

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG DISPLAY CO., LTD.,
Petitioner,

v.

PICTIVA DISPLAYS INTERNATIONAL LTD.,
Patent Owner.

Case No. IPR2024-01187
Patent No. 9,257,492

PATENT OWNER SUR-REPLY

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TABLE OF CONTENTS

	<u>Page(s)</u>
I. INTRODUCTION	1
II. CLAIM CONSTRUCTION	2
A. “Electrically Conductive Layer” Terms.....	2
B. “A First Trench in the First and Second Electrically Conductive Layers”	5
C. “Forming a First Trench”	8
III. GROUND 1 (INGLE AND HASEI).....	11
A. Failure to Establish Applying an “Electrically Conductive Electrode Layer” in a “Structured Fashion”	11
B. Failure to Establish Applying “an Electrically Conductive Electrode Layer ... Above the First Contact Region”	18
C. No Working Electronic Component	22
IV. GROUND 2 (HANAMURA).....	25
V. GROUND 3 (HANAMURA AND EGITTO)	26
VI. CONCLUSION	26

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Adidas AG v. Nike, Inc.</i> , 963 F.3d 1355 (Fed. Cir. 2020)	21
<i>Arendi S.A.R.L. v. Apple Inc.</i> , 832 F.3d 1355 (Fed. Cir. 2016)	18
<i>Ariosa Diagnostics v. Verinata Health, Inc.</i> , 805 F.3d 1359 (Fed. Cir. 2015)	24
<i>Arlington Indus., Inc. v. Bridgeport Fittings, Inc.</i> , 632 F.3d 1246 (Fed. Cir. 2011)	16
<i>Berkheimer v. HP Inc.</i> , 881 F.3d 1360 (Fed. Cir. 2018)	14
<i>CVI/Beta Ventures, Inc. v. Tura LP</i> , 112 F.3d 1146 (Fed. Cir. 1997)	20
<i>Dell Inc. v. Acceleron, LLC</i> , 818 F.3d 1293 (Fed. Cir. 2016)	3
<i>Fanduel, Inc. v. Interactive Games LLC</i> , 966 F.3d 1334 (Fed. Cir. 2020)	17
<i>Finesse Wireless LLC v. AT&T Mobility LLC</i> , No. 2024-1039, 2025 WL 2713518 (Fed. Cir. Sept. 24, 2025).....	25
<i>Function Media, L.L.C. v. Google, Inc.</i> , 708 F.3d 1310 (Fed. Cir. 2013)	10
<i>Groove Digital, Inc. v. United Bank</i> , 825 F. App'x 852 (Fed. Cir. 2020)	7
<i>Hisense USA Corp. v. Brightplus Ventures LLC</i> , IPR2023-01410, Paper 7 (PTAB Apr. 4, 2024)	5
<i>Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.</i> , 381 F.3d 1111 (Fed. Cir. 2004)	4

<i>Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.,</i> 821 F.3d 1359 (Fed. Cir. 2016)	24
<i>Interactive Commc'ns Int., Inc. v. Blackhawk Network Inc.,</i> IPR2024-00456, Paper 40	24
<i>IP Innovation, L.L.C. v. Ecollege.com,</i> 156 F. App'x 317 (Fed. Cir. 2005)	5
<i>Lexion Med., LLC v. Northgate Techs., Inc.,</i> 641 F.3d 1352 (Fed. Cir. 2011)	5
<i>Mars, Inc. v. H.J. Heinz Co.,</i> 377 F.3d 1369 (Fed. Cir. 2004)	2
<i>McGinley v. Franklin Sports, Inc.,</i> 262 F.3d 1339 (Fed. Cir. 2001)	21
<i>Medtronic, Inc. v. Teleflex Life Scis. Ltd.,</i> No. 2022-1605, 2024 WL 1208642 (Fed. Cir. Mar. 21, 2024)	9, 10, 12
<i>Mformation Techs., Inc. v. Rsch. in Motion Ltd.,</i> 764 F.3d 1392 (Fed. Cir. 2014)	9, 11
<i>Moba, B.V. v. Diamond Automation, Inc.,</i> 325 F.3d 1306 (Fed. Cir. 2003)	9
<i>Nintendo Co. v. Genuine Enabling Tech LLC,</i> IPR2018-00543, Paper 7 (PTAB Aug. 6, 2018)	23
<i>Nystrom v. TREX Co.,</i> 424 F.3d 1136 (Fed. Cir. 2005)	20
<i>Phillips v. AWH Corp.,</i> 415 F.3d 1303 (Fed. Cir. 2005) (en banc)	2, 5
<i>Profectus Tech. LLC v. Huawei Techs. Co.,</i> 823 F.3d 1375 (Fed. Cir. 2016)	5
<i>RFID Tracker, Ltd. v. Wal-Mart Stores, Inc.,</i> 342 F. App'x 628 (Fed. Cir. 2009)	4

Sandisk Corp. v. Memorex Prods., Inc.,
415 F.3d 1278 (Fed. Cir. 2005) 4

SunRace Roots Enter. Co. v. SRAM Corp.,
336 F.3d 1298 (Fed. Cir. 2003) 8

Wi-Lan, Inc. v. Apple, Inc.,
811 F.3d 455 (Fed. Cir. 2016) 9, 11

Statutes

35 U.S.C. § 312(a)(3).....24

35 U.S.C. § 316(e) 17

Rules

37 C.F.R. § 42.6(a)(3).....4

37 C.F.R. § 42.65(a).....23, 24

EXHIBIT LIST

Exhibit No.	Document
EX2001	Declaration of P. Morgan Pattison, Ph.D.
EX2002	U.S. Patent Publication No. 2012/0267147 (Ingle)
EX2003	Federal Court Management Statistics for U.S. District Courts, available from https://www.uscourts.gov/statistics/table/na/federal-court-management-statistics/2024/06/30-1
EX2004	Samsung Invalidity Contentions in <i>Pictiva Displays Int'l Ltd. v. Samsung Elecs. Co.</i> , No. 2:23-cv-000495-JRG (E.D. Tex.).
EX2005	Supplemental Declaration of P. Morgan Pattison, Ph.D.
EX2006	Deposition Transcript of Alex Z. Kattamis, Ph.D., on May 7, 2025
EX2007	Memorandum Claim Construction Opinion and Order in <i>Pictiva Displays International Ltd. V. Samsung Electronics Co., Ltd.</i> , 2:23-cv-495 (E.D. Tex. June 27, 2025)

I. INTRODUCTION

On the full record, the Board should uphold the patentability of each challenged claim because Petitioner has not met its burden to establish that they are unpatentable by a preponderance of evidence.

For Ground 1, the Reply retreads many of the same arguments refuted in the POR. For example, Petitioner maintains that Hasei’s “droplet discharging method” was an example of a “conventional process” to form an OLED on the structure disclosed in Ingle despite Petitioner’s own expert’s admission that he was “personally *not aware of anyone having fabricated such a device in the claimed manner* prior to the ’492 Patent.” EX2006, 43:25-44:4.¹ And confronted with the deficiencies of the hypothetical cathode depicted by Petitioner’s expert’s annotation to Ingle Figure 1I, the Reply impermissibly introduces a new theory, arguing that a POSITA would alter both the structures expressly disclosed in Ingle and the hypothetical cathode that Petitioner’s own expert proposed in previously undisclosed ways to achieve the claimed invention.

For Grounds 2 and 3, the Reply does not meaningfully argue obviousness under Pictiva’s proposed claim constructions. Nor does Petitioner propose its own constructions, arguing instead that isolated words have unstated plain and ordinary

¹ All emphases added throughout unless otherwise noted.

meanings instead of considering the complete terms in view of the intrinsic record. Petitioner also improperly attempts to conflate separately recited method claim steps in conflict with the plain claim language and every disclosed embodiment.

In summary, the Reply fails to remedy the deficiencies of the Petition.

II. CLAIM CONSTRUCTION

Despite the Board’s observation that patentability arguments “significantly implicate construction” of the term “electrically conductive layer” (Paper 10 at 19-20), Petitioner contends no construction is necessary because the terms “involve nontechnical words.” Reply 1. But Petitioner’s arguments improperly focus on words in isolation, disregarding black-letter law requiring consideration of the “context in which a term is used in the asserted claim.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc).

A. “Electrically Conductive Layer” Terms

Petitioner’s Reply proposes no constructions but appears to ask the Board to consider the words “layer” or “on” in the abstract in a manner that improperly disregards the full context of the disputed claim terms. *See, e.g., Mars, Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1373-74 (Fed. Cir. 2004) (rejecting construction focused improperly on the term “ingredients” in isolation rather than the complete limitation, “a mixture of solid and lipid ingredients”).

The Reply does not dispute that Pictiva applies the plain and ordinary meaning of “electrically conductive layer on [‘a substrate’ / ‘the first electrically conductive layer’]” to mean “electrically conductive material formed on” the substrate or first layer. *See* Reply 1-2. Indeed, it is difficult to envision an argument to the contrary, as the claims recite “electrically conductive layer[s],” and there is no dispute that electrical conductivity requires electrically conductive material.

The Reply nonetheless contends that the Board should permit “other, non-electrically-conductive materials as part of the layer.” Reply 4. Petitioner seemingly intends to broaden the claimed layers to include gaps containing air or a dielectric, for example, which would nullify the express “electrically conductive” requirement of every challenged claim. Petitioner’s cursory argument fails to explain otherwise, and therefore “runs counter to the claim-construction principle that meaning should be given to all of a claim’s terms.” *Dell Inc. v. Acceleron, LLC*, 818 F.3d 1293, 1300 (Fed. Cir. 2016). It also lacks support in the specification. Petitioner does not dispute that the specification consistently describes the claimed layers in terms of “materials or substances having the capability of conducting electric current.” EX1001, 2:36-41; *see also id.*, 2:50-52, 9:51-10:63, 2:57-63, 11:8-20. It also consistently distinguishes these layers from non-conductive components of the invention, such as the dielectric. *See id.*, 1:23-26, 3:8-19.

Petitioner cites *Sandisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1284 (Fed. Cir. 2005), to argue that the specification's reference to these layers "includ[ing]" electrically conductive material is not limiting. Reply 4 (citing EX1001, 2:36-41). But that case addressed claim language, and in any event such terms create a presumption at most. *See RFID Tracker, Ltd. v. Wal-Mart Stores, Inc.*, 342 F. App'x 628, 630-32 (Fed. Cir. 2009) (holding that patentee rebutted open-ended presumption of "including" claim term). The intrinsic record as a whole rebuts any such presumption. For example, Petitioner's fails to explain how gaps in a purported layer can be "removed" as required by claim 11. *See* POR 17-18.

The Reply also contends that the claimed layers may include materials not formed *on* the substrate or first electrically conductive layer. Petitioner effectively argues the identity of a layer is independent of what lies beneath it. Reply 2-3.² But that approach once again disregards the full claim terms, which Petitioner agrees require the first layer to be "formed on" the substrate and the second layer to be "formed on" the first. *See* Reply 1-2; *see also Innova/Pure Water, Inc. v. Safari*

² In this argument and throughout the Reply, Petitioner improperly attempts to incorporate a new, 17-page declaration by Dr. Kattamis (EX1030) without explaining its contents. *E.g.*, Reply 3 (¶¶ 10-13), 14 (¶¶ 17-18), 19 (¶¶ 20-21). Accordingly, the Board should disregard this declaration. *See* 37 C.F.R. § 42.6(a)(3).

Water Filtration Sys., Inc., 381 F.3d 1111, 1119 (Fed. Cir. 2004) (rejecting claim interpretation that “reads the term ‘operatively’ out of the phrase ‘operatively connected’”).³ Construing these terms as Pictiva proposes is consistent with every disclosed embodiment. *See* POR 18-19; *Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1381 (Fed. Cir. 2016). The specification’s reference to “various [undescribed] changes” (*see* Reply 3) cannot overcome these clear teachings. *See IP Innovation, L.L.C. v. Ecollege.com*, 156 F. App’x 317, 321 (Fed. Cir. 2005) (declining to broaden claims based on general “language that does not specifically address the inventive features in any detail”).

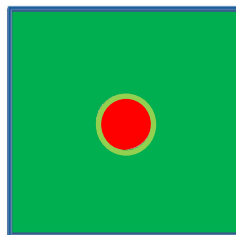
B. “A First Trench in the First and Second Electrically Conductive Layers”

The Reply focuses on the word “in” in the abstract, improperly elevating dictionary definitions above the context of the surrounding claim language and other intrinsic evidence. *See Phillips*, 415 F.3d at 1321 (rejecting approach of focusing “on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent”); *Lexion Med., LLC v. Northgate Techs., Inc.*, 641 F.3d

³ The Board decision cited in the Reply is inapposite, addressing the question of whether the term “on” precluded “intervening elements.” *Hisense USA Corp. v. Brightplus Ventures LLC*, IPR2023-01410, Paper 7, at 11-12 (PTAB Apr. 4, 2024).

1352, 1356 (Fed. Cir. 2011) (“The customary meaning of a claim term is not determined in a vacuum and should be harmonized, to the extent possible, with the intrinsic record, as understood within the technological field of the invention.”).

Nonetheless, Pictiva’s proposed construction (“a trench defined by (and thus adjacent to) edges of the electrically conductive material of both the first and second electrically conductive layers” (POR 21) is consistent with the purportedly “commonly understood meaning” of “in” (Reply 5) when viewed in the context of the complete limitation and the proper constructions of the first and second electrically conductive layers. Samsung’s analogy suggesting “in” does not require being “defined by” or “adjacent” (Reply 5-6) is inapt. Given that a “layer” must constitute “material,” a trench cannot be “in” the layer without being “in” (i.e., adjacent to and defined by) edges of the electrically conductive material of both layers. At any rate, the analogy is consistent with Pictiva’s construction. The red circle is defined and bound by the (light green) edge that is part of the material in the rectangle.



Petitioner does not dispute that this interpretation is consistent with every disclosed embodiment. *See* POR 21-24. Instead, Petitioner accuses Pictiva of attempting to limit the claims to preferred embodiments. Reply 6. But an “explicit definition is not required to inform a claim term’s meaning,” and the ’492 Patent’s “repeated and consistent description of a claim term may inform its construction.” *Groove Digital, Inc. v. United Bank*, 825 F. App’x 852, 856 (Fed. Cir. 2020) (collecting cases). Moreover, Petitioner’s implicit construction conflicts with the plain language of the claims by permitting an alleged “trench” (which connotes an empty space) to be formed “in” a location having no proximity to the materials of the purported first and second electrically conductive layers. Indeed, because Petitioner never offered a concrete construction of those terms, it is unclear that its “first trench” interpretation includes any location bounds whatsoever, despite the express requirement of being “in the first and second electrically conductive layers.” That cannot be correct: the empty space of the trench has to border some material on the edge(s).

The Reply also wrongly asserts that Pictiva’s argument regarding the need for the trench to “extend[] through the electrically conductive material of both the first and second layers” (POR 22) is irrelevant. Reply 7. To the contrary, the claim language clearly recites a “first trench” that is “in” both layers, and the specification explains that the “depth of the first trench corresponds to a common thickness of the

two electrically conductive layers.” EX1001, 11:32-34. Moreover, the specification describes—and claim 9 expressly recites—applying the dielectric in such a way that it “encapsulates edges and/or side surfaces of the first and second electrically conductive layers in the first trench.” *Id.*, 21:5-11; *see also* POR 23-24. Petitioner does not dispute that this encapsulation step would only be possible if those edges or side surfaces of the electrically conductive material are adjacent to (i.e., define the sides of) the first trench. Petitioner suggests that the inclusion of the encapsulation step in dependent claim 9 means that independent claim 1 is not so limited, but claim 9 is directed to that encapsulation step and merely references the structures recited in claim 1. Claim differentiation does not compel Petitioner’s construction because the claims differ in scope based on this separate aspect of the invention. *See SunRace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003). Similarly, claim 7’s description of forming the first trench by laser ablation simply means that claim 1 also includes etching. *See* EX1001, 4:5-9.

C. “Forming a First Trench”

The Reply again proposes no construction, but does not dispute that the “plain and ordinary meaning” of “forming” requires “the creation of something that did not previously exist.” Reply 7 (quoting POR 24). Petitioner contends, however, that “forming a first trench” does not require “removing certain portions of the previously formed first and second electrically conductive layers.” *Id.* (quoting POR 24).

Petitioner argues that “forming a first trench” may be performed concurrently with the previously recited steps, citing *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1314 (Fed. Cir. 2003), for the proposition that “separate and consecutive performance” is not required. *Moba* is easily distinguishable. The patent at issue “explicitly describe[d] simultaneous performance,” which was “consistent with ... a stated object of the invention” and the prosecution history. *Moba*, 325 F.3d at 1314. The ’492 Patent includes no such disclosures even suggesting—much less requiring—simultaneous performance.

Petitioner cites other ’492 Patent claims reciting terms such as “before” and “after” to argue that the lack of such express language in the “forming” terms precludes requiring the steps to be performed in a particular order. But method steps need not use such explicit terms. Petitioner admits that claims may explicitly or implicitly require ordered performance. Reply 8. Here, the use of antecedent basis to refer to the previously formed electrically conductive layers strongly suggests sequential performance. *See, e.g., Medtronic, Inc. v. Teleflex Life Scis. Ltd.*, No. 2022-1605, 2024 WL 1208642, at *3 (Fed. Cir. Mar. 21, 2024) (“Although not an ironclad rule, when the current step of a method claim refers to a previous step using the definite article ‘the,’ the claim language indicates that the previous step occurs sequentially before the current step.” (citing *Wi-Lan, Inc. v. Apple, Inc.*, 811 F.3d 455, 462 (Fed. Cir. 2016))); *see also Mformation Techs., Inc. v. Rsch. in Motion Ltd.*,

764 F.3d 1392, 1400 (Fed. Cir. 2014) (“As a matter of logic, a mailbox must be established before the contents of said mailbox can be transmitted.”); *Function Media, L.L.C. v. Google, Inc.*, 708 F.3d 1310, 1320 (Fed. Cir. 2013) (“[P]rocessing” an “electronic advertisement” necessarily indicates that “the creation of the ad must happen before the processing begins.”). Additionally, Petitioner fails to address the use of express language in other claims to describe simultaneously applying the dielectric and “demarcate[ing] a component region.” EX1001, 21:32-35.

The Reply does not meaningfully dispute that the specification consistently describes these distinct steps in the recited order. *See* POR 24-25; EX1001, 9:45-11:46, Figs. 2-4. Petitioner suggests that the disclosed embodiments are not limiting (Reply 9-10), but identifies no suggestion in the intrinsic evidence of simultaneously forming the first trench and the first and/or second electrically conductive layers.⁴

⁴ Petitioner contends that because dependent claim 7 recites a trench formed by laser ablation, independent claim 1 should be construed more broadly. That is immaterial, as claim 1 includes formation of the first trench either by laser ablation *or* by etching as described in the specification. EX1001, 4:5-9. Both methods undisputedly require removing preexisting material. *E.g., id.*, 10:10-14 (“etching process ... for removing ... material”); EX1005, 9:19-21 (“removing ... material ... by laser ablation”). Thus,

Petitioner again accuses Pictiva of limiting the claims to preferred embodiments, but when construing similar claim language, the Federal Circuit has relied on similarly consistent specification disclosures and clarified that this does not run afoul of precedent regarding sole embodiments. *Mformation Techs.*, 764 F.3d at 1400; *see also Wi-Lan*, 811 F.3d at 462 (finding “clear” evidence requiring ordered performance where “[e]very embodiment discussed in the specification” described that order and “[n]o disclosure in the specification depicts or discusses [a different] possibility”).

III. GROUND 1 (INGLE AND HASEI)

A. Failure to Establish Applying an “Electrically Conductive Electrode Layer” in a “Structured Fashion”

The Reply fails to remedy the deficiencies of the Petition regarding the application of an “electrically conductive electrode layer” (e.g., a cathode) in a structured fashion. Petitioner’s own expert concedes that there is “no disclosure in Ingle of applying the cathode layer in a structured fashion.” EX2006, 65:3-11. Petitioner relies exclusively on Hasei for this limitation, because its own expert has admitted having no additional evidence of “anyone who fabricated an optoelectronic

claim 1 is broader than claim 7 without encompassing simultaneous formation of the electrically conductive layers and the first trench.

device using the claimed method of fabricating certain layers in a structured manner as described in the '492 Patent.” *Id.*, 43:6-14; *see also id.*, 43:25-44:4 (agreeing that he was “personally not aware of anyone having fabricated such a device in the claimed manner prior to the '492 Patent”), 88:24-89:11 (“I don’t have a publication that would show that.”), 89:13-19 (conceding that “the only evidence [he] point[s] to as disclosing in [his] view the structured application of the cathode layer of an OLED display device prior to 2012 is Hasei”). Specifically, Petitioner continues to rely on Hasei’s disclosures of a “droplet discharging method” as allegedly disclosed in the context of forming “negative electrode 50.” Reply 13-14; *see also* EX1007, ¶ 37, Fig. 3. But the Reply fails to overcome Pictiva’s explanation of why Petitioner has not established that the “droplet discharging method” was conventional or that Hasei discloses applying a cathode “in a structured fashion” even assuming that method were used. *See* POR 29-40.

Petitioner does not dispute that Ingle discloses that one could form an OLED “using a ***conventional process***.” EX1005, 21:34-36. Nor does Petitioner dispute that Ingle and Hasei describe photolithography as such a conventional process. *See id.*, 16:19-21 (“the conventionally used lithography methods”); EX1007, ¶ 3 (describing photolithography as “the conventional method”). Petitioner’s expert agrees not only that photolithography was conventional, at least in the context of passive electronic components in integrated circuits, but also that “generally the techniques that were

used for photolithography ... [were] at that time [2012] much more advanced than printing methods.” EX2006, 85:2-86:2, 35:2-11.

In Reply, Petitioner again attempts to characterize Hasei’s droplet discharging method as conventional. For example, Petitioner suggests that photolithography was not the *only* conventional process. Reply 12. But that falls well short of establishing that any process for applying a cathode “in a structured fashion” was conventional, particularly in view of Ingle explicitly distinguishing between such structured application and “conventionally used lithography methods.” EX1005, 16:19-29. The ’492 Patent likewise distinguishes these approaches. *See* EX1001, 1:66-2:7. Even if Ingle did not limit “conventional process” to a lithographical one, there is simply no evidence that a POSITA would understand Ingle’s reference to a “conventional process” to include applying layers (in particular, cathodes) in a “structured fashion” contrasted with conventional techniques. EX2001, ¶¶ 66, 70. That Ingle “teaches the benefits of avoiding photolithography” (Reply 13) is of no moment. As previously explained, Ingle contemplates structured application of only certain layers, which do not include the cathode, which is applied in a conventional, non-structured fashion. *See* POR 32.

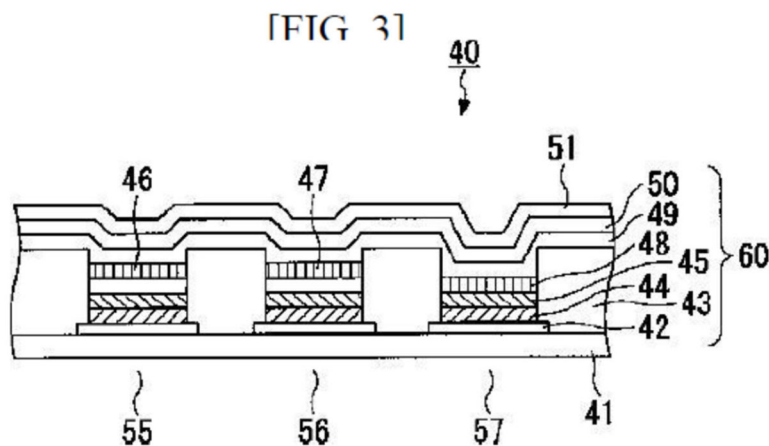
Petitioner notes that Ingle contemplates structured application of the first and second electrically conductive layers in addition to the dielectric and protective material layers (Reply 13), but that is irrelevant because Ingle teaches forming an

OLED “using a conventional process.” EX1005, 21:34-36. Petitioner further alleges that photolithography was avoided when fabricating OLEDs (Reply 12-13), which, again, even if true, falls short of proving that the claimed approach of applying the cathode “in a structured fashion” was conventional. This is particularly true in view of Petitioner’s own expert’s admissions that he was “personally not aware of anyone having fabricated such a device in the claimed manner prior to the ’492 Patent.” EX2006, 43:25-44:4. Petitioner also attempts to link Ingle’s disclosure of “printing” electrically conductive layers to Hasei’s droplet discharging method. Reply 14. But again, Ingle specifically contrasts that approach with conventional methods. *See* EX1005, 16:19-21; EX2006, 59:13-22 (agreeing that “there’s no embodiment described in Ingle wherein every layer is fabricated using an additive technique”). Hasei does the same. *See* EX1007, ¶¶ 3, 15-16.

Turning to Hasei, Petitioner makes the unsupported assertion that “one would expect Hasei’s teachings to become conventional by Ingle’s time.” Reply 14. Petitioner offers zero evidence to support this speculation, and simply being known does not establish conventionality. *Cf. Berkheimer v. HP Inc.*, 881 F.3d 1360, 1369 (Fed. Cir. 2018) (“The mere fact that something is disclosed in a piece of prior art ... does not mean it was well-understood, routine, and conventional.”).

Petitioner then repeats its previously discredited arguments regarding the Figure 3 embodiment of Hasei, relying heavily on the disclosure that “negative

electrode 50 may be formed by the droplet discharging method.” Reply 14 (quoting EX1007, ¶ 37). As previously explained (POR 33-39), the suggestion to use the “droplet discharging method” would not make sense to a POSITA in the context of negative electrode 50 because it is a common electrode that need not be transparent (*see* EX2001, ¶ 57).⁵ Even if that method were used, negative electrode 50 plainly is not “applied in a structured fashion” because it has no structure and is not “coated only in partial regions” (*see* EX1001, 1:66-2:4). Instead, Hasei depicts negative electrode 50 solely as an unbroken layer that is coextensive with the surrounding layers and that spans multiple light-emitting devices, in contrast to the transparent electrode 42 and the light emitting layers 46-48 that are deposited in selected areas:



⁵ Hasei also discloses that negative electrode 50 “may be formed by photolithography or etching.” EX1007, ¶ 37.

Hasei, Fig. 3. The Reply provides no competent evidence that Hasei Figure 3 discloses a structured cathode layer. *See* EX2001, ¶¶ 75-76 (a POSITA “would understand that this unbroken negative electrode 50 has not been structured in any manner”). Indeed, Petitioner does not dispute that, as depicted in Figure 3, negative electrode 50 is not structured in any way (as it extends continuously across the entire device). Hence, it is neither inherent nor obvious that the cathode in the combination would be applied in a structured fashion.

Petitioner contends that Hasei’s droplet discharging method “is undisputedly a structured method” (Reply 13-14), but at most it is capable of structured application. As Petitioner’s expert conceded, a layer applied continuously across a device would not be structured regardless of method. *See* EX2006, 77:16-79:20.

The Reply faults Pictiva for relying on Hasei Figure 3, suggesting that “it cannot be determined based on Figure 3 alone whether negative electrode 50 is structured.” Reply 15. Similarly, while the Reply does not dispute that negative electrode 50 as depicted in Hasei Figure 3 is common for all of the sub-pixels, Petitioner faults Pictiva’s expert for not proving that the same is true for other pixels, which are not depicted. *See* Reply 15. Petitioner also argues that “drawings in a patent need not illustrate the full scope of the invention.” *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 632 F.3d 1246, 1254 (Fed. Cir. 2011). Thus, Petitioner criticizes Pictiva for not proving that Hasei discloses **only** an unstructured electrode,

but offers only speculation regarding Hasei's allegedly possible, yet undisclosed applications. Petitioner has the burdens exactly backwards. *See* 35 U.S.C. § 316(e); *see also Fanduel, Inc. v. Interactive Games LLC*, 966 F.3d 1334, 1341 (Fed. Cir. 2020) (rejecting attempt to “effectively and impermissibly shift the burden to the patent owner to defend its claim’s patentability”).

In Reply, Petitioner argues, for the first time, that a POSITA would not have applied negative electrode 50 in a planar fashion because that would create a short circuit and require subsequent etching, which allegedly would pose risks to an OLED. Reply 15-16. But this speculative argument merely illustrates the significant differences between the structures disclosed in Ingle and Hasei. Moreover, even assuming the underlying premise is true, this again falls short of establishing that a POSITA would have used the specific method claimed, particularly in view of the admissions of Petitioner’s expert regarding the lack of evidence that anyone had done so. *E.g.*, EX2006, 43:25-44:4 (“personally not aware of anyone having fabricated such a device in the claimed manner prior to the ’492 Patent”).

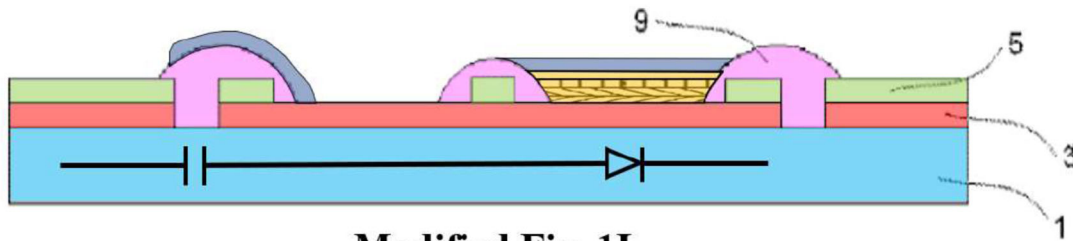
Finally, the Reply suggests that a POSITA would have extended Hasei’s methods to produce a capacitor because OLEDs allegedly were formed alongside capacitors in certain displays. That amounts to pure conjecture, particularly the assertion that it would have been obvious to form them “in the same step.” Reply 17. And Petitioner does not dispute that—even if one were inclined to use Hasei to

form a capacitor—Hasei provides no such disclosure. *See* EX2001, ¶¶ 59, 73; *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362 (Fed. Cir. 2016) (rejecting resort to “‘common sense’ ... as a wholesale substitute for reasoned analysis and evidentiary support, especially when dealing with a limitation missing from the prior art”).

B. Failure to Establish Applying “an Electrically Conductive Electrode Layer ... Above the First Contact Region”

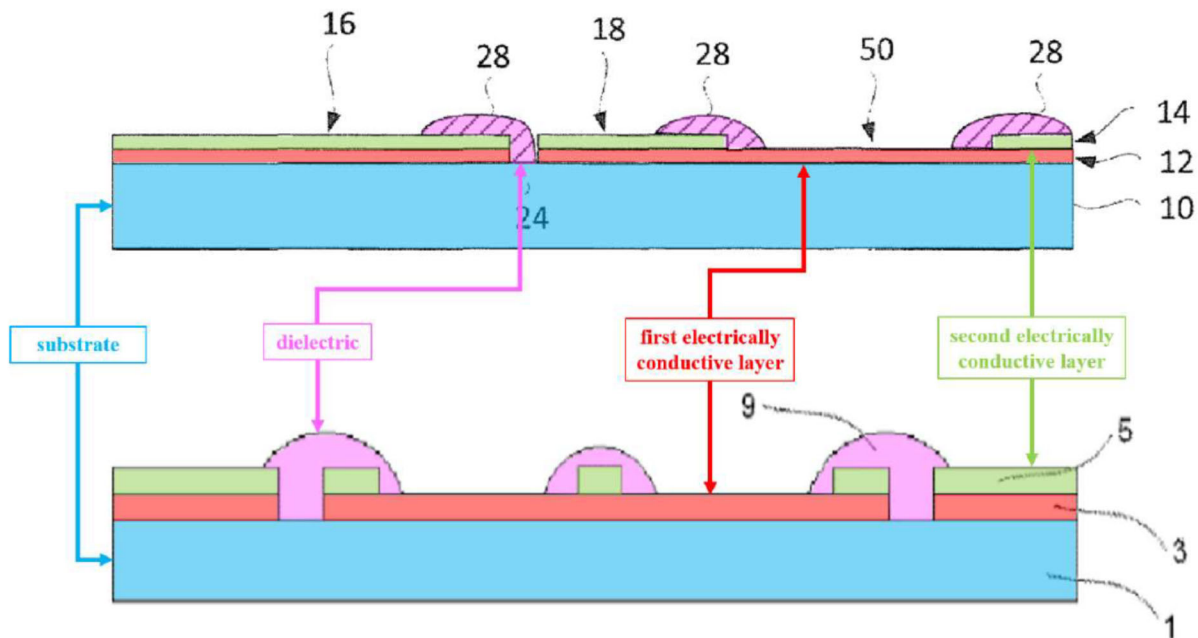
The Reply argues that it would have been obvious “to form a capacitor” on the structure disclosed in Ingle using the methods of Hasei (Reply 17-21), but those arguments presuppose the obviousness of forming an OLED, which is mistaken for the reasons explained above (Section III.A), as well as the complete lack of disclosure in Hasei regarding capacitors. Furthermore, as previously explained (POR 46), Petitioner bears the burden not only to establish the obviousness of forming the capacitor, but forming it in the specific manner claimed in the ’492 Patent—i.e., “applying an electrically conductive electrode layer in a structured fashion to the dielectric above the first contact region and to the second contact region.” EX1001, 20:41-43. Petitioner has not carried its burden. *See, e.g.*, EX2006, 96:18-24 (admitting that Ingle does not disclose applying a cathode over a first contact region”), 91:19-92:16 (agreeing that Ingle does not disclose any particular location or shape for the cathode layer).

The Reply takes issue with Pictiva's argument that Petitioner's own annotation of a hypothetical cathode (depicted in gray below) does not appear to extend "above the first contact region" (depicted in green below). Reply 18.



Pet. 27 (Ingle Fig. 1I (modified by Petitioner)). Assuming that Petitioner is correct, even its own expert describes the overlap as "just a little" (EX2006, 95:3-13), and agrees that a lack of overlap would mean that the structure would not provide a functional capacitor (*id.*, 98:14-99:3).

As previously explained (POR 43-44), the structures and methods disclosed in Ingle and the '492 Patent differ in significant and material ways, as evidence by Petitioner's own annotated figures:



Pet. 12 (annotated comparison of '492 Patent, Fig. 15 (top) with Ingle, Fig. 11 (bottom)). For example, the dielectric's shape and degree of overlap with the first contact region appear significantly different.

In Reply, Petitioner relies on *Nystrom v. TREX Co.*, 424 F.3d 1136, 1149 (Fed. Cir. 2005), and the '492 Patent's statement that the "drawings are not necessarily to scale" (EX1001, 7:11-14), to argue that this comparison is improper. Reply 19-20. But patent drawings are nonetheless "highly relevant," *CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1153 (Fed. Cir. 1997), and here the question is not one of scale, but rather of shape, which poses distinct challenges as explained by Dr. Pattison. See POR 50-51; EX2005, ¶¶ 12-16 (explaining that merely increasing the dielectric's size would not address the problem because its "shape is round, and the

dielectric overlapping the purported first contact region is steeply curved away from the purported first contact region,” and thus “any purported cathode following the curvature of the dielectric would necessarily lead to irregular spacing between the purported anode and cathode layers and thus a lack of uniform dielectric thickness”). Indeed, Petitioner’s expert conceded that Ingle discloses a particular shape for the dielectric. EX2006, 101:1-12.

Dr. Kattamis further admitted that the distance between the anode and cathode would not be uniform (*id.*, 102:20-103:7), which can lead to significant problems and ultimately failure of the capacitor. *See* EX2005, ¶¶ 12-14; EX2001, ¶¶ 42-45, 78, 87. The Reply does not refute these statements. Nor does it dispute its expert’s testimony that a lack of uniform distance between the electrodes could create higher electric field in certain regions of the capacitor, and if that field is too high, it could result in breakdown of the dielectric layer, potentially leading to a failure or short-circuiting of the capacitor. POR 51; EX2006, 53:1-24 (“If you have a short between the two electrodes, you no longer have a functioning capacitor.”). Therefore, the Reply does not alter the fact that a POSITA would not have been motivated to implement a modification that would lead to an inoperable capacitor. *E.g., McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354 (Fed. Cir. 2001) (rejecting combination producing “seemingly inoperative device”); *Adidas AG v. Nike, Inc.*, 963 F.3d 1355,

1358-59 (Fed. Cir. 2020) (rejecting combination rendering art “inoperable for its intended purpose”).

C. No Working Electronic Component

The Reply insists that the hypothetical cathode layer of Petitioner’s annotated Ingle figures *does* extend over the first contact region. That remains difficult to discern, and as Dr. Kattamis admitted, absent this overlap, the structure “wouldn’t have the capacitance or it wouldn’t provide the capacitance necessary for a functional display.” EX2006, 98:14-99:3. Even assuming that Petitioner’s hypothetical cathode does extend slightly above the first contact region, the minimal overlap and non-uniform distance between the cathode and anode would not result in a functional capacitor. *See* EX2005, ¶¶ 10-11. Dr. Kattamis agreed that the majority of his imaginary cathode does not overlap the first contact region. EX2006, 97:12-20; *see also id.*, 95:3-13 (“just a little” overlap). In another context involving minimal opposing electrode surface areas, Dr. Kattamis explained that he “wouldn’t consider it a capacitor, *nor would it be something you could easily tailor to adjust capacitance*” because “you would have a very, very tiny surface area for any capacitor.” *Id.*, 71:7-25. That is consistent with Pictiva’s expert: “[A] POSITA would understand that the minimal overlap ... would be insufficient to produce a reliably working capacitor” because “the opposing surface areas of the two electrodes would be too small to generate anything beyond a theoretical capacitance.” EX2005, ¶ 11.

In Reply, Petitioner does not meaningfully dispute that its own annotated Ingle Figure 1I, including the hypothetical cathode drawn by Dr. Kattamis, would not result in a functional capacitor. Instead, Petitioner doubles down on its theory that “the degree to which both the dielectric (pink) and the electrically conductive [electrode] layer (grey) extend over the first contact region *may be* adjusted to fine tune the capacitance of the capacitor.” Reply 22. This of course presupposes a functional capacitor, which is not the case as discussed above. Furthermore, the assertion relies on conclusory expert testimony. *See, e.g., Nintendo Co. v. Genuine Enabling Tech LLC*, IPR2018-00543, Paper 7 at 24 (PTAB Aug. 6, 2018) (giving no weight to “a conclusory statement without any evidentiary support”); 37 C.F.R. § 42.65(a). Petitioner cites Dr. Pattison’s testimony that techniques were known to adjust capacitors and their parameters (Reply 22), but again that presupposes a working capacitor. Moreover, Petitioner does not dispute that Ingle does not disclose extending the dielectric layer further over the first contact region. *See* EX2006, 100:19-24. And as previously explained, simply extending the hypothetical cathode is not feasible, as it “would risk a short-circuit or capacitor breakdown ... which would render the capacitor inoperable.” EX2001, ¶ 87. Dr. Kattamis agreed that you cannot extend the cathode beyond the dielectric layer. *See* EX2006, 100:9-17 (“It can’t contact or run risk of contacting layer 5, the first contact region.”), 47:5-23 (“that would create a short circuit” and you “wouldn’t have a capacitor”).

For the first time in Reply, Petitioner now argues that a POSITA would be motivated to alter not only the scale of the dielectric disclosed in Ingle, but also its shape. *See* Reply 22-23; EX1030, ¶ 21. The Board should reject Petitioner’s attempt to “make a meaningfully distinct contention” for the first time in Reply. *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367 (Fed. Cir. 2015); *see also* *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3)); Consolidated Trial Practice Guide at 73 prohibiting “new evidence or argument in reply that ... could have presented earlier, e.g. to make out a *prima facie* case of unpatentability”). Furthermore, Dr. Kattamis offers only conclusory testimony on this point (*see* EX1030, ¶ 21; 37 C.F.R. § 42.65(a)), which also conflicts with his prior testimony that Ingle discloses a particular shape for the dielectric. EX2006, 101:1-12. His newly offered Reply declaration also conflicts with his prior testimony that the cathode overlap in annotated Ingle Figure 1I is minimal (*see id.*, 95:3-13, 97:12-20), and that he would not consider minimally opposing electrode surface areas to be “a capacitor, ***nor would it be something you could easily tailor to adjust capacitance***” because “you would have a very, very tiny surface area for any capacitor.” *Id.*, 71:7-25. As such, the Board should disregard it. *See Interactive Commc’ns Int., Inc. v. Blackhawk Network Inc.*, IPR2024-00456, Paper 40 (Revised Director Review Order), at 3 (PTAB Oct. 9, 2025) (reversing final written decision premised on expert who “gave

conflicting testimony about how he proposed that the ordinarily skilled artisan would have modified [the prior art]”); *Finesse Wireless LLC v. AT&T Mobility LLC*, No. 2024-1039, 2025 WL 2713518, at *4 (Fed. Cir. Sept. 24, 2025) (finding “expert’s self-contradictory testimony” insufficient to carry burden of proof).

For all of these reasons, Petitioner’s proposed combination of Ingle and Hasei fails to disclose a cathode (electrically conductive electrode layer) applied in a structured fashion, much less a working capacitor.

IV. GROUND 2 (HANAMURA)

With one exception, the Reply merely rehashes the claim construction arguments previously addressed. *See* Section II, *supra*. In a footnote, Petitioner contends that Hanamura discloses the “second electrically conductive layer on the first electrically conductive layer” under Pictiva’s construction because “portions of electrodes 14 and 20 lie directly above ... electrodes 12 and 13.” Reply 29 n.9. But as previously explained (POR 60), even if electrodes 13 and 20 could constitute the claimed first electrically conductive layer and electrodes 14 and 20 could constitute the claimed second electrically conductive layer, Petitioner’s analysis at most indicates an alleged “trench” in *one* of the alleged electrically conductive layers. Moreover, the portions of electrodes 14 and 20 abutting the alleged “first trench” are undisputedly not formed on the first electrically conductive layer. Therefore,

Petitioner has failed to establish unpatentability under Ground 2 for the reasons previously explained. *See* POR 51-62.

V. GROUND 3 (HANAMURA AND EGITTO)

The Reply suggests, for the first time, that combining Hanamura and Egitto would have been obvious because a POSITA would merely need to choose between two designs disclosed in Egitto. Reply 31. But that assumes a POSITA would have combined the teachings of Hanamura and Egitto in the first place, which Petitioner has failed to establish. *See* POR 63-66. Otherwise, as Dr. Kattamis admitted, there are “many, many ways that one could design the geometry of a resistor.” EX2006, 106:7-16. The Reply also asserts that Pictiva’s position is at odds with a finding by the district court in related litigation that “all possible taper directions would satisfy this language.” Reply 32. But the court made no such finding. After noting an argument by Samsung alleging that “all possible taper directions would satisfy this language,” thereby rendering it superfluous, the court rejected that position and instead gave the claim term its “plain and ordinary meaning.” *See* EX2007, 43-44.

VI. CONCLUSION

Accordingly, Patent Owner respectfully submits that Petitioner has failed to establish that any challenged claim is unpatentable.

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Respectfully submitted,

/Philip Warrick/

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CERTIFICATE OF WORD COUNT

I hereby certify, pursuant to 37 C.F.R. section 42.24, that the foregoing Patent Owner Sur-Reply contains 5,592 words, excluding the words in the table of contents, table of authorities, exhibit list, this certificate of word count, signature block, and certificate of service. The word count is based on the word count of the Microsoft Word program used to prepare the Patent Owner Sur-Reply.

/Philip Warrick/
Philip Warrick (54,707)

CERTIFICATE OF SERVICE

I hereby certify, pursuant to 37 C.F.R. section 42.6, that on October 15, 2025,
a complete copy of the **PATENT OWNER SUR-REPLY** was served upon the
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