

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG DISPLAY CO., LTD.,
Petitioner,

v.

SOLAS OLED, LTD.,
Patent Owner.

Case IPR2020-00320
Patent No. 7,446,338

**PETITIONER'S SUPPLEMENTAL PRE-INSTITUTION BRIEF
ADDRESSING DISTRICT COURT CLAIM CONSTRUCTION ORDER**

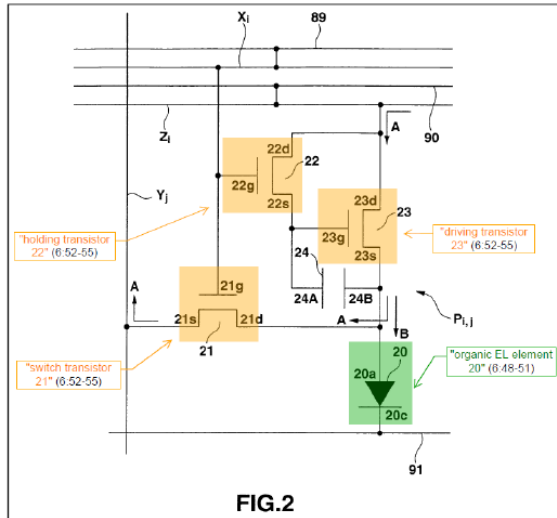
LIST OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 7,446,338 (the “338 patent”)
1002	File History for U.S. Patent No. 7,446,338
1003	U.S. Patent Application Pub. No. 2002/0158835 (“Kobayashi”)
1004	U.S. Patent Application Pub. No. 2004/0113873 (“Shirasaki”)
1005	International Publication No. WO 03/079441 (“Childs”)
1006	European Patent Application No. EP 1331666 (“Yamazaki”)
1007	U.S. Patent Application Pub. No. 2004/0165003 (“Shirasaki II”)
1008	Japanese Patent Publication No. 2004-258172
1009	U.S. Patent Application Pub. No. 2003/0151637 (“Nakamura”)
1010	International Publication No. WO 03/079442 (“Hector”)
1011	International Publication No. WO 03/079449 (“Young”)
1012	Tsujimura, Takatoshi. <i>OLED Display Fundamentals and Applications: Fundamentals and Applications</i> , John Wiley & Sons, Incorporated, 2012. (“Tsujimura”)
1013	Crawford, Gregory P. <i>Flexible flat panel display technology</i> . Vol. 3. West Sussex: Wiley, 2005. (“Crawford”)
1014	U.S. Patent Application Pub. No. 2003/0127657 (“Park”)
1015	U.S. Patent No. 7,498,733 (“Shimoda”)
1016	U.S. Patent Application Pub. No. 2002/0000576 (“Inukai”)
1017	U.S. Patent Application Pub. No. 2002/0009538 (“Arai”)
1018	Declaration of Dr. Adam Fontecchio
1019	<i>Curriculum Vitae</i> of Adam Fontecchio
1020	Claim Construction Memorandum & Order, <i>Solas OLED Ltd. v. Samsung Display Co., Ltd. et al.</i> , 2:19-cv-00152-JRG (E.D. Tex. Apr. 17, 2020)

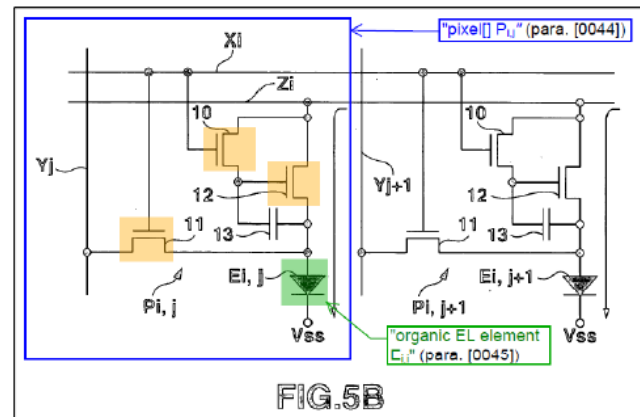
Pursuant to the Board’s authorization of April 27, 2020, Petitioner submits this supplemental brief. A district court recently construed certain terms of U.S. Patent No. 7,446,338 (“the ’338 patent”). In accordance with 37 C.F.R. § 42.100 and the November 2019 Consolidated Trial Practice Guide (at 46–48), Petitioner submits the district court’s April 17, 2020 Claim Construction Memorandum and Order as Exhibit 1020. The court’s constructions are consistent with the grounds in the Petition and further support institution of *inter partes* review of the ’338 patent.

I. The Petition establishes obviousness under any construction of “write current,” including the district court’s construction.

The first term addressed in the court’s claim construction order relates to the claimed “switch transistor which makes a write current flow between the drain and the source of the driving transistor.” Ex. 1020, 18–23. The Petition did not request a particular construction for “write current,” because the prior art shows the claimed “switch transistor which makes a write current” under any interpretation—including the district court’s construction of “write current” as “pull-out current.” *Id.* Both grounds of the Petition rely on Shirasaki, a prior art patent publication by the same lead inventor as the ’338 patent, that had disclosed the exact same three-transistor structure as is described and claimed in the ’338 patent. *See, e.g.,* Pet., 52–53, 78–79. This structure includes the claimed “switch transistor,” as well as the claimed “driving” and “holding” transistors, as illustrated in the figures repeatedly presented in the Petition and explained by Dr. Fontecchio in his expert declaration:



Ex. 1001 ('338 patent), Fig. 2 (annotated).



Ex. 1004 (Shirasaki), Fig. 5B (annotated).

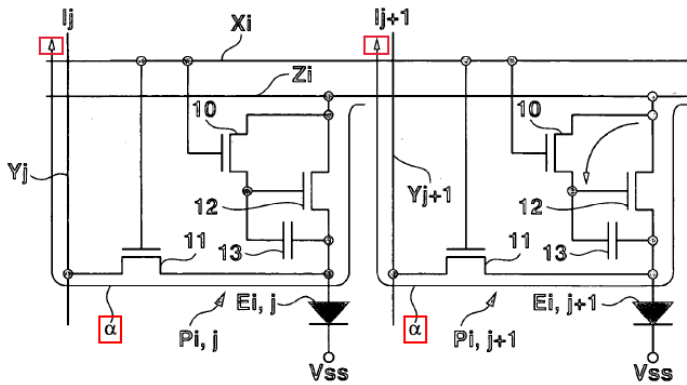
Pet., 52–53, 78–79; *see, e.g.*, Ex. 1018, ¶¶ [0135], [0204]. As Dr. Fontecchio further explained in the cited portions of his declaration (*see* Pet., 52, 78):

Shirasaki's figures illustrate the same three-transistor pixel circuit that was later used by Casio again in the figures for the '338 patent. I note that transistor 11 in Fig. 5B of Shirasaki corresponds to "switch transistor 21" in Figure 2 of the '338 patent, transistor 12 in Figure 5B of Shirasaki corresponds to "driving transistor" 23 in Figure 2 of the '338 patent, and transistor 10 in Shirasaki corresponds to "holding transistor" 22 in Figure 2.

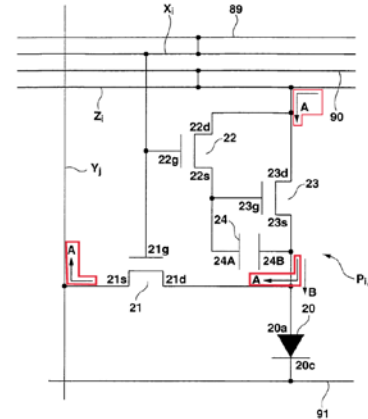
Ex. 1018, ¶¶ [0135], [0204] (emphasis added).

As the Petition explains, Shirasaki specifically teaches replacing a typical two-transistor circuit controlled by voltage (such as those disclosed in Kobayashi and Childs) with the three-transistor circuit taught by Shirasaki, which is controlled by a "memory current." Pet., 54–55. In Shirasaki's three-transistor circuit, control of the current flowing to the OLED "is thus performed by the current values, not by voltage values." Pet., 54–55 (quoting Ex. 1004, ¶ [0018]); Ex. 1018, ¶ 138.

Thus, to the extent that the Board applies the “pull-out current” construction (which Samsung Display advanced in the district court subsequent to filing this IPR), the limitation is met by the Shirasaki pixel circuit as advanced in the Petition. As illustrated by annotated Fig. 5A of Shirasaki below, the “memory current” α that flows in Shirasaki’s three-transistor circuit when “transistor 11” (the claimed “switch transistor”) “is turned on,” Ex. 1004, ¶ [0072], [0084], is the same as “pull-out current” **A** shown in annotated Fig. 2 of the ’338 patent (Ex. 1001, 15:34–37):



Shirasaki, Fig. 5A (annotated)



'338 Patent, Fig. 2 (annotated).

As Shirasaki confirms, this memory current flows “between the source and drain of the transistor 12” (the claimed “driving transistor”). Ex. 1004, ¶ [0092].

Patent Owner’s Preliminary Response (“POPR”) never argues that Shirasaki fails to disclose a “switch transistor” or a “write current” as claimed in the ’338 patent—and as construed by Petitioner and the district court. Nor could it plausibly do so, because the circuit disclosed in Shirasaki is identical to the claimed circuit of the ’338 patent. Instead, Patent Owner attempts to argue that: (1) the Petition does

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