UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOE TECHNOLOGY GROUP CO., LTD, and MOTOROLA (WUHAN) MOBILITY TECHNOLOGIES COMMUNICATION CO., LTD.,
Petitioner,

v.

ELEMENT CAPITAL COMMERCIAL COMPANY PTE. LTD,
Patent Owner.

Case IPR2023-01178
Patent 7,259,736

PETITIONER'S PRE-INSTITUTION REPLY TO PATENT OWNER'S PRELIMINARY RESPONSE

EXHIBITS

EX-1001	U.S. Patent No. 7,259,736 to Hayato Nakanishi ("the '736 patent")
EX-1002	Excerpts from the Prosecution History of the '736 Patent ("the Prosecution History")
EX-1003	Declaration of Dr. David K. Liu
EX-1004	U.S. Patent No. 5,831,699 ("Wright")
EX-1005	Prosecution History of JP2002-348622 ("the Foreign Counterpart Prosecution History")
EX-1006	Certified Translation of Pages 1-10, 50-58 from the Foreign Counterpart Prosecution History
EX-1007	Certified Translation of Pages 63-79 from the Foreign Counterpart Prosecution History
EX-1008	JPH11185654A to Yukio Masuda et al ("Masuda")
EX-1009	Certified Translation of Masuda
EX-1010	JP2002-278504A to Mitsuo Inoue et al ("Inoue")
EX-1011	Certified Translation of Inoue
EX-1012	KR960012168A to Yang-Ho Kwon ("Kwon")
EX-1013	Certified Translation of Kwon
EX-1014	Sarma et al., "Flat Panel Displays for Portable Systems," 13 *Journal of VLSI Signal Processing Systems* 165-190 (1996)

EX-1015	Complaint, *Element Capital Commercial Company PTE. Ltd. v. BOE Technology Group Co., Ltd. et al.*, Case No. 2:22-cv-0118-JRG (E.D. Tex.)
EX-1016	Docket Control Order, *Element Capital Commercial Company PTE. Ltd. v. BOE Technology Group Co., Ltd. et al.*, Case No. 2:22-cv-0118-JRG (E.D. Tex.)
EX-1017	Plaintiff's Infringement Contentions, served on January 5, 2023 in *Element Capital Commercial Company PTE. Ltd. v. BOE Technology Group Co., Ltd. et al.*, Case No. 2:22-cv-0118-JRG (E.D. Tex.)
EX-1018	2023-05-31 Email from Patent Owner to Petitioner
EX-1019	2023-06-29 Email Thread Between Patent Owner and Petitioner Memorializing Agreement re Second IPR Petition
EX-1020	U.S. Published App. No 2003/0090447 to Hajime Kimura ("Kimura")

I. ARGUMENT

Patent Owner's Preliminary Response ("POPR") misstates Petitioner's proposed combination and relies on sweeping generalizations to argue the identified references cannot be combined. In doing so, Patent Owner incorrectly relies on the Institution Decision in a different proceeding challenging the '736 patent (IPR2023-00605), which involves a different prior art combination. Patent Owner also does not support its arguments with timely evidence. For these reasons, the Board should grant institution, enable cross-examination of the experts, and render its decision on motivation to combine after development of a full record at trial.

At pages 21-23 of the POPR, **Patent Owner relies on several portions of the Institution Decision from IPR2023-00605**, contending that Inoue and Kimura are similar and that the present petition should be denied for the same reasons set forth in the prior decision. But Patent Owner ignores the fact that an important basis for the Board's prior decision does not apply here. Specifically, the Board's prior decision relied heavily on the fact that Inoue "is directed to the problem of improving the uniformity of brightness of light emission of an active matrix EL display ***by adding active light-detecting elements***." EX-2012, 32; *see also* 26, 27, 30. Kimura is different because it does not have "active light-detecting elements." Thus, the Board's prior analysis of Inoue cannot simply be applied to the different combination here involving Kimura.

Despite these clear differences, the POPR is correct in contending that the combination analysis offered in both petitions is similar. That is because the color variation problem addressed by Masuda is technology independent and beneficial to any type of display that has color pixels, including the different displays disclosed by Inoue and Kimura. Although the POPR quotes the prior Institution Decision's analysis of Masuda's inability to reduce "luminosity differences … due to variations of threshold voltages," POPR, 22, that quotation misses the point of the proposed combination because the petition did not allege that Masuda's pattern addressed transistor variation. Petitioner instead argued that Masuda's pattern would beneficially decrease perceived variation due to luminosity differences between different colors—*not* variation due to transistor characteristics. EX-1003, ¶¶ 81-83 (referencing Masuda's benefits to human eye perception). Dr. Liu submitted evidence showing that the "color variation" problem is a "technology-independent" or "universal" improvement in the sense that any color display may suffer from it. *See also* EX-2002, ¶ 88 (acknowledging possibility of "inherent" luminosity differences by color. *See Intel Corporation v. Qualcomm Incorporated*, 21 F.4th 784, 797–99 (Fed. Cir. 2021). These benefits complement the different solutions offered by Inoue and Kimura to address different problems (e.g., transistor variation), and provide an overall improved display that benefits both color variation (Masuda)

and transistor variation (Inoue, Kimura). The POPR's quote that "Inoue and Masuda address different problems," POPR, 22, is, thus, besides the point because the Petition never alleged that Masuda solved Inoue's or Kimura's problem. It simply argued that Kimura's display would benefit from Masuda's pixel pattern.

An additional problem with the POPR is that it relies on evidence that is untimely. **Relying on EX-2008**, Patent Owner argues that at the time of the alleged invention "passive matrix displays ["PM"] had limited resolution" compared to active matrix displays ("AM") and that AM displays did not suffer from the "stripe" problem addressed by Masuda. EX-2002 ¶¶ 74-75, 81. But Patent Owner offers no evidence to support the notion that Masuda's pixel pattern could offer no benefit to Kimura. For example, Dr. Silzars argues Masuda solves only a "stripe" interference problem and relies on EX-2008 to argue that this "is not a problem of active matrix displays due to active matrix displays being capable of greater resolution than passive matrix displays." EX-2002 ¶ 81; *see also id.* ¶¶ 74, 88. As a preliminary point, EX-2008[1] is dated 2008—***six years after the critical date***—and does not bear on the relative resolution of AM versus PM displays at the relevant time.

But more importantly, this evidence says nothing about whether color variation was nevertheless a concern in AM displays (such as Kimura), even assuming *arguendo* that AM displays had higher resolution. This evidence does not even

[1] EX-2008 corresponds to EX-2014 in IPR2023-00605.

mention active or passive matrix technologies. EX-2008 at 3-7 (comparing CRT, LCD laptop, and LCD television screens). Indeed, Petitioner's timely Sarma article showed prior art plasma displays as having "Med/High" resolution at the time, and Petitioner's timely "Kwon" references show that the same pixel pattern taught by Masuda could be beneficially applied to such "Med/High" resolution displays.

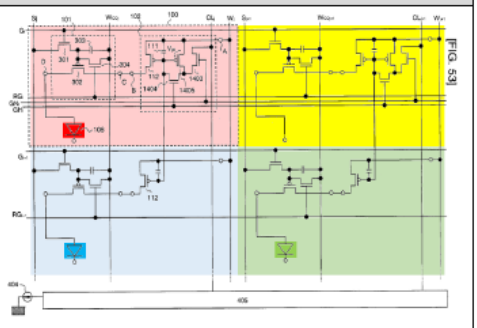
Table 2. Comparison of flat panel display technologies (Table adapted from reference [17]).

Performance parameters	CRT	Plasma DC/AC	Electro-luminescent DC/AC	VFD	STN/LCD	AM/LCD
			Display visual parameters			
Pixel density	High	High	High	Medium	Medium	High
Screen resolution	High	Med/High	Medium	Medium	Medium	High
Raster distortion	Yes	No	No	No	No	No

EX-1014, Table 2; Decision, 31; EX-1013.

The evidence confirms that high resolution does not render the benefit of Masuda's pixel pattern irrelevant. The human eye—not circuitry or display resolution—causes the perceived color variation this patten benefits. EX-1003, ¶¶ 81-83.

Similarly, **relying on untimely EX-2006 and EX-2007**, Patent Owner argues that PM circuitry (as reflected in Masuda's PM field emitting display ("FED") design) differs too greatly from AM circuitry (as reflected in Kimura's AM organic electroluminescent ("OEL") designs) to be combined. EX-2002 ¶¶ 13-14, 16-17, 41, 75. Masuda's *circuitry*, however, is not relevant to the proposed combination. Petitioner argued that it would have been obvious to adopt Masuda's *pixel pattern*—i.e., the coloration of pixels laid on a square matrix—to Kimura's circuitry:

Masuda at Fig. 5 (pattern with non-display elements)	Kimura Pixel Pattern of Fig. 53 Modified to Incorporate Teachings of Masuda
	

Pet., 50-52 (overlaying Masuda's *pattern* over Kimura's *circuitry*). Petitioner identified reasons why Masuda's *pattern* would benefit Kimura*, see, e.g.*, EX-1003, ¶¶ 81-83, and Patent Owner's untimely evidence about the feasibility of merging Masuda's *circuitry* with Kimura's circuitry is thus irrelevant—the petition did not propose combining the circuitry of Kimura and Masuda. Finally, Patent Owner's arguments are further rebutted by the '736 patent's own disclosure that its "pixel circuits" (with the same pattern as Masuda) may drive FED light-emitting elements.

> In the above exemplary embodiments, although the pixel circuits **20** and **30** are embodied as electronic circuits to provide preferable advantages, they maybe embodied as electronic circuits to drive electro-optical elements, for example, light-emitting elements, such as LED or FED, other than the organic EL elements **21**G, **21**B, and **21**R.

See EX-1001, 16:42-47; Pet., n. 2.

II. CONCLUSION

For the foregoing reasons, Petitioner respectfully requests that the Board grant institution of the Petition for *Inter Partes* Review of the '736 patent.

Respectfully submitted,

Dated December 21, 2023

/Jeremy J. Monaldo/

Jeremy J. Monaldo, Reg. No. 58,680
Joseph Colaianni, Reg. No. 39,948
Linhong Zhang, Reg. No. 64,749

Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
T: 202-783-5070
F: 877-769-7945

(Control No. IPR2023-01178)

Attorneys for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e), the undersigned certifies that on December 21, 2023, a complete and entire copy of this Petitioner's Pre-Institution Reply to Patent Owner's Preliminary Response was provided by email, to the Patent Owner by serving the correspondence addresses of record as follows:

Fadi Kiblawi
John Bird
Tyler Del Rosario
SUGHRUE MION, PLLC
fkiblawi@sughrue.com
jbird@sughrue.com
tdelrosario@sughrue.com

/Michael Stanwyck/
Michael Stanwyck
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
(202) 626-7790