

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. IPR2024-01093
Patent No. 8,723,164

PATENT OWNER'S PRE-INSTITUTION SUR-REPLY

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EXHIBIT LIST

Exhibit No.	Document Description
EX2001	Declaration of Dr. Marc Sims
EX2002	Dictionary definition of “matrix” from online version for A Dictionary of Chemistry (6th ed.), Oxford University Press (2008), available from https://www.oxfordreference.com/display/10.1093/acref/9780199204632.001.0001/acref-9780199204632-e-2628?rskey=JZee15&result=2921 (last access Oct. 25, 2024)
EX2003	Dictionary definition of “matrix” from Merriam-Webster’s Collegiate Dictionary (11th ed.), Merriam-Webster, Incorporated (2007)
EX2004	Dictionary definition of “matrix” from Cambridge Advanced Learner’s Dictionary, Cambridge University Press (2003)
EX2005	Samsung Proposed Claim Constructions for the Terms and Phrases Identified for Construction per Local Patent Rule 4-2 in <i>Pictiva Displays Int’l Ltd. v. Samsung Electronics Co. Ltd., et al.</i> , Case No. 2:23-cv-000495 (E.D. Tex. Oct. 22, 2024)
EX2006	Harald Gross et al., <i>High Power Efficiencies at Record Lifetimes: NOVALED’s PIN-OLEDs</i> , FPD Yokohama 2005 (obtained from IPR2024-01095)
EX2007	B.C. Krummacher et al., <i>General method to evaluate substrate surface modification techniques for light extraction enhancement of organic light emitting diodes</i> , 100 J. Appl. Phys. 054702 (2006)
EX2008	Chelsea M. Hess et al., <i>Dielectric Dependence of Single-Molecule Photoluminescence Intermittency: Nile Red in Poly(vinylidene fluoride)</i> , 118 J. Phys. Chem. 8905-8913 (2014)
EX2009	E. H. Martin & J. Hirsch, <i>Charge Transport and Carrier Mobilities in Insulating Polymers</i> , 4 J. Non-Crystalline Solids 133-137 (1970)
EX2010	Ying Wang et al., <i>Hole mobility and conductance of iridium complex doped NPB emission layers for organic light-emitting diodes</i> , 244 Synthetic Metals 61-65 (2018)

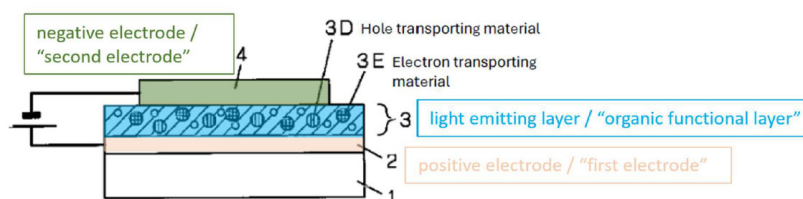
EX2011	WO2002/074015 to Thompson & Forrest (“Thompson WO”)
EX2012	Dictionary definition of “matrix” from A Dictionary of Chemistry (5th ed.), Oxford University Press (2004)
EX2013	Dictionary definition of “matrix” from Chambers Dictionary of Science and Technology, Chambers (2007)
EX2014	Federal Court Management Statistics for U.S. District Courts, available from https://www.uscourts.gov/statistics/table/na/federal-courtmanagement-statistics/2024/06/30-1
EX2015	Samsung Invalidity Contentions in <i>Pictiva Displays Int’l Ltd. v. Samsung Electronics Co. Ltd., et al.</i> , Case No. 2:23-cv-000495 (E.D. Tex. Jun. 11, 2024)
EX2016	Declaration of Dr. E. Fred Schubert in <i>Pictiva Displays Int’l Ltd. v. Samsung Electronics Co. Ltd., et al.</i> , Case No. 2:23-cv-000495 (E.D. Tex. Nov. 12, 2024) on behalf of real parties-in-interest

I. Petitioner Has Failed To Make a Prima Facie Case That the References Disclose the Required Numbers of Matrix Materials

Petitioner's real parties-in-interest ("Samsung") have proposed in the district court that the three claimed "matrix material[s]" are each "part of [a] same matrix," with "matrix" meaning "a continuous phase of the mixture of matrix materials." EX2005, 16-17. While Pictiva disagrees that all three matrix materials must be part of the same matrix, it agrees that "[i]n the context of the '164 patent, a matrix material would be part of the continuous phase in a given organic layer in which guest materials can be embedded." EX2001, ¶37. Samsung's expert in the district court, Dr. Schubert, apparently agrees with that view. EX2016, ¶131 (citing EX2001, ¶37); *see also*, EX2016, ¶129 (Dr. Schubert: "To be effective, a matrix needs to be in a continuous phase to not only encourage the efficient transport of electrons and holes through, *e.g.*, the electron transporting material and hole transporting material in the matrix, but to also ensure the desired distribution and stable housing of the emitter material."). Given this agreement, Petitioner should have, but once again fails to explain, why its references disclose matrix materials that are a part of a continuous phase in a given organic layer. *See* Reply 1-4; POPR 2-3, 6-7, 12-14 (Pictiva explaining "matrix material" in light of specification).

Sugiura, for example, not only fails to disclose HOMO/LUMO, a fact that Petitioner does not dispute, but is also depicted as including hole and electron

transport materials in dispersed and *discontinuous* phase. See Sugiura, Fig. 1 (annotated below); POPR 4, 50-51.



(Pet. 54)'

Instead of addressing this fact, the Reply makes an attorney argument that a continuous phase would result because each material exists in sufficient quantities in the mixture. Reply 3. Bare “[a]ttorney argument is not evidence,” and cannot support a *prima facie* case of obviousness. *Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1359 (Fed. Cir. 2018) (cleaned up). As Dr. Sims explains, which Petitioner does not dispute, the phase separation observed in Sugiura is the result of “a carefully tailored solution-based process,” which “would not be practical in an evaporated process [as in the ‘164 example] where the molecules are co-deposited in a co-mingled fashion throughout the organic layer.” EX2001, ¶49; see EX1006, [0062] (PVK, Alq3, TPD dissolved in 1:1 toluene and chloroform followed by spin coating). That is, Dr. Sims explains why despite the relative weight of the three materials, Sugiura still observed islands of hole and electron transport materials.

The Reply also assumes that if the ‘164 patent lists a material as a suitable candidate for a matrix material without specifying a threshold concentration, then

the material automatically qualifies as a matrix material regardless of its concentration or phase in the mixture. Reply 1-2, 3 n.1. That is incorrect because the term “matrix materials” imparts the requirement that the material be a part of a continuous phase. No concentration is specified because the threshold varies depending on *e.g.*, processing conditions, other materials in the mixture, etc. Regardless, there is no evidence that a POSITA would have viewed a “dopant,” such as the TPD present in low amounts in Choulis, as a matrix material. *Contra* Reply 1-2. As explained in the POPR, the ‘164 patent distinguishes between a matrix material and a dopant. POPR 6-8.

Petitioner also argues that the fact that a 10 wt% threshold for an emitter does not translate to a requirement that a matrix material have a concentration exceeding 10 wt%. Reply 2. That argument misses the point. The term “matrix material” has a meaning and does not refer to the material existing in any amounts or existing only in discontinuous phases, as Samsung’s expert acknowledges. EX2016, ¶¶129-131. Thus, it is Petitioner’s burden to explain and establish that the low amounts of TPD in *e.g.*, Choulis constitute a matrix material instead of a dopant as described in the literature. Petitioner has not done so here. Instead, Petitioner argues that Choulis [0030] does not specify specific compositions or component concentrations. Reply 3. If Petitioner’s theory is that any mixture of the three materials would yield a composition suitable for OLED, that is nonsensical. As explained on POPR 16-19,

there are technical reasons to limit the amount of TPD in the mixture, because, *e.g.*, “a large concentration of TPD disturbs the balance of carrier injection and transport” and undermines Choulis’ objective. Petitioner does not dispute this fact.

Concerning Thompson, Petitioner does not dispute that the ‘164 patent distinguishes between a matrix material and an emitter material, even if the emitter can also transport charges. Reply 3-4; POPR 54-55, 56-57. Indisputably, one of the alleged matrix materials in Thompson is an emitter. POPR 55-56, EX1007, [0008] (one of the two dopants is a phosphorescent dopant material). Samsung’s expert in the district court declares that in the context of the ‘164 patent, “the multiple matrix materials would together form a mixed matrix—a connected structure that holds, *e.g.*, the emitter material.” EX2016, ¶129. That is, according to Dr. Schubert, the matrix materials are to hold emitters, meaning an emitter cannot also be a matrix material. Petitioner also notes that Thompson’s emitter has a concentration of 15%. Reply 4. But as Petitioner acknowledges, the ‘164 patent does not foreclose its emitter exceeding 10wt%. Reply 2. That does not change the fact, however, the ‘164 patent distinguishes an emitter from a matrix material. POPR 54-57.

In summary, the Reply still fails to explain why Choulis, Sugiura and Thompson each disclose three claimed “matrix materials.”

II. Discretionary Denial under 314(a) is Justified

In IPR2024-00855 involving another patent in the same suit, the Board found

that *Finitiv* factors 2, 4, 5 favored discretionary denial. *Samsung Display Co., Ltd. v. Pictiva Displays Int'l Ltd.*, IPR2024-00855, Paper 12 at 12 (Nov. 19, 2024). The facts are even more compelling because the deadline for an institution decision in this proceeding is two months later than that of IPR2024-00855. Thus, more resources will have been spent by the parties by the projected deadline of institution decision. For instance, the parties have already agreed on three depositions of Petitioner's engineers in early December and are targeting two more by mid-January, before the institution decision. Pictiva will also have deposed Dr. Schubert, Samsung's claim construction expert by the institution date and have completed claim construction briefing by the projected deadline for the institution decision. Thus, large amounts of work will have been done by the projected institution date.

Petitioner also speculates that the initial suit (the -495 matter) might be dismissed. Reply 4-5. That is unlikely, in light of Dr. Gilstrap's ruling in a case involving similar facts. *See Valtrus Innovations Limited v. SAP America, Inc.*, 2:24-cv-00021, Dkt. 84-1 (E.D. Tex. Nov. 14, 2024). There, Judge Gilstrap denied defendants' motion to dismiss for lack of standing based on arguments nearly identical to those made by Samsung. Thus, Pictiva does not expect the Court to dismiss the -495 action. Instead, the suit is expected to proceed as scheduled.

Dated: November 27, 2024

Respectfully submitted,

By: /Hong Zhong/

H. Annita Zhong. (Reg. No. 66,530)

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IRELL & MANELLA LLP
1800 Avenue of the Stars, Suite 900
Los Angeles, CA 90067
Tel: (310) 277-1010
Fax: (310) 203-7199
Email: hzhong@irell.com

CERTIFICATE OF SERVICE

I hereby certify, pursuant to 37 C.F.R. section 42.6, that on November 27, 2024, a complete copy of the foregoing document **PATENT OWNER'S PRE-INSTITUTION SUR-REPLY and EXHIBIT 2016** were served by electronic mail, as agreed to by the parties, upon the following:

COVINGTON & BURLING LLP

Scott C. Weidenfeller (Reg. No. 54,531)

sweidenfeller@cov.com

David A. Garr (Reg. No. 74,932)

dgarr@cov.com

SDC-Pictiva-IPR@cov.com

/Susan M. Langworthy/

Susan M. Langworthy