. 4).

Though BOE says it is adopting the plain meaning of this term, BOE proposes to construe this term to allow for an "indirect" form of "formed on," effectively construing the term as "formed above." Neikirk Decl. at ¶ 52. According to BOE, putting a box "on" a table is the same as putting the box "on" the floor because the table is on the floor. This is not the plain meaning of "on," is not consistent with the intrinsic evidence, and is not consistent with how its own experts use the

same term. BOE provides no explanation for its argument that the plain meaning of "formed on" is formed above, and BOE cites to no intrinsic evidence demonstrating an intention of the inventors to broaden the term in such a manner. BOE only cites to a passage of the specification where a sealant is used to "attach" substrate 232 to substrate 260. Neikirk Decl. at ¶ 52. The cited passage does not refer to "formed on" and claim 9 does not use "formed on" to refer to how the two substrates are connected. BOE's cited evidence is irrelevant.

BOE also argues that the '121 and '117 patents, which use "directly formed on" and "formed directly on," are a "contrast" to Optronic's proposed construction of "formed on." *Id*. at ¶ 52. BOE seems to argue that the '121 patent and '117 patent are part of the intrinsic record of the '801 patent. *Id*. at ¶¶ 53-59. But the '121 and '117 patents are from different families and different inventors. The fact that those inventors chose to add "directly" to "formed on" does not change the plain meaning of the "formed on" term in the '801 patent.

With respect to the terms as used in the '121 and '117 patent, Optronic does not believe that the terms should be rewritten. BOE proposes to rewrite "directly" as "without any intervening material," but it is not clear what the purpose of its proposal is. The term "directly" is straightforward and need not be construed further. And if BOE proposes to construe this term to add limitations inconsistent with its plain meaning, BOE's proposal is inappropriate because it has not identified any evidence of the intent of the inventors to import such a limitation.

Accordingly, the Court should adopt Optronic's proposed constructions for these terms.

H. A Predetermined Material Layer Formed On The First Substrate: '801 Patent, Claim 9

Optronic	BOE
Plain and ordinary meaning (accounting for the constructions of "layer" and "formed on")	**one or more** material layers formed on the first substrate **prior to forming the organic layer**

BOE proposes to construe this term to add the two bolded portions. BOE's proposal to transform "layer" to multiple layers is addressed above. BOE's proposal demonstrates a fundamental problem with BOE's "one or more" construction of layer. BOE applies its construction here to negate the "predetermined" limitation such that the "predetermined layer" would be met by multiple layers of multiple materials. Another application of BOE's proposed "one or more" construction of "layer" would be multiple layers of the same "predetermined material."[7] The intrinsic evidence does not answer which potential construction is correct because the inventors did not intend the predetermined material layer to be multiple layers. This ambiguity is further evidence of the impropriety of BOE's proposed construction.

BOE also proposes to import the limitation that the predetermined material layer must be formed "prior to forming the organic layer." This limitation is not in the claim language, and there is no intrinsic evidence of an intent to import this limitation. This is a manufacturing detail that is beyond the scope of the claims. As long as the resulting device includes the claimed organic layer formed on the predetermined material layer, it does not matter if the predetermined layer is formed before, after or at the same time as the organic layer. Bretschneider Decl. at ¶ 105.

[7] BOE adopts its proposed construction to create a better fit for its preferred invalidity reference. In the Zhang reference cited by BOE in its IPR petition, the "predetermined material layer" identified by BOE has a "first metal layer 321, a dielectric layer 322, and a second metal layer 323." Bretschneider Decl. at ¶ 39. Construing this term according to its plain meaning or by requiring the same material form each of the layers would contradict BOE's invalidity argument.

The Court should therefore decline to construe this term beyond the "layer" and "formed on" constructions addressed previously.

I. Wherein The Sealant Is Adapted To Contact The First Material Layer And The Second Material Layer Through The Opening, And The Sealant Has Substantially Flat Contact Bottom Surfaces With The First And Second Material Layers Via The Opening: '914 Patent, Claim 1

Optronic	BOE
Plain and ordinary meaning	Plain and ordinary meaning where "and" is conjunctive and does not encompass "or." I.e., wherein the sealant is adapted to contact both the first and second layers through the opening and the sealant has substantially flat contact bottom surfaces with **both** the first and second material layers via the opening.

BOE improperly seeks to narrow this claim term. The plain meaning of the term is apparent. In the claims, the sealant is disposed on the second material layer and fills the opening to contact the first material layer. '914 patent at claim 1(d)-1(f). The specification similarly discloses a preferred embodiment where a second material layer (organic polymer layer 214) is disclosed with an opening (openings 26) that permits contact with the first material layer (passivation layer 220). '914 patent at 3:34-57. BOE proposes to rewrite this term to import two limitations, both of which should be rejected. First, BOE proposes to import the limitation that the sealant contact the second material layer "through the opening," but BOE's proposed limitation is contrary to claim 1(d) where the sealant is disposed on the second material layer. Because it conflicts with another claim limitation, BOE's proposed limitation is not accurate. Second, BOE proposes to import the bolded "both" limitation. At best, BOE's proposed new word creates the ambiguity of what it means for "both" layers to have contact surfaces "via the opening." For example, the addition of "both" could be interpreted as requiring that the sealant be in contact with both layers using the same substantially flat contact bottom surface. But this interpretation is not

supported by the intrinsic evidence. BOE's proposed imported limitations should therefore be rejected.

J. Each Pixel / Each Pixel Area: '121 Patent, Claims 1 & 2

Optronic	BOE
Plain and ordinary meaning	Each and every pixel / each and every pixel area

BOE proposes to add "and every" to each term, which should be rejected. The phrase "each and every" appears nowhere in the intrinsic evidence. Claim 1(b) of the '121 patent claims a plurality of pixels with each pixel having a pixel area. "Each" is used as effectively an antecedent reference to each pixel that comprises the claimed plurality. The claim language does not, however, require that every pixel in a display meet the claimed limitations. BOE's proposed construction, however, seeks to import an "every" limitation that could be interpreted to import the limitation that every pixel in the accused display conform to the claim limitations, which would drastically change the claim scope. BOE has, however, not identified any evidence of an intent by the inventors to import such a limitation. And BOE does not adopt its proposed construction in its IPR petition. *E.g.*, Ex. 16 at 8-9 (arguing invalidity by identifying a single pixel structure, not "every" structure in a device). BOE may argue that its proposal is for clarity, but there is nothing unclear about "each" as used in the claims. BOE's proposed construction should therefore be rejected.

K. Defining At Least A First Area For Capacitors And A Second Area For A Transistor On The Substrate: '117 Patent, Claim 1; '222 Patent, Claim 1

Optronic	BOE
Plain and ordinary meaning	defining at least a first area for capacitors and a **non-overlapping** second area for a transistor on the substrate

This term has a plain meaning in light of the intrinsic evidence, which BOE does not appear to dispute. Instead, BOE seeks to import the limitation that the second area must be "non-overlapping." BOE has not identified any evidence of the inventors' intent to import such a

limitation. At best, it appears that BOE seeks to import the preferred embodiment shown in Fig. 2, which is inappropriate. *See* '117 patent at 4:4-6 (Fig. 2 is "consistent with a first embodiment"); *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1327 (Fed. Cir. 2012) ("it is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited"). BOE's proposed imported limitation should therefore be rejected.

L. Is Electrically Connected To: '222 Patent, Claim 1

Optronic	BOE
Plain and ordinary meaning	is connected such that electric conduction current can flow to

As BOE acknowledges, the plain meaning of this phrase is broad and encompasses many types of electrical connections, whether they be direct (such as connecting to a battery) or indirect (such as a capacitive electrical connection). Neikirk Decl. at ¶ 61 ("In a broad sense…"). BOE argues that the inventors disclaimed this broad scope to narrow the scope of the term to "connected such that electric conduction current flow." BOE's argument should be rejected as being inconsistent with the file history statements.

During prosecution of the '477 patent, of which the '222 patent is a divisional, the examiner rejected the claims as unpatentable over the Koo reference. Koo discloses a capacitor with a second electrode 143 and a gate electrode 131 that the examiner identified as the claimed "second conductive layer" and "fourth conductive layer." Ex. 17 at [0039]; Ex. 18 at OPTRONIC-BOE-00001240. The examiner suggested adding the limitation that the second and fourth conductive layers were electrically connected to overcome the Koo rejection. *Id.* at OPTRONIC-BOE-00001278; Neikirk Decl. at ¶ 69. The inventors did so, but provided no further explanation, let alone one that suggests that the inventors intended the limitation to mean anything other than its

plain and ordinary meaning. Ex. 18 at OPTRONIC-BOE-00001240, 68. The inventors also added the limitation that the first conductive layer "is directly connected" to a power supply voltage, which they argued distinguished the prior art. *Id*.

Disclaimer requires clear and unambiguous evidence of an intent to disclaim subject matter by the inventors. *Epistar*, 566 F.3d at 1334. Where a file history passage is subject to multiple interpretations, it does not meet the "high standard for finding a disclaimer" and no disclaimer should be found. *E.g.*, *Avid Tech., Inc. v. Harmonic, Inc.*, 812 F.3d 1040, 1046-47 (Fed. Cir. 2016) (rejecting disclaimer where file history passage was subject to multiple interpretations). Here, the inventors added the limitation "is electrically connected to" in an amendment during prosecution. The inventors did not, however, unambiguously limit the meaning of the term further. No disclaimer of the plain meaning of this term should be found.

BOE tries to disguise its disclaimer argument by arguing that it is simply expressing the plain meaning of the term in light of the intrinsic evidence. But BOE is changing, not applying, the intrinsic evidence. For example, according to BOE, the inventors "added this claim term to distinguish the source/drain of a transistor as not 'electrically connected' to the gate of that transistor." Neikirk Decl. at ¶ 68. But this is BOE's interpretation and expansion of the file history. The inventors argument distinguished Koo's "second electrode 143," not Koo's "source/drain electrode 141," using the "is electrically connected to" term. Ex. 18 at OPTRONIC-BOE-00001268.[8] The inventors added a different "is directly connected" limitation to distinguish Koo's source/drain electrode. *Id*. Without citation to any inventor statement, BOE equates "second electrode 143" to Koo's source/drain, and then builds an argument based on that interpretation.

[8] BOE also cites to a "Fig. 1" that is not in Koo or the intrinsic evidence. Neikirk Decl. at ¶ 67. BOE does not cite where the "figure" came from. Regardless, it should be disregarded as irrelevant.

This type of interpretative exercise is not clear and unambiguous evidence that supports disclaimer. *E.g.*, *Avid*, 812 F.3d at 1046-47

Moreover, the single sentence from the file history is subject to multiple interpretations. BOE's argument provides one such interpretation (though Optronic believes it is wrong). Another potential interpretation is that the inventors were referring to the capacitive connection between Koo's second electrode and the gate. Neikirk Decl. at ¶ 71 (discussing the structures references by the inventors are capacitively connected). Another interpretation is that the inventors had no particular intent and simply adopted the limitation proposed by the examiner. The presence of multiple interpretations contradicts BOE's argument that the file history limits this term beyond its plain and ordinary meaning. *Avid*, 812 F.3d at 1046-47.

BOE's proposed construction is also contradicted by the intrinsic evidence. At the same time that this term was added to the claims, the inventors added the "is directly connected" limitation. If the inventors had intended to add a specific type of electrical connection, such as the one proposed by BOE, they would have done so. In fact, though expressed in more words, it appears that BOE's proposed construction may be an attempt to limit this term to a direct connection between layers. However, if the inventors had intended such a connection, they could have expressly claimed as much.

BOE's proposed construction is also ambiguous because it is not clear what "electric conduction current" is. This term is not found in the intrinsic evidence, and BOE does not explain what the phrase means in its proposed construction. Moreover, BOE originally proposed to construe this term using the phrase "electric current." Ex. 19 at 9. BOE later narrowed its proposed construction to add its proposed "conduction" limitation. BOE also submitted an IPR petition for the '222 patent's sister patent, the '477 patent, where it simply applied the plain and ordinary

meaning and argued that any electrical connection was sufficient. Ex. 20 at 29-30. BOE has not been consistent with its proposed plain meaning of this term, further demonstrating that BOE's construction should be rejected.

The Court should therefore reject BOE's overly narrow proposed construction and should adopt Optronic's proposal.

M. Auxiliary Electrode: '509 Patent, Claims 1, 5 & 10

Optronic	BOE
Plain and ordinary meaning, meaning an electrode which does not perform a primary and essential functionality	Supplemental electrode

There is no dispute that the plain meaning of "auxiliary" is "supplemental." This is consistent with the intrinsic evidence describing the auxiliary electrode as supplementing the functionality of the first electrode, not operating as the primary and essential electrode. In one preferred embodiment, the first auxiliary electrode and first electrode layer are electrically connected in such a manner to "reduce the total resistance of the pixel structure 100 by about 40%." '509 patent at 5:63-6:13, 8:14-33; *see also id.* at claim 10, 11. In another preferred embodiment, two auxiliary electrodes are connected to the first electrode layer to reduce total resistance even further. *Id.* at 7:43-60. Reducing the total resistance of a pixel structure improves the uniformity of the brightness in a pixel, an enhancement of the primary and essential functionality of the first electrode layer to provide power to the pixel. *See* Bretschneider Decl. at ¶62 ("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"). These embodiments are consistent with uses of "auxiliary" in other contexts to refer to enhancements of primary functionality. Ex. 21 at 51 (dictionary cited by BOE; "auxiliary device" "is added to enhance the performance of the main device"; "auxiliary contacts" are "contacts whose function is linked to

that of the main circuit contacts"; "auxiliary switch" is a "switch that works in unison with another").

The dispute here is the breadth with which BOE interprets "supplemental." In its IPR petition, BOE (using the same expert it relies on in the litigation) contends that the "auxiliary electrode" is any electrode that is electrically connected to the claimed first electrode layer, regardless of its functionality relative to the first electrode layer. *E.g.*, Ex. 22 at 69:1-70:4. BOE's argument changes the meaning of "auxiliary" to effectively mean "any other," which is inconsistent with the plain and ordinary meaning of "auxiliary." It is also inconsistent with the "second electrode layer" limitation of claim 1 of the '509 patent. BOE's broad proposed construction negates the meaning of "auxiliary" such that there would be little if any difference between the "auxiliary electrode" and "second electrode layer." BOE's argument does not explain its position. Instead, BOE opposes Optronic's proposed construction because it purportedly imports a "reducing resistance" limitation from the specification. Optronic proposes no such limitation. As described above, Optronic's proposal is based on the plain meaning of "auxiliary" and is not limited to a particular auxiliary functionality.

The Court should therefore adopt Optronic's proposed construction that addresses the actual dispute among the parties.

V. CONCLUSION

Optronic's proposed constructions are consistent with the intrinsic evidence while BOE's proposed construction are not. The Court should therefore adopt Optronic's proposed constructions and reject BOE's proposals.

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Respectfully submitted,

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IPR2024-01133 - BOE
Exhibit 1015 - Page 29

CERTIFICATE OF SERVICE

The undersigned certifies that all counsel of record who are deemed to have consented to electronic service are being served with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3) on June 3, 2025.

/s/ Benjamin T. Wang
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