

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TIANMA MICROELECTRONICS CO. LTD.,
Petitioner,

v.

JAPAN DISPLAY INC.,
Patent Owner.

IPR2021-01058
Patent 7,636,142 B2

Before JO-ANNE M. KOKOSKI, KRISTINA M. KALAN, and
ELIZABETH M. ROESEL, *Administrative Patent Judges*.

KOKOSKI, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

Tianma Microelectronics Co. Ltd. (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1–3, 5, 6, and 8 (the “challenged claims”) of U.S. Patent No. 7,636,142 B2 (“the ’142 patent,” Ex. 1001). Paper 2 (“Pet.”). Japan Display Inc. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). With Board authorization, Petitioner filed a Reply to the Preliminary Response (“Reply,” Paper 7), and Patent Owner filed a Sur-reply to Petitioner’s Reply (“Sur-reply,” Paper 9).

Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314 (2018); *see also* 37 C.F.R. § 42.4 (2021). Upon consideration of the Petition, the Preliminary Response, the Reply, the Sur-reply, and the evidence of record, we determine that Petitioner has established a reasonable likelihood of prevailing with respect to the unpatentability of at least one claim of the ’142 patent, and we decline to exercise our discretion to deny institution. Accordingly, for the reasons that follow, we institute an *inter partes* review of claims 1–3, 5, 6, and 8 of the ’142 patent.

A. *Real Parties in Interest*

Each party identifies itself as the real party-in-interest. Pet. 58; Paper 5, 1.

B. *Related Matters*

In their initial mandatory notices, the parties indicated that the ’142 patent was asserted in *Japan Display Inc. v. Tianma Microelectronics Co. Ltd.*, No. 2:20-cv-00283 (E.D. Tex.) (the “District Court Action”). Pet. 59; Paper 5, 3. Patent Owner recently narrowed the number of patents and

claims asserted in the District Court Action pursuant to a court order (Ex. 1021, 2–3), stating that Patent Owner does “not currently assert claims from the ’142 patent based solely on compliance with the Order” but intends “to seek reconsideration of the Order and reserve the right to amend this election to assert claims 1 and 6 of the ’142 patent should the Court modify its Order” (Ex. 1022, 1). *See also* Paper 11, 1 (Petitioner’s updated mandatory notice indicating that “Patent Owner has withdrawn the ’142 patent from” the District Court Action). Patent Owner filed its Motion for Reconsideration of the Order in the District Court Action (Ex. 2017), and Petitioner filed an Opposition (Ex. 1023). On December 21, 2021, the District Court issued an Order denying Patent Owner’s Motion for Reconsideration as moot, and ordering that Patent Owner “will proceed to trial asserting up to but not more than 8 patents and up to but not more than 20 asserted claims.” Ex. 2019, 2.

C. The ’142 Patent

The ’142 patent, titled “Liquid Crystal Display Device,” is directed to “a liquid crystal display device having upper and lower electrodes interposing an insulation layer therebetween in which an electric field opening part for passing an electric field is formed in the upper electrode and liquid crystal molecules are driven by applying a voltage between the upper and lower electrodes.” Ex. 1001, code (54), 1:6–12. The ’142 patent explains that, when the liquid crystal molecules rotate along an arc shape of the edge portions of the opening part, “there is a case where the rotation direction of the liquid crystal molecules is reversed” or “changes depending on locations.” *Id.* at 2:3–8. “[T]his phenomenon in which the rotation direction changes depending on the locations is called disinclination.” *Id.* at 2:8–10. The ’142 patent further explains that, when disinclination occurs,

“display quality may be judged to be lowered.” *Id.* at 2:33–35. The ’142 patent teaches that “the shape, disposition, and the like of the opening part disposed in the upper electrode in relation with the lower electrode” must be considered in order to suppress the occurrence of disinclination. *Id.* at 2:41–44.

Figure 1 of the ’142 patent is reproduced below.

FIG. 1

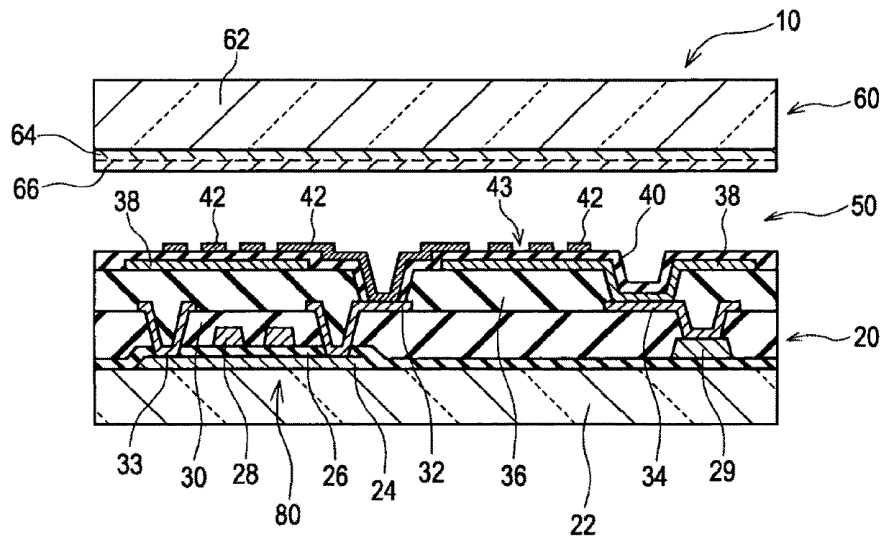


Figure 1 is a sectional view of one sub pixel of a color liquid crystal device using a fringe field switching (“FFS”) mode. *Id.* at 5:6–7. Liquid crystal display device 10 includes component substrate 20 and opposing substrate 60 with “liquid crystal molecules 50 pinched in between.” *Id.* at 5:18–22. Opposing substrate 60 includes glass substrate 62, black matrix 64, and color filter 66 in sequence from the side facing the user to the side facing component substrate 20. *Id.* at 5:25–29. Component substrate 20, also referred to a thin film transistor (“TFT”) substrate, is “disposed on a side on which a TFT element used as a switching element 80 is disposed and faces the opposing substrate 60.” *Id.* at 5:37–41. Component substrate 20 includes glass substrate 22, semiconductor layer 24,

gate insulation film 26, gate electrode wiring 28, common electrode wiring 29, interlayer insulation film 30, source wiring 32, drain wiring 33, common electrode connecting part 34, insulation film 36, common electrode 38, FFS insulation film 40, and pixel electrode 42. *Id.* at 5:47–54.

Slit 43, formed in pixel electrode 42, “is an electric field opening part for driving liquid crystal molecules using an electric field by applying a voltage between” pixel electrode 42 and common electrode 38. *Id.* at 6:43–47. A plurality of slits 43 “are disposed to be spaced apart from one another and be parallel to a longitudinal direction of the opening part.” *Id.* at 6:49–52. Slit 43 has “a thin and long groove shape in which both ends in the longitudinal direction are closed, and thus the end portions in the longitudinal direction are formed to be round.” *Id.* at 6:52–56.

The round end portions, also referred to as an “edge portion,” is where the disinclination occurs, as shown in area D in Figure 4, reproduced below. *Id.* at 6:56–57.

FIG. 4

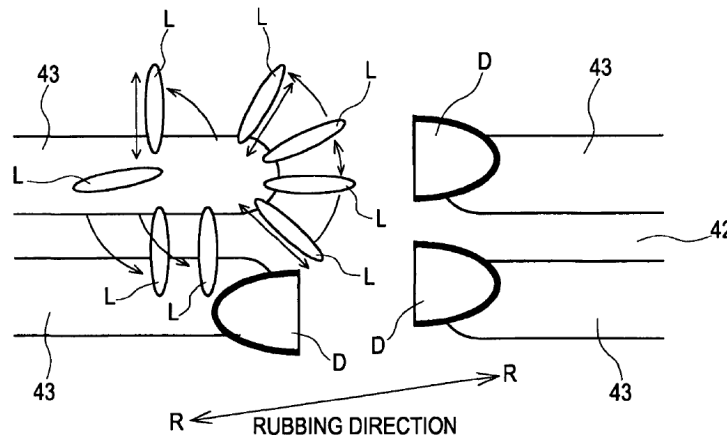


Figure 4 is “a schematic diagram showing the form of occurrence of the disinclination in the edge portion that is an edge portion of the slit 43.”

Ex. 1001, 7:1–4. Slit 43 is formed on a transparent conduction material film

that forms pixel electrode 42, and is disposed horizontally from left to right, and the rubbing direction R-R is slightly tilted to toward the upper right side with respect to the horizontal direction. *Id.* at 7:4–8, 7:15–17. “[T]he edge portion of the slit is quite or less round” and “has an arc shape close to a half circle.” *Id.* at 7:18–20. “When a horizontal electric field is applied, there is case where the rotation direction of liquid crystal molecule L in the edge portion changes depending on its location,” and this is the disinclination that occurs in area D, which “is an edge portion of a fringe of the slit 43.” *Id.* at 7:52–65.

Figures 9, 10, and 11 of the ’142 patent show progressive stages of a production process in plan view (*id.* at 8:49–56) and are reproduced below.

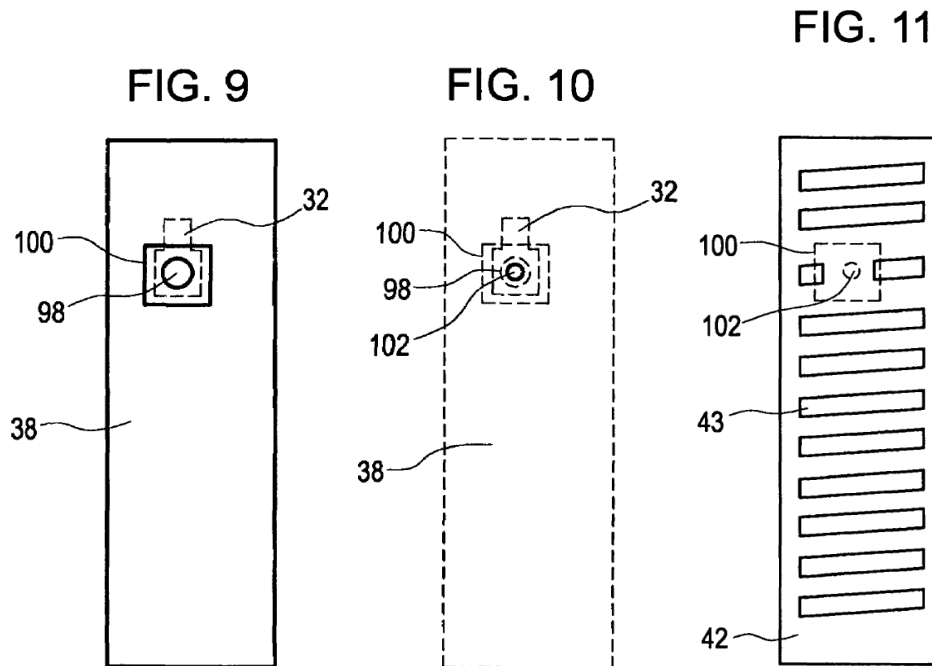


Figure 9 on the left is “a diagram showing a state in which a common electrode having a window-shaped opening part is formed,” Figure 10 in the middle is “a diagram showing a state in which an FFS insulation film is formed and a contact hole is formed in a position corresponding to the window-shaped opening part” shown in Figure 9, and Figure 11 on the right

is “a diagram showing a state in which a pixel electrode having a slit is formed in a case where the process proceeds further from the state shown in Figure 10.” *Id.* at 4:18–29. In Figure 9, common electrode 38 is disposed over one pixel, and window-shaped opening part 100 is disposed around the center of common electrode 38. *Id.* at 9:59–62. Contact hole 98, which is an opening part for connecting drain wiring 32 and pixel electrode 42, is prepared “in an area in which the transparent conduction material film constituting the lower electrode is removed,” and drain wiring 32 can be seen inside contact hole 98 by removing the transparent conduction material film. *Id.* at 9:39–42, 9:62–67. Figure 10 shows “contact hole 102 disposed in a position corresponding to the window-shaped opening part 100,” such that drain wiring 32 can be seen inside contact hole 102. *Id.* at 10:5–9. In Figure 11, pixel electrode 43 is connected to drain wiring 32 at contact hole 102. *Id.* at 10:15–18. Slits 43 are disposed in pixel electrode 42 “for passing the electric field between the common electrode 38 serving as the lower electrode and the pixel electrode.” *Id.* at 10:23–26. Slits 43 extend approximately parallel with one another “and are opening parts each having a thin and long groove shape in which both ends are closed.” *Id.* at 10:26–38. “[S]lits 43 are disposed to keep off the portion of the contact hole 102 in an area around the window-shaped opening part 100.” *Id.* at 10:41–43.

Figure 12 of the '142 patent is reproduced below.

FIG. 12

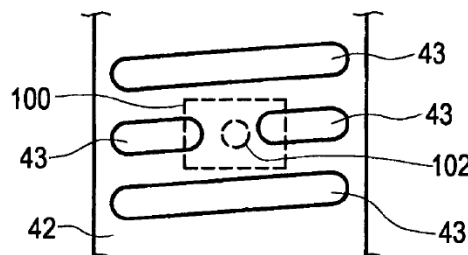


Figure 12 is an enlarged diagram of a part of Figure 11 showing the disposition of slits 43 in the area around window-shaped opening part 100. *Id.* at 10:46–48. Slit 43 disposed in an area around window-shaped opening part 100 has at least one end portion overlapped with window-shaped opening part 100 in a plan view. *Id.* at 10:64–11:1. The '142 patent teaches that “[i]t is preferable that the amount of the overlapped area is configured such that at least the arc-shaped portion of the end portion in the longitudinal direction is disposed inside the window-shaped opening part 100.” *Id.* at 11:1–4. In this configuration, common electrode 38 serving as the lower electrode is removed “in a position corresponding to a position located below the arc-shaped portion of the end portion of the slit 43 in the longitudinal direction,” and “an electric field between the common electrode 38 serving as the lower electrode and the pixel electrode 42 serving as the upper electrode is not formed.” *Id.* at 11:4–12. The '142 patent teaches that this configuration suppresses disinclination due to the arc shape of the end portion of slit 43 around window-opening part 100. *Id.* at 11:12–15.

D. Illustrative Claim

Petitioner challenges claims 1–3, 5, 6, and 8 of the '142 patent. Pet. 2. Claim 1, the only independent challenged claim, is illustrative of the claimed subject matter and is reproduced below.

1. A liquid crystal display device comprising an upper electrode and a lower electrode interposing an insulation layer therebetween,

wherein an electric field opening part for passing an electric field is formed in the upper electrode and liquid crystal molecules are driven by applying a voltage between the lower electrode and the upper electrode,

wherein an upper electrode wiring and the upper electrode which interpose an interlayer insulation film therebetween, together is disposed below the lower electrode,

wherein a window-shaped opening part formed by partially removing the lower electrode for connecting the upper electrode wiring and the upper electrode, and

wherein one end portion of the electric field opening part in the longitudinal direction around the window-shaped opening part is disposed to be overlapped with the window-shaped opening part in a plan view.

Ex. 1001, 12:39–55.

E. Asserted Ground

Petitioner asserts that claims 1–3, 5, 6, and 8 would have been obvious under 35 U.S.C. § 103¹ over the combined teachings of Lee² and No.³ Petitioner relies on the Declaration of E. Fred Schubert, Ph.D. (“Schubert Declaration,” Ex. 1002) in support of its contentions. Patent Owner submits the Declaration of Thomas L. Credelle (“Credelle Declaration,” Ex. 2008) in support of its Preliminary Response.

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner contends that a person having ordinary skill in the art would have had “at least a four-year undergraduate degree in electrical engineering or physics or a closely related field and four years of experience in the

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’142 patent issued from an application filed before March 16, 2013, we apply the pre-AIA version of § 103.

² US Patent No. 7,599,015 B2, issued Oct. 6, 2009 (Ex. 1005).

³ Korean Laid-Open Patent No. 2002-0085245, published on Nov. 16, 2002 (Ex. 1006).

design and implementation of flat panel display devices or components thereof.” Pet. 9 (citing Ex. 1002 ¶ 43). Patent Owner’s declarant, Mr. Credelle, testifies that a person having ordinary skill in the art “would have had the equivalent of an undergraduate degree in electrical engineering, materials science, physics, or a related field and at least two years of work experience (or a graduate degree) in LCD display technology.” Ex. 2008 ¶ 28. Mr. Credelle also states that, although he disagrees with Petitioner’s proposed level of ordinary skill in the art, his opinions “apply equally under either proposed level.” *Id.* ¶ 30.

We agree with the parties that a person of ordinary skill in the art would have had the equivalent of a four-year undergraduate degree in electrical engineering or a similar field, and experience in the field of flat panel displays or liquid crystal display technology, which appears to be consistent with the level of skill in the art at the time of the invention as reflected in the prior art in this proceeding. Our determination regarding Petitioner’s challenge does not turn on the differences between Petitioner’s and Patent Owner’s definitions, and we note that our conclusion would be the same under either definition.

B. Claim Construction

We construe each claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). Under this standard, claim terms are generally given their plain and ordinary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). Only those terms in controversy need to be construed,

and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner asserts that, in the related district court litigation, the parties agreed that “disinclination” as used in claim 3 means “a phenomenon in which the direction of rotation of liquid crystal molecules changes depending on their location.” Pet. 9 (citing Ex. 1013, 1). Petitioner asserts that “[n]o other terms need construction because the claims encompass the prior-art mappings provided below under any construction consistent with *Phillips*.” *Id.* at 9–10. Patent Owner does not address claim construction at this stage of the proceeding. *See generally* Prelim. Resp. For purposes of this Decision, based on the record before us, we determine that no claim term requires an explicit construction.

C. Asserted Obviousness over Lee and No

Petitioner contends that claims 1–3, 5, 6, and 8 would have been obvious over the combined teachings of Lee and No. Pet. 19–58.

1. Overview of Lee

Lee relates to “a thin film transistor array panel that uses one substrate of a liquid crystal display.” Ex. 1005, 1:16–19. Lee teaches that, as the size of a liquid crystal display increases, the display panels can become erroneously aligned, which “can lead to deterioration of a contrast ratio and a mixed color phenomenon.” *Id.* at 1:44–48. Lee explains that the width of a black matrix that is formed between the pixels can be increased to compensate for this, but, as the width of the black matrix increases, the aperture ratio of the pixels increases, and, therefore, “there is a need for a liquid crystal display that is capable of preventing erroneous alignment of

display panels while maintaining an aperture ratio of the pixels.” *Id.* at 1:48–54.

Lee’s Figure 2 is reproduced below.

FIG.2

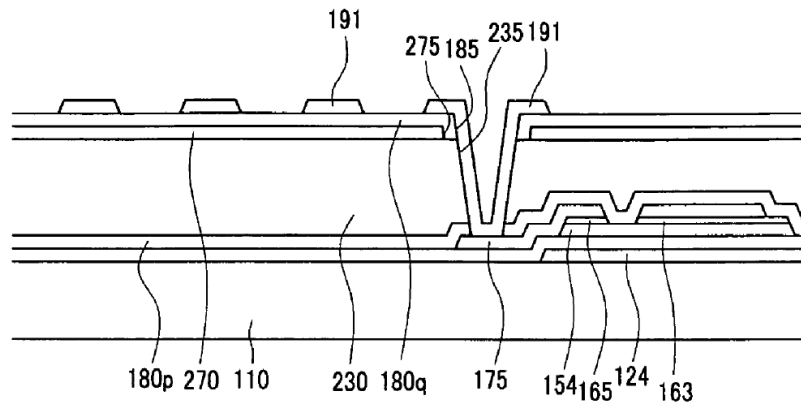


Figure 2 is a cross-sectional view of a portion of a thin film transistor array panel described in Lee. *Id.* at 3:67–4:3. Common electrode 270 with opening 275 is formed on the upper parts of lower passivation layer 180p and color filter 230. *Id.* at 6:11–18. Lower passivation layer 180p is formed on data line 171 (not shown), drain electrode 175, and the exposed portions of semiconductor island 154. *Id.* at 5:54–56. Upper passivation layer 180q is formed on the upper parts of common electrode 270, exposed color filter 230, and lower passivation layer 180p. *Id.* at 6:27–31. Pixel electrode 191 is formed on upper passivation layer 180q. *Id.* at 6:48–50. Contact hole 185 for exposing drain electrode 175 through opening 235 of color filter 230 is formed in upper passivation layer 180q. *Id.* at 6:36–40.

Lee teaches that, because upper passivation layer 180q that defines contact hole 185 completely covers opening 275 of common electrode 270, common electrode 270 and pixel electrode 191 are isolated from each other. *Id.* at 6:66–7:2. Lee further teaches that “pixel electrode 191 to which a data voltage is applied and the common electrode 270 to which a common

voltage is applied generate an electric field” that determines “a direction of liquid crystal molecules of a liquid crystal layer (not shown) that is positioned between the two electrodes 191 and 270.” *Id.* at 7:3–8.

According to Lee, the electric field between common electrode 270 and pixel electrode 191 “is formed in both a parallel direction and vertical direction of the substrate 110, such that the liquid crystal molecules are inclined while twisting,” and, “[t]herefore, transmittance can be improved while securing a wide angle view.” *Id.* at 7:33–38.

Lee also teaches that, because common electrode 270 is positioned between pixel electrode 191 and data line 171, “a parasitic capacitance generated between the pixel electrode 191 and the data line 171 can be reduced,” preventing the phenomenon in which vertical line blurs are generated and reducing an erroneous alignment margin between data line 171 and pixel electrode 191. *Id.* at 7:46–52. Additionally, Lee teaches that a sustain capacity formed between electrodes 270 and 191 “can be reduced by adjusting a thickness of the upper passivation layer 180q,” by which the size of the thin film transistor can be reduced and “an aperture ratio of the pixels can be improved.” *Id.* at 7:46–58.

2. *Overview of No*

No is directed to “a fringe field switching mode (FFS) liquid crystal display device capable of suppressing the occurrence of disinclination lines without reducing the size of the storage capacitor.” Ex. 1006, 10.⁴ No teaches that “disinclination lines occur due to distortion of the electric field at an edge of the slit formed in the pixel electrode, and the screen quality is

⁴ We refer to the page numbers added by Petitioner on the bottom left-hand corner of the page.

consequently degraded.” *Id.* No teaches that, in the prior art, the occurrence of disinclination was suppressed by reducing the width of the counter electrode, but as the area of the counter electrode was decreased, the size of the storage capacitor was reduced, which caused screen flicker. *Id.* at 12, Fig. 2. To address the problems of the prior art, No discloses a liquid crystal display device having “slit-type pixel electrodes disposed so as to overlap the respective counter electrode in the unit pixel region and having a plurality of slits[,] wherein in each counter electrode, holes are is respectively furnished on both edge portions, which overlap with the respective ends of the slit of the pixel electrode.” *Id.*, Abstract, 12, 15 (claim 1).

No’s Figure 3 is reproduced below.

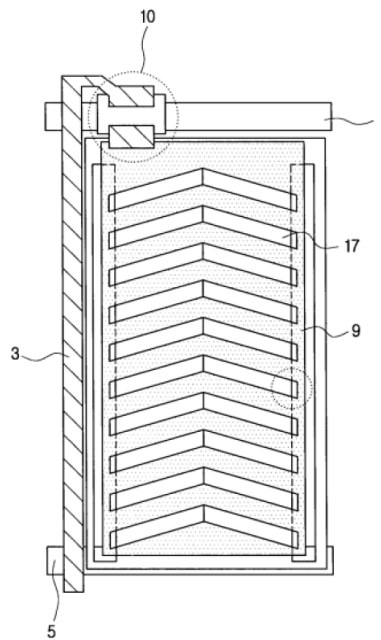


Figure 3 is a plan view illustrating an electrode structure of a thin film transistor liquid crystal display device according to one embodiment described in No. *Id.* at 12. Gate bus line 1 and data bus line 3 “are arranged intersecting perpendicularly so as to define a unit pixel region,” and thin film

transistor 10 that plays a switching role is disposed on the region where gate bus line 1 and data bus line 3 intersect. *Id.* at 12–13. Plate-shaped counter electrode 17 with holes formed parallel to data bus line 3 is disposed on each edge of the unit pixel region. *Id.* at 13. Slit-type pixel electrode 9, having a plurality of “^”-shaped slits that form a predetermined angle with gate bus line 1 or data bus line 3, is disposed on and overlapping with counter electrode 17. *Id.*

No teaches that an upper substrate having a color filter is disposed above the lower substrate shown in Figure 3, “and a liquid crystal layer composed of a plurality of liquid crystal molecules rotated by an electric field generated between the pixel electrode and the counter electrode is disposed between the upper and lower glass substrates.” *Id.* at 13. No teaches that the arrangement shown in Figure 3 “is able to suppress the occurrence of disinclination by forming holes in each upper and lower end portion or each left and right end portion of the counter electrode rather than reducing the width of the counter electrode” and also reduces “screen flicker by suppressing a reduction in the storage capacitor.” *Id.* at 14.

3. Analysis

Petitioner asserts, with supporting testimony from Dr. Schubert, that claims 1–3, 5, 6, and 8 would have been obvious over the combined teachings of Lee and No. Pet. 23–58. Petitioner contends that Lee teaches or suggests all of the limitations of independent claim 1 except “one end portion of the electric field opening part in the longitudinal direction around the window-shaped opening part is disposed to be overlapped with the window-shaped opening part in a plan view,” which Petitioner contends No discloses. Petitioner’s contentions are summarized below.

Preamble: “A liquid crystal display device comprising” (Pet. 23 (relying on Ex. 1005, 1:16–19));

Element 1[a]: “an upper electrode and a lower electrode interposing an insulation layer therebetween,” (*id.* at 23–24 (relying on Ex. 1002 ¶ 54; Ex. 1005, 6:11–7:2, 7:53–56));

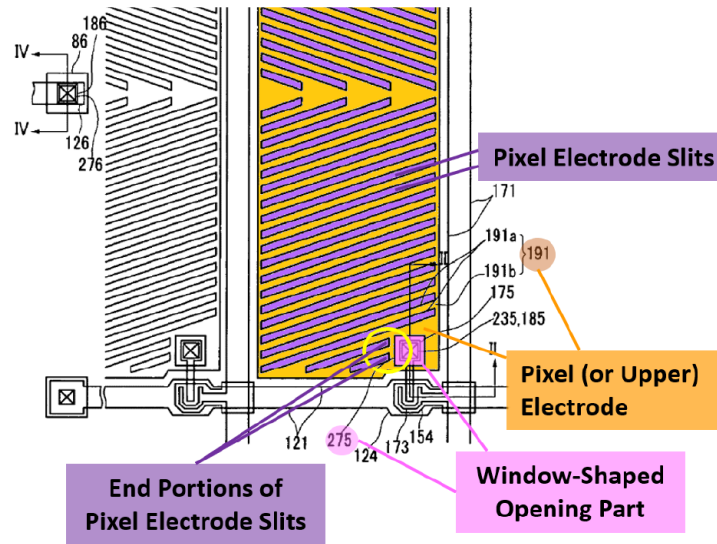
Element 1[b]: “wherein an electric field opening part for passing an electric field is formed in the upper electrode and liquid crystal molecules are driven by applying a voltage between the lower electrode and the upper electrode,” (*id.* at 24–29 (relying on Ex. 1002 ¶¶ 55–63; Ex. 1005, 1:26–34, 6:48–7:10, 7:33–38));

Element 1[c]: “wherein an upper electrode wiring and the upper electrode which interpose an interlayer insulation film therebetween, together is disposed below the lower electrode,” (*id.* at 29–32 (relying on Ex. 1002 ¶¶ 55–63; Ex. 1005, 5:54–63, 6:11–7:2, 8:45–52));

Element 1[d]: “wherein a window-shaped opening part formed by partially removing the lower electrode for connecting the upper electrode wiring and the upper electrode, and” (*id.* at 32–36 (relying on Ex. 1002 ¶¶ 68–70; Ex. 1005, 5:54–63, 6:11–7:2));

Element 1[e]: “wherein one end portion of the electric field opening part in the longitudinal direction around the window-shaped opening part is disposed to be overlapped with the window-shaped opening part in a plan view.” (*id.* at 36–43 (relying on Ex. 1002 ¶¶ 73–80; Ex. 1005, 1:26–34, 6:48–7:10; Ex. 1006, 9–16)).

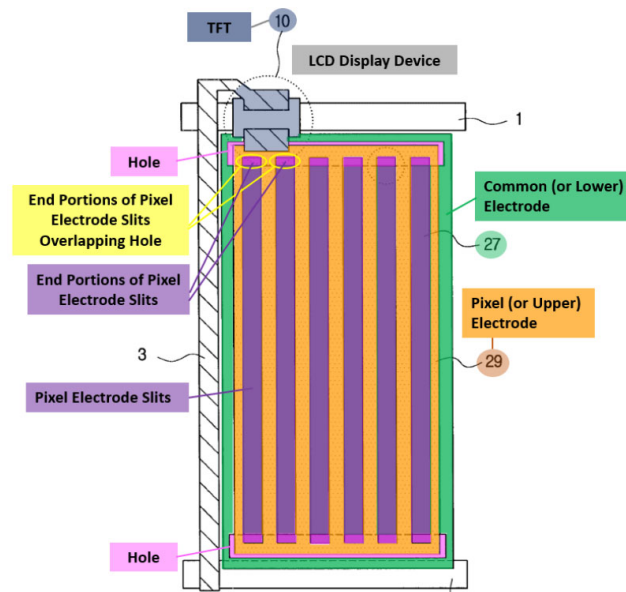
Petitioner provides annotated versions of a portion of Figure 1 of Lee and of Figure 4b of No to illustrate its contentions. Annotated portion of Figure 1 of Lee is reproduced below.



Lee, portion of FIG. 1 (annotated).

Annotated Figure 1 depicts a portion of a layout view of a thin film transistor array panel for a liquid crystal display device described in Lee, with Petitioner's annotations highlighting and labeling pixel (or upper) electrode 191 in orange, pixel electrode slits in purple, and window-shaped opening part 275 in pink. Pet. 36. Petitioner uses a yellow circle to illustrate its contention that the pixel electrode end portions in the longitudinal direction around window-shaped opening part 275 are disposed adjacent to the opening part in a plan view. *Id.* (citing Ex. 1005, 1:26–34, 6:48–7:10).

Annotated Figure 4b of No is reproduced below.



No, FIG. 4b (annotated).

Annotated Figure 4b depicts a plan view showing a FFS mode liquid crystal display device according to an embodiment described in No, with Petitioner’s annotations highlighting pixel (or upper) electrode 29 in orange, counter (or lower) electrode 27 in green, holes in common electrode 27 in pink, drain wiring of TFT electrode 10 in blue, and pixel electrode slits in purple. Pet. 37–38 (citing Ex. 1006, 9–16). Petitioner also identifies “end portions of pixel electrode slits,” and labels a yellow circle as “end portions of pixel electrode slits overlapping hole.” *Id.* at 37–38. Petitioner contends that No “discloses an end portion of the pixel electrode slits (purple) in the longitudinal direction around the underlying counter electrode hole (pink) overlapping with the holes (see at yellow circle) in a plan view to ‘suppress[] the occurrence of disinclination lines without reducing the size of the storage capacitor.’” *Id.* at 38 (citing Ex. 1006, 10).

Petitioner contends that a person having ordinary skill in the art would have been motivated to arrange the end portions of Lee’s pixel electrode slits

around window-shaped opening part 275 to overlap with window-shaped opening part 275 in a plan view “to prevent disinclination in those pixel electrode slit end portions and a resulting degradation of the quality of the LCD screen, as taught by No.” Pet. 39 (citing Ex. 1006, 9–12, 14; Ex. 1002 ¶ 76). Petitioner further contends:

As Dr. Schubert explains, “based on No’s disclosure of the benefits of preventing disinclination and its stated mechanism for doing so, one of ordinary skill in the art would have been motivated to modify Lee’s LCD device such that the end portions of Lee’s pixel electrode slits in the longitudinal direction positioned adjacent the common electrode opening part overlap the opening part in a plan view, as taught by No.”

Modifying Lee’s LCD device in this manner would have provided the predictable benefits of preventing disinclination in the end portions of the pixel electrode slits overlapping the opening, and would have required only routine skill, knowledge, and standard manufacturing techniques requiring only slight extension of the pixel electrode slit end portions positioned adjacent the opening to overlap the opening.

Pet. 42–43 (internal citation omitted) (citing Ex. 1002 ¶ 79).

Based on the record before us, we are persuaded that Petitioner sufficiently establishes, for purposes of institution, that the combined teachings of Lee and No disclose every limitation of challenged claim 1, and in particular, “one end portion of the electric field opening part in the longitudinal direction around the window-shaped opening part is disposed to be overlapped with the window-shaped opening part in a plan view,” as required by claim 1. Pet. 36–43. Lee teaches that common electrode 270 includes opening part 275 (the claimed “window-shaped opening part”) that is formed by partially removing common electrode 270 and contains contact hole 185 that provides a gap through which pixel electrode 191 contacts drain electrode 175. Ex. 1005, 6:11–7:2; *see also* Ex. 1002 ¶ 68

(Dr. Schubert testifying that “partial removal of the common electrode for creating an opening is a necessary requirement to electrically connect the” pixel electrode with the drain wiring, and “the opening diameter in the common electrode must be larger than that of the contact hole, to prevent a short-circuit between common and pixel electrodes.”). Lee also teaches, as shown in the annotated portion of Figure 1 reproduced above, that the end portions of the pixel electrode slits in the longitudinal direction around opening part 275 are disposed adjacent to opening part 275. Ex. 1005, 1:26–34, 6:48–7:10.

No teaches that “disinclination lines occur due to distortion of the electric field at an edge of the slit formed in the pixel electrode, and the screen quality is consequently degraded,” (Ex. 1006, 10) and Patent Owner acknowledges that such disinclinations occurring at the end of the slits near contact opening 275 in Lee will also reduce picture quality and light transmittance, “similar to the problem addressed by the ’142 patent” (Prelim. Resp. 25). No also appears to suggest that disinclination can be suppressed when the end portions of the slits of the pixel electrode overlap with the holes in the counter electrode that are disposed at the end of the slits. Ex. 1006, 9, 12, 14–15; *see also* Ex. 1002 ¶ 78 (Dr. Schubert testifying that a person of ordinary skill in the art “would appreciate that No’s disinclination line reduction teaching is applicable to any number of overlapping pixel electrode end portion slits, including one end portion,” because “each overlapping pixel electrode end portion slit would provide incremental improvement in terms of reducing disinclination and the associated degradation of the quality of the LCD screen.”).

Petitioner sufficiently establishes, for purposes of institution, that a person having ordinary skill in the art would have been motivated to modify

Lee's liquid crystal display device so that the end portions of the slits positioned adjacent to opening part 275 overlap opening part 275 to prevent disinclination as taught by No. Pet. 42–43. In that regard, Dr. Schubert testifies that modifying Lee in this way “would have required only routine skill, knowledge, and standard manufacturing techniques,” and would require “only a change to the pixel mask layout to extend the length of the slit so that it reaches into the opening of the common electrode” so that “each pixel (of the thousands of pixels of the LCD) is improved (by a small or incremental amount), and that collectively, the thousands of pixels, each one improved incrementally, results in an improvement of the LCD device.” Ex. 1002 ¶ 79.

Patent Owner argues that a person of ordinary skill in the art would not combine Lee with No because “[t]he structures of the TFT devices are completely different and Petitioner's attempt to liken them to each other is misleading.” Prelim. Resp. 22. Patent Owner argues that “*Lee* does not even mention disinclination” despite the fact that “disinclinations at the end of the slits near the opening will cause disinclinations that reduce picture quality and light transmittance, similar to the problem the addressed by the '142 patent.” *Id.* at 25 (citing Ex. 2008 ¶ 43; Ex. 1001, Figs. 2 and 4; Ex. 1005). Patent Owner also argues that “*No* does not have a window shaped opening part ‘for connecting the upper electrode wiring and the upper electrode’ as required by claim 1,” and that, in No, “the connection between the drain of the TFT and the pixel electrode is identical regardless of whether the window-shaped opening is added.” *Id.* at 26 (citing Ex. 2008 ¶ 44). Because “*Lee* offers no opinion about disinclination,” and No teaches a configuration that “is claimed to reduce disinclinations at the ends of the slits near the data lines (Fig. 3, 4a) or gate/common lines (Fig. 4b),” Patent

Owner argues that a person having ordinary skill in the art “would not combine *Lee* with *No* to reduce disinclinations at the opening part.” *Id.* at 27–28 (citing Ex. 2008 ¶ 45; Ex. 1006, 2, 10, 14). Patent Owner also argues that a person having ordinary skill in the art “would not look to *No* to solve the problems of disinclinations near contact openings in the pixel area since *No* discloses no such contact opening” and “the electric fields near the edge of the pixel array with a long slot are completely different from the electric fields near a window shaped opening formed for contacting the pixel electrode to the TFT.” *Id.* at 30 (citing Ex. 2008 ¶ 48).

As set forth above, Petitioner relies on *Lee* as disclosing the claimed opening part, and on *No* for its teaching that, by overlapping the end portions of the slits with holes in the common electrode, disinclination can be suppressed. Pet. 32–43. Dr. Schubert testifies that *No* “does not require that each end portion of every pixel electrode slit must be overlapped with a hole to achieve a reduction in disinclination,” and “one of ordinary skill in the art would appreciate that *No*’s disinclination line reduction teaching is applicable to any number of overlapping pixel electrode end portion slits.” Ex. 1002 ¶ 78. We have considered Patent Owner’s argument that a person of ordinary skill in the art would not look to *No* to suppress disinclinations at the opening part in *Lee*, but are nevertheless persuaded that Petitioner’s arguments and evidence are sufficient for purposes of institution.

Moreover, Patent Owner’s argument that *Lee* and *No* are incompatible is not supported by the record before us at this juncture. Both *Lee* and *No* relate to TFT liquid crystal display devices and ways to address factors that can negatively affect display quality. Ex. 1005, 1:16–19, 1:44–54; Ex. 1006, 9, 12. That *Lee* does not discuss disinclination is insufficient, by itself, to conclude that a person of ordinary skill in the art would not be motivated to

modify Lee as proposed by Petitioner. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 420 (2007) (holding it was error to “assum[e] that a person of ordinary skill attempting to solve a problem will be led only to those elements of prior art designed to solve the same problem”).

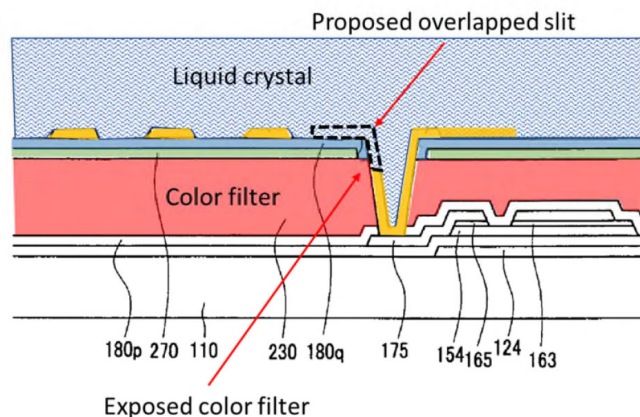
Patent Owner further argues that “[t]he end portions of the slits in *Lee* would give rise to the same disinclinations described in *No*, even if combined with *No*,” because “*Lee* discloses slits in the pixel electrode which terminate in the middle of the active pixel area [and] *No* does not.” Prelim. Resp. 28 (citing Ex. 2008 ¶ 46) (emphasis omitted). In that regard, Patent Owner argues that

[a] person of ordinary skill in the art would choose to cover the disinclinations arising from these slits end portions with black matrix, rather than using the teachings of *No* because *No*’s solution to disinclinations is only at the periphery portion of the pixels and not at a window-shaped opening part formed “for connecting” the pixel electrode to the TFT.

Id.

Lee, however, teaches that although a width of black matrix formed between the pixels can be increased to compensate for erroneous alignment that leads to decreased display quality, “as the width of the black matrix increases, an aperture ratio of the pixels decreases.” Ex. 1005, 1:46–51. It is this problem of decreased aperture ratio that Lee seeks to solve. *Id.* at 1:52–54. These teachings in Lee appear to suggest that a person of ordinary skill in the art would not look to use black matrix to suppress disinclination because black matrix contributes to the aperture ratio problem Lee addresses. Patent Owner does not explain, on this record, why a person of ordinary skill in the art would use black matrix to suppress disinclination in light of these disclosures in Lee.

Patent Owner also argues that “[a] person of ordinary skill in the art would not be motivated to combine *Lee* with *No* to change the contact hole in *Lee* to allow overlap with the window-shaped opening” because “[d]oing so would reduce the light transmission of the array.” Prelim. Resp. 31 (citing Ex. 2008 ¶ 50). Patent Owner argues that if the slits in *Lee* “are simply extended and ‘overlapped’ as suggested by the Petition (Pet. 39), the opening in the slit will expose color filter material to the liquid crystal,” and “[a]ny solution to this problem involves numerous changes to the manufacturing process, e.g., widening the opening, which reduces light transmittance or adding passivation layers to prevent contamination.” Prelim. Resp. 32 (citing Ex. 2008 ¶ 51). Patent Owner provides an annotated version of *Lee*’s Figure 2, reproduced below, to illustrate its contentions.



Annotated Figure 2 shows a cross-sectional view of a portion of the thin film transistor array described in *Lee*. Ex. 1005, 3:26–28. Patent Owner highlights color filter 230 in red, common electrode 270 in green, upper passivation layer 180q in blue, pixel 191 in yellow, and the liquid crystal with blue and white chevron stripes. Prelim. Resp. 32. Patent Owner draws a dotted line around an area extending horizontally along the top of upper

passivation layer 180q and vertically along the edge of upper passivation layer 180q at pixel 191, abutting slightly against color filter 230. *Id.* Patent Owner labels this box as the “proposed overlap slit,” and also identifies a portion of color filter 230 adjacent to the bottom of the box as “exposed color filter.” *Id.*

Patent Owner’s contentions in this regard are premised on its argument that extending the end portions of the slits in Lee as Petitioner proposes would expose the color filter to the liquid crystal. “Any solution to this problem,” according to Patent Owner, would require “numerous changes to the manufacturing process.” Prelim. Resp. 32. Although Patent Owner’s argument casts some doubt on Petitioner’s contentions that the proposed modification of Lee would have required only routine skill, knowledge, and standard manufacturing techniques, we determine, based on the current record, that Petitioner makes a sufficient threshold showing that a person of ordinary skill in the art would have been motivated to modify Lee based on the teachings of No as proposed.

Having reviewed the arguments in the Petition and the Preliminary Response, as well as the evidence of record, we are persuaded that Petitioner’s discussion of the particular structures in Lee and No, and the explanations in the Petition and the Schubert Declaration, are sufficient to establish a reasonable likelihood that Petitioner would prevail in showing that the subject matter of claim 1 would have been obvious over the combined teachings of Lee and No. Pet. 23–43; Ex. 1002 ¶¶ 52–80. We have also considered the parties’ arguments and evidence with respect to claims 2, 3, 5, 6, and 8 which depend, directly or indirectly, from claim 1, and are persuaded, on the current record, that Petitioner has established a

reasonable likelihood that it would prevail as to those claims as well. *See* Pet. 43–58; Ex. 1002 ¶¶ 81–98.

D. Discretionary Denial Under 35 U.S.C. § 325(d)

Patent Owner argues that we should exercise our discretion under 35 U.S.C. § 325(d) to deny institution because substantially the same prior art and arguments were previously considered during prosecution of the '142 patent. Prelim. Resp. 14–21.

1. Legal Framework

Section 325(d) provides that, in determining whether to institute an *inter partes* review, “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” The Board uses a two-part framework for evaluating arguments under § 325(d):

(1) determining whether the same or substantially the same art previously was presented to the Office, or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, determining whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of the challenged claims. *Advanced Bionics, LLC v. MED-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). In applying this framework, we consider the *Becton, Dickinson*⁵ factors that address discretion to deny when a petition

⁵ *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph).

presents the same or substantially the same prior art or arguments previously presented to the Office, including:

(a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art; (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson, Paper 8 at 17–18. If, after review of factors (a), (b), and (d), we determine that the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner demonstrates that the Office erred in a manner material to the patentability of the claims. *Advanced Bionics*, Paper 6 at 10.

2. *Analysis*

Patent Owner contends that “[t]he primary reference in the *inter partes* review petition, *Lee*, is very similar to the primary reference considered during examination, *Song*.” Prelim. Resp. 15 (citing Ex. 2008 ¶ 32). Patent Owner contends that Song⁶ discloses a TFT array substrate that discloses opening portions in the common electrode to enhance viewing angle, which is similar to Lee’s disclosure of a TFT array panel with an opening in the common electrode. *Id.* at 15–16 (citing Ex. 2006, Abs., ¶¶ 3,

⁶ US Patent App. Pub. No. 2006/0215081 A1, published Sept. 28, 2006 (Ex. 2006).

47, 49, 61, 64, 65; Ex. 1005, Abs., 6:17–18; Ex. 2008 ¶¶ 32–33). Patent Owner asserts that “[n]either *Song* nor *Lee* mentions methods of suppression of disinclination.” Ex. 2008 ¶ 33. Patent Owner also argues that that “the examiner considered” Ozawa⁷ and Lee JP ’535,⁸ which, like No, “address the issue of suppression of liquid crystal disinclination.” Prelim. Resp. 16 (citing Ex. 2008 ¶ 34).

Patent Owner further contends that, “[a]lthough the Office did not issue any office actions during prosecution, the examiner cited prior art made of record and a reference in the IDS in the Notice of Allowance, also made of record.” Prelim. Resp. 18. Specifically, Patent Owner asserts that “[a]ttached to the Notice of Allowance is the Notice of References Cited, which includes the *Song* reference as well as the *Ozawa* reference” and “[t]he Information Disclosure Statement lists a single reference to *Lee JP ’535* (JPA 2005-107535).” *Id.* at 19 (citing Ex. 1004, 17, 24, 55).

Patent Owner contends that, during prosecution, the “examiner primarily considered *Song* for disclosure of all elements except for” the “wherein one end portion of the electric field opening part in the longitudinal direction around the window-shaped opening part is disposed to be overlapped with the window-shaped opening part in a plan view” limitation of claim 1. *Id.* at 20. In particular, the examiner stated:

A close prior art of record is U.S. Patent Application Publication 2006/0215081 to Song et al. Song et al. teaches all the necessary claimed components of a liquid crystal display including an upper and lower electrode interposed with an interlayer insulation film, where a window opening part (410) is

⁷ US Patent App. Pub. No. 2006/0203157, published Sept. 14, 2006 (Ex. 2007).

⁸ Japanese Laid-Open Patent App. No. 2005-107535, published April 21, 2005 (Ex. 2013).

formed in the common electrode. But Song et al. fails to teach the electric field opening part in the longitudinal direction around a window shaped opening part disposed to overlap with the window shaped opening in a plan view. Song et al simply teaches an electric field is applied passed through the upper and lower electrodes to drive the liquid crystal molecules.

Ex. 1004, 14. Patent Owner further contends that “[t]he examiner considered *Ozawa* and *Lee JP ’535* but found these references lacking.” Prelim. Resp. 20 (citing Ex. 1004, 15). Therefore, Patent Owner contends that “[b]oth the Petitioner and the Examiner relied on the primary references [Lee and Song] in a similar manner, stating that they both disclose the same claim limitations, and the secondary references, *No*, *Ozawa*, and *Lee JP ’535*, fail to remedy the deficiency of the primary references.” *Id.* at 20 (citing Ex. 2008 ¶¶ 37–38).

Petitioner argues that “[n]one of the references relied on in [the] Petition were cited or considered during prosecution,” and “Petitioner’s references, identified disclosures, and the stated rationale for combining the references are not cumulative to those used during prosecution of the ’142 patent.” Pet. 18 (citing Ex. 1004, 17, 55; Ex. 1001, cover page). Petitioner further argues that the proposed combination of Lee and No set forth in the Petition “teaches the very features that the Examiner found missing from the prior art of record, and which led to the allowance of the claims,” specifically “one end portion of the electric field opening part in the longitudinal direction around a window shaped opening part being disposed to overlap with the window shaped opening in a plan view.” *Id.* (citing Ex. 1004, 14).

The record shows that, during prosecution, the examiner considered Song for the same elements of claim 1 for which Petitioner relies on Lee in

the Petition. Ex. 1004, 14 (stating that Song discloses all of the elements of claim 1 except “the electric field opening part in the longitudinal direction around a window shaped opening part disposed to overlap with the window shaped opening in a plan view”); Pet. 23–37 (arguing that Lee discloses all of the elements of claim 1 but “does not expressly disclose one end portion of pixel electrode slit in the longitudinal direction around the opening part overlapping with the opening part in a plan view”). There is not complete overlap, however, between the arguments made in examination and the manner in which Petitioner relies on Lee here. *Advanced Bionics*, Paper 6 at 8.

Petitioner argues that No, in combination with Lee, discloses “one end portion of the electric field opening part in the longitudinal direction around a window shaped opening part being disposed to overlap with the window shaped opening in a plan view.” Pet. 36–43; Section II.C.3, *supra*. The examiner allowed the claims because

[t]he prior art of record fails to disclose or reasonably suggest a liquid crystal device having one end portion of the electric field opening part in the longitudinal direction around a window shaped opening part disposed to overlap with the window shaped opening in a plan view in addition to the accompanying features of the independent claim.

Ex. 1004, 14. The “prior art of record” includes Song, Ozawa, and Lee JP ’535, but the examiner does not specifically address the disclosures of Ozawa or Lee JP ’535, either alone or in combination with Song, other than to say that “[n]one of the documents cited by the Examiner discloses or reasonably suggests the allowable subject matter discussed above.” *Id.* at 14–15. Moreover, Patent Owner does not contend that Petitioner’s arguments regarding how the combined teachings of Lee and No disclose

“one end portion of the electric field opening part . . . disposed to be overlapped with the window-shaped opening in a plan view” were previously considered by the Office. Prelim. Resp. 19–20.

Accordingly, although Petitioner’s contentions that the challenged claims would have been obvious over the combined teachings of Lee and No includes some cumulative art and arguments (*Becton, Dickinson* Factor (a)), Petitioner’s contentions also include art and arguments that are not cumulative of those previously considered by the Office (*Becton, Dickinson* Factor (b)). Because Petitioner relies on No with respect to a limitation that the Examiner determined was not found in the art, there are material differences between the asserted art here and the art considered during examination. Thus, overall, we find that substantially the same art and arguments were not previously presented. When considering the Petition as a whole, we find that it does not sufficiently implicate the concerns addressed by § 325(d) to warrant discretionary denial, and we decline to exercise our discretion to deny institution under § 325(d).

E. Discretionary Denial Under 35 U.S.C. § 314(a)

Under 35 U.S.C. § 314(a), the Director has discretion to deny institution of an *inter partes* review. *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) (“[T]he agency’s decision to deny a petition is a matter committed to the Patent Office’s discretion.”); *SAS Inst. v Iancu*, 138 S. Ct. 1348, 1356 (2018) (“[Section] 314(a) invests the Director with discretion on the question *whether* to institute review.”); *Harmonic v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.”).

In determining whether to exercise discretion to deny institution under 35 U.S.C. § 314(a), the Board considers the trial date in related litigation as

part of an assessment of all relevant circumstances of the case, including the merits, in an effort to balance considerations such as system efficiency, fairness, and patent quality. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5–6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv* Order”); *see also NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 19–20 (PTAB Sept. 12, 2018) (precedential) (denying institution relying, in part, on § 314(a) because the parallel district court proceeding was scheduled to finish before the Board reached a final decision). In particular, the Board evaluates the following factors (“*Fintiv* factors”):

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

Fintiv Order, 5–6. In evaluating these factors, “the Board takes a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.* at 6.

Patent Owner argues that we should exercise our discretion to deny institution under 35 U.S.C. § 314(a) because the ’142 patent is “asserted in a pending district court litigation between the same parties” that “is scheduled to be completed nearly eleven months before a final written description would be due.” Prelim. Resp. 1; *see Apple Inc. v. Fintiv, Inc.*, IPR2020-

00019, Paper 15 at 11 (PTAB May 13, 2020) (informative) (“*Fintiv* Decision”) (“[A] parallel proceeding in an advanced state implicates considerations of efficiency and fairness, which can serve as an independent reason to apply discretion to deny institution.”); *NHK Spring Co. v. Intriplex Techs., Inc.*, IPR2018-00752, Paper 8 at 19–20 (PTAB Sept. 12, 2018) (precedential) (denying institution relying, in part, on § 314(a) because the parallel district court proceeding was scheduled to finish before the Board reached a final decision). Subsequent to the filing of its Preliminary Response, however, Patent Owner narrowed the number of patents and claims asserted in the parallel District Court Action pursuant to a court order (Ex. 1021, 2–3), stating that it does “not currently assert claims from the ’142 patent based solely on compliance with the Order” but intends “to seek reconsideration of the Order and reserve the right to amend this election to assert claims 1 and 6 of the ’142 patent should the Court modify its Order” (Ex. 1022, 1). *See also* Paper 11, 1 (Petitioner’s updated mandatory notice indicating that “Patent Owner has withdrawn the ’142 patent from” the District Court Action). Patent Owner filed its Motion for Reconsideration of the Order in the District Court Action on November 30, 2021 (Ex. 2017), and Petitioner filed an Opposition to Patent Owner’s Motion on December 10, 2021 (Ex. 1023). On December 21, 2021, the District Court issued an Order denying Patent Owner’s Motion for Reconsideration as moot, and ordering that Patent Owner “will proceed to trial asserting up to but not more than 8 patents and up to but not more than 20 asserted claims.” Ex. 2019, 2.

Whether the ’142 patent will be asserted in the District Court Action, therefore, remains an open question, but it appears that at the time of this Decision, Patent Owner is not asserting the ’142 patent in the District Court

Action. Under the specific facts here, there is not a “parallel proceeding” specific to the ’142 patent that could “serve as an independent reason to apply discretion to deny institution,” and we decline to exercise our discretion under 35 U.S.C. § 314(a) to deny the Petition. *Fintiv* Decision, 5–6.

Alternatively, we have considered the circumstances and facts before us in view of the *Fintiv* factors if Patent Owner were to elect to later assert the ’142 patent in the District Court Action and determine that under those circumstances, we would still decline to exercise our discretion under § 314(a) to deny institution of *inter partes* review.

1. *Factor 1: Likelihood of a Stay*

If a petitioner has sought and obtained a stay of related litigation pending resolution of an *inter partes* review, that generally weighs against exercising discretion to deny institution. *Fintiv* Order, 6. The parties indicate that Petitioner has not requested a stay of the District Court Action. Pet. 11; Prelim. Resp. 4. We decline to speculate on how the court in the related proceeding would rule on a stay, if one were requested. *See Fintiv* Decision, 12 (explaining that factor 1 generally “does not weigh for or against discretionary denial” when neither party has requested a stay). Thus, we find this factor to be neutral.

2. *Factor 2: Proximity of Trial Date to the Board’s
Projected Statutory Deadline*

Trial in the District Court Action is scheduled to begin on February 28, 2022. Ex. 2019, 1 (“[T]he Court sets the date for jury selection for the consolidated case for Monday, February 28, 2022 through Friday, March 11, 2022.”). If trial is instituted in this proceeding, the statutory deadline for issuance of a final written decision would be in January 2023.

35 U.S.C. §§ 314(c), 316(a)(11); *see also* 37 C.F.R. § 42.100(c). Thus, our final written decision would issue approximately ten months after the start of the trial, assuming the '142 patent is included in the trial, which is unclear at this point as explained above. We determine that this factor weighs in favor of exercising our discretion to deny institution. *See Fintiv* Order, 9 (“If the court’s trial date is earlier than the projected statutory deadline, the Board generally has weighed this fact in favor of exercising authority to deny institution under *NHK*.”).

3. *Factor 3: Investment in the Proceedings*

Fintiv provides the following guidance with respect to factor 3:

[I]f, at the time of the institution decision, the district court has issued substantive orders related to the patent at issue in the petition, this fact favors denial. Likewise, district court claim construction orders may indicate that the court and parties have invested sufficient time in the parallel proceeding to favor denial. If, at the time of the institution decision, the district court has not issued orders related to the patent at issue in the petition, this fact weighs against exercising discretion to deny institution under *NHK*.

Fintiv Order, 9–10. *Fintiv* explains that “[t]his investment factor is related to the trial date factor, in that more work completed by the parties and the court in the parallel proceeding tends to support the arguments that the parallel proceeding is more advanced, a stay may be less likely, and instituting would lead to duplicative costs.” *Id.* at 10.

Patent Owner contends that “[b]y the time an institution decision issues in this proceeding, fact and expert discovery will be complete; expert reports and dispositive motions will have been filed; and the parties will have filed their motions in limine and be preparing for trial.” Prelim. Resp. 9 (citing Ex. 2001). Therefore, Patent Owner contends, the District

Court Action “is far along enough that the parties and the Court have invested significant resources in this case.” *Id.* We recognize that much work has been done by the parties and the District Court.

In the investment factor, *Fintiv* further addressed the matter of petition timing, noting that “notwithstanding that a defendant has one year to file a petition, it may impose unfair costs to a patent owner if the petitioner, faced with the prospect of a looming trial date, waits until the district court trial has progressed significantly before filing a petition at the Office.” *Fintiv* Order, 11. Patent Owner contends that “Petitioner waited nine months from the filing of the complaint to file this Petition,” and this “unexplained delay . . . also weighs in favor of the Board exercising discretion to deny institution.” Prelim. Resp. 10. As Petitioner notes, however, Patent Owner filed its infringement contentions in the District Court Action on January 6, 2021, and Petitioner filed this Petition approximately five months later on June 21, 2021. Pet. 13–14; *see also* Ex. 1012 (infringement contentions served on January 6, 2021); Paper 3, 1 (according the Petition a filing date of June 21, 2021). Petitioner asserts that it “moved with speed and diligence in bringing the present—and six related IPRs—five months after Patent Owner served its infringement contentions,” because, even after Patent Owner filed its infringement contentions, “Patent Owner still asserted 135 claims from 15 patents against more than 2,400 accused products, imposing a vastly greater burden on Petitioner to assess the dispute and evaluate which patents to request IPR.” Reply 2–3.

We find that Petitioner’s diligence in filing the Petition five months after receiving Patent Owner’s infringement contentions in the District Court Action is a countervailing consideration to the amount of work done by the parties in the District Court Action, considering that Patent Owner’s

infringement contentions included 135 claims from 15 patents. *See Fintiv* Order, 11 (“If the evidence shows that the petitioner filed the petition expeditiously, such as promptly after becoming aware of the claims being asserted, this fact has weighed against exercising the authority to deny institution under *NHK*.”); *see also Samsung Electronics, Ltd. v. Acorn Semi, LLC*, IPR2020-01183, Paper 17 at 40 (PTAB Feb. 10, 2021) (“[W]e also find, as a countervailing consideration, that Petitioner acted diligently in filing this and the other IPRs” less than four months after Patent Owner identified “the full set of claims being asserted in the District Court.”). For these reasons, we determine that this factor is neutral.

4. *Factor 4: Overlap of Issues*

In the Petition, Petitioner states that it “stipulates that, if this IPR is instituted, it will not pursue in the related district court litigation any ground that it raised or reasonably could have raised in this Petition.” Pet. 15.

Patent Owner argues that Petitioner challenges “substantially the same claims and intends to rely on the same references in its Invalidity Contentions [in the District Court Action] as in the Petition” and that Petitioner was subsequently allowed to amend its invalidity contentions “to include references ‘raised in *Inter Partes* Review (IPR) petitions that Tianma Microelectronics filed in June.’” Prelim. Resp. 11–12 (citing Ex. 2002, Chart M-1; Ex. 2005, 3; Ex. 2010). Patent Owner argues that any stipulation that Petitioner offers “is a hollow promise since expert reports were due on October 1, 2021, prior to the institution deadline for this Petition.” *Id.* at 12 (citing Ex. 2001). According to Patent Owner, “[b]ecause there is complete overlap of issues raised in the Petition and the district court case, this factor weighs heavily in favor of denial.” *Id.* at 13.

Petitioner’s stipulation is similar to that provided in *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential), which was found to mitigate concerns of duplicative efforts and possibly conflicting decisions between the Board and the district court, thus ensuring that the *inter partes* review is a “true alternative” to the district court proceeding. Because the District Court Action will not address all of the claims challenged in this proceeding, and Petitioner agrees to be bound by a stipulation substantively similar to that in *Sotera*, we find that this factor weighs strongly against exercising discretion to deny institution.

5. *Factor 5: Whether the Petitioner and the Defendant in the Parallel Proceeding are the Same Party*

There is no dispute that Petitioner is a party to the District Court Action. Pet. 59; Prelim. Resp. 13. Accordingly, assuming the ’142 patent is included in the District Court Action, we determine that this factor weighs in favor of exercising discretion to deny institution.

6. *Factor 6: Other Circumstances, Including the Merits*

Patent Owner argues that “Petitioner has failed to show how the combination of *Lee* with *No* renders obvious claims 1–3, 5, 6, and 8.” Prelim. Resp. 13. We have reviewed Petitioner’s unpatentability arguments and Patent Owner’s responses thereto, and we find that Petitioner has shown a reasonable likelihood of success on the merits as discussed above in Section II.C.3. Although Petitioner has met its burden for institution, we do not find that Petitioner’s showing is “particularly strong” so as to weigh against exercising discretion to deny institution. *See Fintiv* Order, 14–15 (noting that the merits favor institution under factor 6 “if the merits of a ground raised in the petition seem particularly strong”).

In addition, we note that we have instituted *inter partes* review in a related case, IPR2021-01028. We find this weighs against exercising our discretion to deny institution. *See Apple Inc. v. Seven Networks, LLC*, IPR2020-00235, Paper 10 at 17 (July 28, 2020) (taking “into account the Office already has instituted proceedings challenging other patents in dispute in the co-pending parallel litigation” and “acknowledg[ing] that it would be inefficient to discretionarily deny institution of this Petition, which we find meets the statutory threshold for institution, after having instituted petitions challenging other patents in dispute in the parallel litigation.”). Accordingly, we determine that this factor weighs against exercising our discretion to deny institution.

7. *Holistic Assessment of Factors*

We have considered the circumstances before us in view of the *Fintiv* factors. Because our analysis is fact driven, no single factor is determinative of whether we exercise our discretion to deny institution under § 314(a). Evaluating the *Fintiv* factors with a “holistic view of whether the efficiency and integrity of the system are best served by denying or instituting review” (*Fintiv* Order, 6), we decline to exercise our discretion under 35 U.S.C. § 314(a) to deny the Petition.

III. CONCLUSION

Based on the arguments in the Petition, Preliminary Response, Reply, and Sur-reply, and the evidence of record, we determine that Petitioner establishes a reasonable likelihood that will prevail on its challenge to at least one claim of the ’142 patent. Additionally, we decline to exercise our discretion under 35 U.S.C. § 314(a) or § 325(d) to deny institution. Accordingly, we institute an *inter partes* review of all challenged claims on all the grounds presented in the Petition.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that an *inter partes* review is instituted with respect to all the grounds asserted in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which shall commence on the entry date of this Decision.

IPR2021-01058
Patent 7,363,142 B2

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