

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOE TECHNOLOGY GROUP CO., LTD.,

Petitioner,

v.

138 EAST LCD ADVANCEMENTS LIMITED,

Patent Owner.

Case No. IPR2024-00976

U.S. Patent No. 7,502,079

**PETITIONER'S REQUEST FOR DIRECTOR REVIEW
UNDER 37 C.F.R. § 42.75**

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I. INTRODUCTION

The Director should grant review of the Board’s Institution Decision (“Decision”) because the Board misapplied the law of obviousness. For at least Grounds 1 and 3, the Board found the asserted references did not, themselves, provide explicit motivation to provide specific limitations required by the challenged claims. But obviousness does not require motivation to be found *in the applied references*. Rather, “*even absent any hint of suggestion* in the references themselves,” the motivation to combine exists where “‘universal’ motivations [were] known in a particular field to improve technology” or where a POSITA would recognize that a known technique “would improve similar devices in a similar way.” *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1379 (Fed. Cir. 2023) (citations omitted). The Petition presented un rebutted evidence of such motivation here. Further, the references do provide motivation, and the Board’s contrary finding was clearly erroneous.

II. LEGAL STANDARD

A. Standards for Director Review

A party may request Director Review under 37 C.F.R. § 42.75 if the Board’s institution decision presents an abuse of discretion. *Director Review Process* § 2.B, available at <https://www.uspto.gov/patents/ptab/decisions/director-review-process> (last accessed Jan. 9, 2025). The Board abuses its discretion when its decision

(1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact findings; or (4) involves a record without evidence on which the Board could base its decision. *Ultratec, Inc. v. CaptionCall, LLC*, 872 F.3d 1267, 1272 (Fed. Cir. 2017).

B. Obviousness—Motivation to Combine References

The legal test for obviousness considers “whether there is a reason, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to combine the references, and that would also suggest a reasonable likelihood of success.” *Forest Labs., LLC v. Sigmapharm Labs., LLC*, 918 F.3d 928, 934 (Fed. Cir. 2019) (quoting *Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1356 (Fed. Cir. 1999)).

The “motivation-to-combine analysis ‘need not seek out precise teachings [of motivation] directed to the specific subject matter of the challenged claim.’” *Intel*, 61 F.4th at 1379 (quoting *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)). Indeed, “a motivation to combine references” may be found “*even absent any hint of suggestion* in the references themselves.” *Id.* at 1379 (quoting *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 800 (Fed. Cir. 2021) (hereinafter, “*Qualcomm*”)). This is because “[t]he motivation-to-combine analysis is a flexible one [and] *any* need or problem known in the field of endeavor at the time of

invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.* (quoting *KSR*, 550 U.S. at 420).

Accordingly, the Federal Circuit has established that motivation may come from “‘universal’ motivations known in a particular field to improve technology,” such as the universal motivation to “increase energy efficiency.” *Id.* (quoting *Qualcomm*, 21 F.4th at 797-799). Similarly, under the “so-called ‘known-technique’ rationale,” a modification is obvious “if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way.” *Id.* (quoting *KSR*, 550 U.S. at 417). In other words, “if there’s a known technique to address a known problem using ‘prior art elements according to their established functions,’ then there is a motivation to combine.” *Id.*

III. BACKGROUND

Each challenged claim of the ’079 patent requires electro-optical device components with varying widths. Petition (“Pet.”) at 9-11. For example, challenged claim 2 recites a “**scanning line** having a broad-width portion in a portion facing the channel area of the thin-film transistor” and a “**capacitive line**” with a width that is simultaneously “narrower than the broad portion of [a] data line” and “wider than the non-broad portion of the data line.” Ex. 1001, Claim 2.

Ground 1 presents an obviousness challenge based on *Kurashina*, modified in view of *Sato* to include the claimed “scanning line” configuration. *See* Pet. at 31-38. The Board did not dispute that the combined references provided every limitation, but instead found insufficient motivation to combine *Sato*’s scanning line with *Kurashina* because *Sato* discloses only the benefits of other design features without specifically describing its scanning line configuration as beneficial. Decision at 15-16. The Board likewise discounted the testimony of Petitioner’s expert, Dr. Flasck, because he “provides no further insight as to how or why” those express benefits of *Sato* “would have been understood to apply to scan lines.” *Id.* at 16.

Ground 3 presents an obviousness challenge based on *Murade-109*, modified in view of *Murade-125* to include the claimed “capacitive line” configuration. *See* Pet. at 71-79. Again, the Board did not dispute the presence of any claim limitation, instead denying the challenge based on its finding of no “adequate rationale for the proposed combination.” Decision at 27-28. The Board acknowledged Dr. Flasck’s testimony that modifying *Murade-109*’s capacitive line “would result in improved light protection for sensitive components,” but disregarded the testimony because the secondary reference *itself* “does not teach utilizing the capacitive line as a light shielding layer.” *Id.* at 28.

IV. ARGUMENT

The Board analyzed each of Grounds 1 and 3 using an improper standard for obviousness.¹ In each instance, the Board mistakenly required *the asserted references* to supply explicit reasons to combine. In so doing, the Board failed to consider the Petition’s evidence of “‘universal’ motivations” and a “known-technique” rationale. *Intel*, 61 F.4th at 1379. That analysis is contrary to law. Moreover, at least as to Ground 1, the Board’s analysis depends upon clear factual error—including failure to recognize that the reference *does* provide motivation (even if not required by law). Director Review is, therefore, warranted.

A. Ground 1 – *Kurashina* in View of *Sato*

To support combining the *Kurashina* and *Sato* references, the Petition—with testimonial support from Dr. Flasck—demonstrated that both references (1) relate to the same technical field, (2) share compatible design goals to avoid unduly reducing the size of the pixel aperture, and (3) include the same general structures

¹ Petitioner notes that the Board’s analysis of Ground 2 made similar errors, including ignoring the secondary reference’s express teaching to provide a scanning line with the claimed “wide width at the location at which it becomes the gate electrode.” *Takahara*, ¶[0053]. Petitioner intends to address those issues, as necessary, if IPR is instituted following Director Review.

arranged in a similar manner. Pet. 32-34 (citing Ex. 1002 ¶¶ 132-134). Moreover, the Petition demonstrated that *Kurashina* and *Sato* both address the same need or problem that the '079 patent purports to address—namely, the need to solve problems of light leakage that may negatively impact TFT channel performance. Pet. at 36-37; *see also* Pet. at 33-34 (*Kurashina* and *Sato* address art-recognized need to shield the TFT channel area from incident light). This unrebutted showing—that the art had a universal motivation to block light leakage—alone provides sufficient motivation, because “*any* need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Intel*, 61 F.4th at 1379; *Qualcomm*, 21 F.4th at 799-800 (approving “universal” motivations to combine). Yet the Board did not address it.

Instead, the Board narrowly focused on the Petition’s discussion of *Sato*’s purported advantages, namely: the design “simply arrang[es] the electro-optical device” and “simplifies a manufacturing process thereof.” Pet. at 37 (quoting *Sato*, ¶¶[0026], [0028]); *see* Decision 15-16. Those facts provide unrebutted motivation to combine the teachings of *the references*, because *Kurashina* similarly teaches that changing the shapes of its layered components “without any special process” is desirable. Pet. at 37. The Board, however, dismissed these facts because the cited benefits relate to *Sato*’s use of “data lines composed of an Al [aluminum]

film” or “capacitance lines formed of [a] metal film” and not specifically to the scanning line *element* recited in the ’079 patent’s claims. Decision at 15-16.² The Board erred. By law, “the motivation-to-combine analysis ‘need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.’” *Intel Corp.*, 61 F.4th at 1379 (quoting *KSR*, 550 U.S. at 418). Moreover, “the law has always evaluated the motivation to combine elements based on the combination of prior art *references* that together disclose all of the elements of the invention.” *Gen. Elec. Co. v. Raytheon Techs. Corp.*, 983 F.3d 1334, 1352 (Fed. Cir. 2020) (rejecting an obviousness analysis that “require[d] a motivation to combine each element of the claim—even those present together in a reference”). Here, the Petition demonstrated motivation to combine the teachings of the *Kurashina* and *Sato* references, and it was error for the Board to disregard that motivation simply because the references *alone* did not

² The Board’s assessment is factually wrong, because *Sato* clearly states that its advantages relate to its *overall design*—i.e., “this arrangement”—and not *only* the use of aluminum film or metal capacitance lines. *Sato*, ¶¶[0026], [0028]. “[T]his arrangement” of *Sato* includes its “scanning lines 3a [that] are widened at portions where they act as the gate electrodes,” as in the ’079 patent claims. *Sato*, ¶[0091].

explicitly provide motivation to include the specific scanning line *element* of the claim.

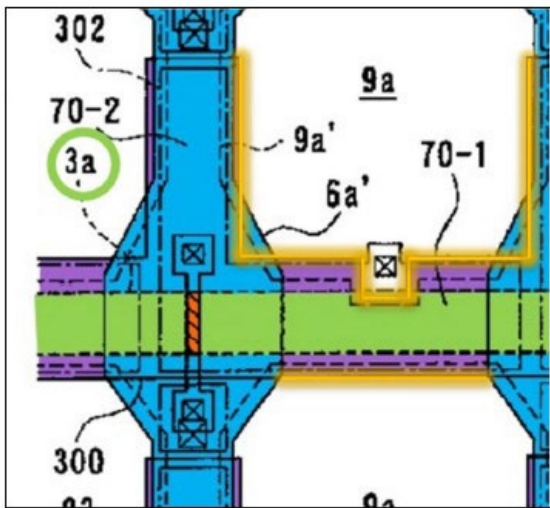
Furthermore, even despite the Board’s finding that *Sato* failed to teach that its scanning line specifically provided an advantageous improvement, there is no dispute that *Sato* explicitly teaches that the claimed scanning line configuration is advantageous because it allows the scanning line to form gate electrodes. *Sato*, ¶[0091] (“the scanning lines 3a are widened at portions where they act as the gate electrodes”). At a minimum, *Sato* teaches that widening the scanning line is *at least* an acceptable option. *Id.* Indeed, the prosecution history established that providing a “broad width portion” had been well known for years, and the applicant never argued that the feature was new. *See* Pet. 11-13.³ By law, a petitioner “never ha[s] to show that” the proposed modification “was an ‘improvement’ in a categorical sense,” but only that the modification “was a ‘suitable option.’” *Intel*, 61 F.4th at 1381 (quoting *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 800 (Fed. Cir. 2021)). “It’s enough for [the petitioner] to show that there was a known problem ... in the art, that [the secondary reference] helped address that issue, and that combining the teachings ... wasn’t beyond the skill of an ordinary artisan.” *Id.*

³ The Board further erred in failing to account for the prosecution history.

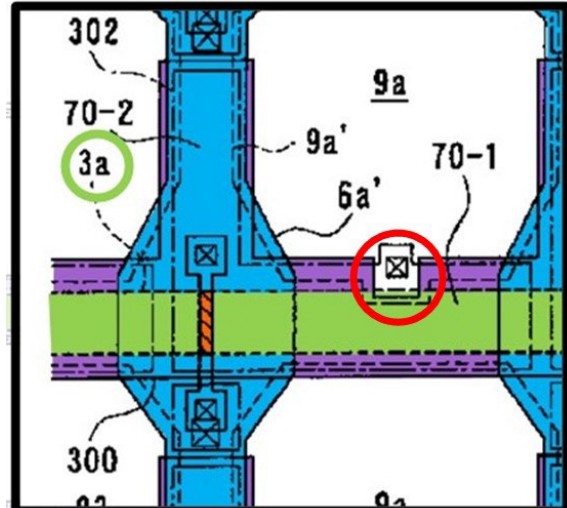
Here, the Petition showed one known problem that “a scanning line must have a certain minimum dimension[s] at the gate area, even if other portions of the scanning line are narrowed,” and that *Sato* helped address that issue with “scanning lines 3a [that] are widened at portions where they act as the gate electrodes.” Pet. at 35 (citing Ex. 1002, ¶136, *Sato*, ¶[0091]). The Petition also showed another known problem that “light leakage ... may negatively impact TFT channel performance,” which *Sato* helped address by using the capacitance lines and data lines to block light. Pet. at 36-37 (citing Ex. 1002, ¶137, *Sato*, ¶[0116]). And the Petition showed that combining the teachings was within the skill of a POSITA, i.e., a “known technique to address a known problem” in the words of the Federal Circuit. Pet. 37-38; *Intel*, 61 F.4th at 1379. “Nothing more is required to show a motivation to combine under *KSR*,” so the Director should “reverse the Board’s finding[s] to the contrary.” *See Intel*, 21 F.4th at 800.

Finally, while the foregoing legal errors alone warrant Director Review, Petitioner further notes for completeness that additional errors compounded the Board’s mistakes. Most significantly, the Board disputed one of Dr. Flasck’s opinions as to motivation—namely, that “combining *Sato*’s scan lines with *Kurashina* would ‘improv[e] pixel pitch and aperture ratio [of *Kurashina*], which would improve image quality.” Decision at 17. In so doing, the Board credited testimony from Patent Owner’s expert, Dr. Schubert, that “any change to pixel

pitch or aperture ratio would require adjusting the width of the capacitor line, not the scan line.” *Id.* at 17. Specifically, the Board endorsed Dr. Schubert’s modification of an illustration from the Petition—reproduced below, left—in which “Kurashina’s capacitor line 302 (purple, bordered light orange) sets Kurashina’s aperture ratio (white space outlined by light orange) and not the scan line (green).” *Id.* at 17-18. Dr. Schubert’s modification, however, obscures the portion of *Kurashina*’s design in which the scanning line (green) inarguably defines a portion of the aperture ratio, as illustrated below, right.



Decision at 17 (orange line added by Dr. Schubert)



Pet. at 32 (red circle added by Petitioner)

Free from Dr. Schubert’s obstructions, *Kurashina* clearly depicts at least a portion of its pixel aperture being defined by a width of the scanning line. Thus, as a matter of fact, narrowing that portion of the scanning line (while retaining the channel portion’s pre-existing width) would increase the pixel aperture ratio

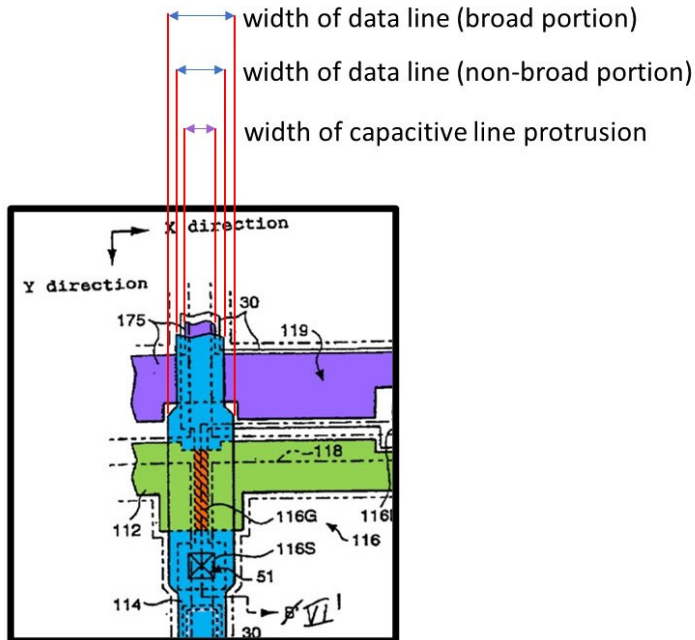
precisely as Dr. Flasck testified. The Board’s adoption of Dr. Schubert’s incorrect analysis represents clear error that further warrants Director Review.

B. Ground 3 – *Murade-109* in View of *Murade-125*

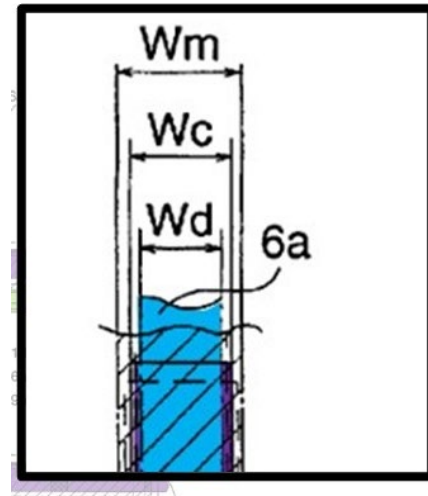
To support combining *Murade-109* and *Murade-125*, the Petition demonstrated that both references relate to the “same field of endeavor,” and that *Murade-125* “offers additional features to improve display quality, reduce light leakage, and improve capacitance, which a POSITA would recognize as desirable improvements to *Murade-109*.” Pet. at 77 (citing Ex. 1002, ¶¶211, 216-217). The Petition further explained that a POSITA would be motivated to combine the references’ teachings because “it was well-known at the relevant time—including from the teachings of *Murade-125*—that an electro-optical device must be provided with measures to block incident light from reaching the TFT channel,” and “[a] POSITA would thus consider references such as *Murade-125* to be pertinent when implementing ... *Murade-109*.” *Id.* (citing Ex. 1002, ¶217).

The Petition further explained that, starting from *Murade-109* (illustrated below at left), “[s]lightly widening the protruding portion of the capacitor line to be wider than the non-broad portion of the data line,” as claimed, “would have been obvious” in view of *Murade-125*. Pet. at 73. As illustrated below at right, the widths of *Murade-125*’s capacitor line (W_c) and intermediate conductive layer

(Wm) (which together form the storage capacitor) are both wider than the data line (Wd). Pet. at 75 (quoting *Murade-125*, ¶¶[0041], [0094]).



Pet. at 73 (*Murade-109*)



Pet. at 75 (*Murade-125*)

Dr. Flasck testified that a POSITA would understand certain advantageous modifications from *Murade-125*, namely that “[w]idening the capacitive line relative to the data line (a) ‘attenuates multiply reflected light caused by internal reflection as described above’ and (b) a ‘larger storage capacitor can be constructed using the capacitor electrode and the intermediate conductive layer, which are wider than the data line.’” Ex. 1002, ¶214 (quoting *Murade-125* ¶[0042]).

The Board found no “adequate rationale for the proposed combination,” because the benefits identified by Dr. Flasck above are not specifically described *in the asserted reference*. Decision at 27-28. Specifically, the Board found that

“Murade-125 does not teach utilizing the capacitive line as a light shielding layer” and “it would be impossible to make a larger storage capacitor in Murade-109 out of a capacitive line *and an intermediate conductive layer*’ because Murade-109 does not disclose an intermediate conductive layer.” *Id.*, 28-29 (emphasis added) (quoting Patent Owner’s expert). The Board’s finding is erroneous for several reasons.

First, in focusing on the fact that “Murade-125 does not teach utilizing the capacitive line as a light shielding layer,” the Board erred by requiring motivation to come from the *reference itself*. See *Intel*, 61 F.4th at 1379 (“motivation-to-combine analysis ‘need not seek out precise teachings directed to the specific subject matter of the challenged claim’”). The point of Dr. Flasck’s testimony is that widening Murade-109’s capacitive layer—as taught by *Murade-125*—would necessarily shield light, a point that Patent Owner does not dispute. Ex. 1002, ¶204. Whether the reference itself teaches that functionality is not dispositive of whether a POSITA would understand the functionality to be present because, as *Intel* explains, “a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *Intel*, 61 F.4th at 1379 (quoting *KSR*, 550 U.S. at 418).

Similarly, the Board erred in concluding that increasing the size of *Murade-109*’s capacitor would be “impossible,” because it assumed that such modification

would be possible only if *Murade-109*'s capacitor had the identical "intermediate conductive layer" structure as in *Murade-125*. Decision at 29. Dr. Flasck's testimony was not so limited. Rather, Dr. Flasck explained that *Murade-109*'s capacitor used a capacitive line with a "mated electrode (30f)" (rather than with an intermediate conductive layer) to create capacitance. Ex. 1002, ¶215. Following the principles laid out by Dr. Flasck, a POSITA seeking to implement *Murade-125*'s larger capacitor within the design of *Murade-109* would simply scale the width of the mated electrode to match the wider capacitive line. *See id.* After all, "[a] person of ordinary skill in the art is also a person of ordinary creativity, not an automaton." *KSR*, 550 U.S. at 421.

Finally, the Board erred in rejecting the obviousness challenge on the basis that "[t]he motivations identified ... relate to whether an ordinarily skilled artisan *could* feasibly combine features of *Murade-125* with *Murade-109*, but do not address adequately, if at all, *why* the artisan *would* have been led specifically to combine *Murade-125*'s capacitance line projections with *Murade-109*." Decision at 30. Contrary to the Board's analysis, it is "enough ... to show that there was a known problem ... in the art, that [*Murade-109*] helped address that issue, and that combining the teachings ... wasn't beyond the skill of an ordinary artisan." *Intel*, 21 F.4th at 800. Here, the Petition demonstrates (1) the known problem "that an electro-optical device must be provided with measures to block incident light from

reaching the TFT channel”; (2) that *Murade-109* helped address the issue; and (3) that a POSITA would have been able to make the combination. Pet. at 77-78 (quoting Ex. 1002, ¶¶217-218). “Nothing more is required to show a motivation to combine under *KSR*.” *Intel*, 21 F.4th at 800.

V. CONCLUSION

For the foregoing reasons, Petitioner respectfully requests that the Director grant review of the Board’s institution decision and remand to the Board with instructions to institute.

Date: January 15, 2025

Respectfully Submitted,

/Joshua L. Goldberg/

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Reg. No. 59,369

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing PETITIONER'S REQUEST FOR DIRECTOR REVIEW UNDER 37 C.F.R. § 42.75 was served on January 15, 2025, via email directed to counsel of record for Patent Owner at the following:

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