Filed on behalf of: Samsung Display Co., Ltd.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOE TECHNOLOGY GROUP CO., LTD.,
Petitioner,

v.

SAMSUNG DISPLAY CO., LTD.,
Patent Owner.

IPR2025-01494
Patent No. 11,081,503

PATENT OWNER'S BRIEF ON DISCRETIONARY DENIAL

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EXHIBIT LIST

Exhibit	Description
2001	Docket Control Order, Samsung Display Co. v. Boe Tech. Grp. Co., No. 2:25-CV-00430 (E.D. Tex. Oct. 8, 2025), Dkt. No. 45
2002	Samsung Display, Life at Samsung Display – Patents, https://www.samsungdisplay.com/eng/patents.jsp#
2003	RESERVED
2004	[Monitor] Samsung Display Maintains Lead in Smartphone Display Market, The Korea Herald (June 17, 2019, 16:29:37), https://www.koreaherald.com/article/2025310
2005	Jean-Francois Tremblay, The Rise of OLED Displays, 94 Chem. Eng'g News 30 (2016), https://pubs.acs.org/doi/10.1021/cen-09428-cover
2006	Emily S. DiBenedetto, Likelihood of Stay Pending IPR in W.D. Texas v. Delaware, IP/DE (Feb. 23, 2022), https://ipde.com/blog/2022/02/23/likelyhood-of-stay-pending-ipr-in-wd-texas-vs-delaware/
2007	Initial Determination on Violation of Section 337 and Recommended Determination on Remedy and Bond, *In re Certain Active Matrix Organic Light-Emitting Diode Display Panels and Modules for Mobile Devices*, Inv. No. 337-TA-1351 (Public Version), EDIS Doc. ID 837328 (Nov. 15, 2024)
2008	Initial Determination on Violation of Section 337 and Recommended Determination on Remedy and Bond, *In Re Certain Organic Light-Emitting Diode Display Modules*, Inv. No. 337-TA-1378, Initial Determ. (Public Version), EDIS Doc. ID 859309 (July 11, 2025)

I. Introduction

Patent Owner Samsung Display Co., Ltd. ("Samsung Display") respectfully requests that the Director exercise discretion to deny institution of BOE Technology Group Co. Ltd.'s ("BOE's") Petition challenging U.S. Patent No. 11,081,503 ("the '503 Patent") for two independent reasons.

First, Samsung Display has settled expectations in the '503 Patent's validity that should not be disturbed. While the '503 Patent itself issued four years ago, it is part of a set of 12 patents Samsung Display has asserted against BOE, and many of those patents have been in force for more than six years and even up to 18 years. Samsung Display invested heavily in obtaining its patents, including the '503 Patent, and relied on those patents' validity when investing hundreds of millions of dollars in its OLED technology and becoming the market leader. BOE has known about Samsung Display's patent portfolio for years and has already been found to have infringed on and misappropriated Samsung Display's valuable OLED technology.

Second, 35 U.S.C. § 314(a) and the *Fintiv* factors counsel toward denial. This proceeding almost completely overlaps with Samsung Display's district court case; the only difference is that BOE challenged more claims here than Samsung Display has asserted in district court. Allowing both cases to proceed—because the district court has not and almost certainly will not stay the case—will inevitably result in duplication of efforts, a high risk of inconsistent results, and be a wasteful use of

resources. Trial is scheduled to begin more than a month before a Final Written Decision in this proceeding would be due. And on top of those crucial considerations, other factors also support denial of institution, including the fact that BOE's primary reference, Wildes, was before the Patent Office during prosecution; BOE over-relies on expert testimony to explain its obviousness grounds; BOE's challenge is weak on the merits; and compelling economic interests—including the facts that BOE and SDC are direct competitors and BOE has been repeatedly found to have violated Samsung Display's intellectual property rights—disfavor institution.

Samsung Display therefore respectfully requests that the Director deny institution of the Petition.

II. Background

A. Parallel Proceedings

On April 23, 2025, Samsung Display filed a patent infringement action against BOE, asserting the '503 Patent and three others: U.S. Patent Nos. 7,297,708; 10,720,483; and 10,832,616. *See* Compl., *Samsung Display Co. v. BOE Tech. Grp. Co. et al.*, No. 2:25-cv-430 (E.D. Tex. filed April 23, 2025), Dkt. No. 1 ("-430 case"). This -430 case was one of three district court actions Samsung Display filed against BOE for patent infringement in quick succession to address BOE's continued, extensive infringement of Samsung Display's patents. Altogether, Samsung Display

has asserted 12 patents on OLED technology against BOE: on April 17, 2025, Samsung Display asserted U.S. Patent Nos. 10,013,088; 10,439,015; 11,574,990; and 11,574,991; and on April 21, Samsung Display asserted U.S. Patent Nos. 9,299,730; 10,541,279; 11,500,496; and 11,626,066. *See* Compl., *Samsung Display Co. v. BOE Tech. Grp. Co. et al.*, No. 2:25-cv-412 (E.D. Tex. Apr. 17, 2025), Dkt. No. 1; Compl., *Samsung Display Co. Ltd. v. BOE Tech. Grp. Co. et al.*, No. 2:25-cv-426 (E.D. Tex. Apr. 21, 2025), Dkt. No. 1. BOE has filed petitions seeking IPR of all 12 Samsung Display patents. *See* Nos. IPR2025-01476, -01477, -01478, -01479, -01480, -01481, -01498, -01499, -01544, -01545, -01557.

These district court cases represent just the latest chapter in a long-running dispute between Samsung Display and BOE, competitors in the OLED display marketplace; the saga includes ITC Administrative Law Judges finding that BOE both infringed Samsung Display patents and misappropriated Samsung Display trade secrets. Namely, in November 2024, ALJ Moore of the United States International Trade Commission found that OLED displays made by Mianyang BOE Optoelectronics Technology Co., Ltd. (a real-party-in-interest in this proceeding, *see* Paper 6) infringed multiple Samsung Display patents directed to OLED display technology. *See* Ex. 2007 at 182–183. The ALJ ultimately declined to issue an exclusion order only based on Samsung Display's alleged failure to establish a domestic industry. *Id.* And in July 2025, ALJ McNamara of the ITC found that BOE

had misappropriated seven categories of Samsung Display trade secrets in connection with manufacturing OLED displays and issued a limited exclusion order barring BOE from importing certain OLED panels into the United States. *See* Ex. 2008 at 8–9, 33–319.

The -430 case in the Eastern District of Texas, in which Samsung Display has asserted the '503 Patent against BOE, is ongoing. The defendants moved for partial dismissal on September 15, 2025, and that motion remains pending but, if granted, the motion would remove only pre-suit willful and induced infringement claims; it would not affect the case's size or scope with respect to the '503 Patent or other asserted patents. *See* Mot. to Dismiss, *Samsung Display*, No. 2:25-cv-430, Dkt. No. 34. Samsung Display served its infringement contentions on BOE on September 16. The district court held a scheduling conference on September 30, and on October 8 entered a Docket Control Order setting trial for February 8, 2027, and a *Markman* hearing for August 4, 2026. *See* Ex. 2001 at 1, 3. Discovery has opened, and both parties anticipate serving written discovery requests on the other.

B. The '503 Patent (Ex. 1001)

The '503 Patent is entitled "Array Substrate And Method of Mounting Integrated Circuit Using The Same." Ex. 1001 at Cover. It issued on August 3, 2021, from an application filed on July 12, 2019, and claiming priority to a Korean patent application filed on June 17, 2014. *See id.* at Cover, 1:8–17.

The '503 Patent describes and claims "a method of mounting an integrated circuit" onto a display "using an array substrate." *Id.* at 1:22–23. The invention is "capable of preventing misalignment between the bumps of a driving integrated circuit and the pads of a pad unit regardless of a change in the size of a flexible array substrate." *Id.* at 1:66–2:2. During prosecution, the applicant cited Wildes (Ex. 1004) in an information disclosure statement, which the Examiner initialed and placed in the file on June 10, 2022. Ex. 1003 at 16–17, 18–19.

III. Argument

Multiple considerations counsel against *inter partes* review here. Samsung Display respectfully requests that the Director exercise his discretion to deny institution of IPR.

A. The Parties' Settled Expectations Favor Denial of Institution

Although the '503 Patent issued just over four years ago, the parties' settled expectations nonetheless favor denial of institution. Along with the '503 Patent, BOE has asked the Board to consider patents that issued ***18 years ago*** (U.S. Patent No. 7,297,708), ***nine years ago*** (U.S. Patent No. 9,299,730), ***seven years ago*** (U.S. Patent No. 10,013,088), and ***six years ago*** (U.S. Patent Nos. 10,412,279 and 10,439,015), for which settled expectations have unquestionably attached. *See, e.g.*, *Dabico Airport Sols., Inc. v. AXA Power APS*, IPR2025-00408, Paper 21 at 2–3 (P.T.A.B. June 18, 2025) (patent "in force [for] almost eight years"); *Yangtze*

Memory Techs. Co. v. Micron Tech., Inc., IPR2025-00498, -00499, -00500, -00501, Paper 11 at 2 (P.T.A.B. Aug. 14, 2025) (patents in force for six years); *HS Hyosung Advanced Materials Corp. v. Kolon Indus., Inc.*, IPR2025-00662, -00663, -00664, Paper 12 at 2–3 (P.T.A.B. Aug. 14, 2025) (patents in force for over six and seven years). It would be an inefficient use of Board resources to consider a subset of the asserted patents when the district court proceedings would continue unabated. *See also Amazon.com, Inc. v. Audio Pod IP, LLC*, IPR2025-00757, Paper 15 at 3 (P.T.A.B. Aug. 14, 2025); *Samsung Elecs. Co. v. iCashe, Inc.*, IPR2025-00639, Paper 11 at 3 (P.T.A.B. Aug. 14, 2025) (denying institution even though two subject patents had not been in force as long as the others).

Samsung Display's expectations are particularly strong here for two additional reasons. First, Samsung Display has invested significant time and effort to obtain a substantial patent portfolio protecting its OLED technology. *See* Ex. 2002. That, in turn, allows Samsung Display to confidently invest hundreds of millions of dollars in developing the underlying technology—including by investing directly into the United States, creating strong settled expectations in the '503 Patent. *See*, Ex. 2008 at 4–5 (observing that Samsung Display "has invested hundreds of millions of dollars into OLED R&D and into its protected OLED manufacturing processes," including purchasing "the sole source of OLED research and development in the United States") (internal quotation marks omitted); *see also id.* at 322–344; *Amgen*

Inc. v. Bristol-Myers Squibb Co., IPR2025-00601, Paper 9 at 2 (P.T.A.B. July 24, 2025) ("there may be good reasons why a patent owner has strong settled expectations in a patent that has only been in force for three years, for example an explanation of how an extraordinary amount of investment, time, and resources dedicated to research [and] development … correlates to settled expectations.").

Second, BOE has known about Samsung Display's patents for years. Samsung Display notified BOE of multiple patents in its OLED patent portfolio in May 2022. *See* Compl., *Samsung Display Co. v. BOE Tech. Grp. Co. et al.*, No. 2:25-cv-430 (E.D. Tex. filed April 23, 2025), Dkt. No. 1 ¶ 34. And, in addition to being BOE's primary competitor in a niche market with few players, Samsung Display is a well-known market leader and innovator in the OLED space, having pioneered OLED research and development since 1997. *See, e.g.*, Ex. 2008 at 3 ("At the time SDC began its R&D into developing OLEDs, there appears to have been only one other player in the OLED marketplace"—BOE "moved into the OLED marketplace some 16 years after SDC"); Ex. 2004; Ex. 2005. And Samsung Display publicly marks its technology with its patents. Ex. 2002.

Further, after Samsung Display sued BOE in the ITC, BOE's real party-in-interest, Mianyang Boe Optoelectronics Tech Co., filed four IPR petitions challenging SDC's patents that were asserted in the ITC action, all of which resulted in final written decisions confirming at least one challenged claim was patentable.

See generally Mianyang Boe Optoelectronics Tech Co. v. Samsung Display Co., IPR2023-00941, Paper 68 at 55 (P.T.A.B. Dec. 6, 2024) (determining no challenged claim was unpatentable); *Mianyang Boe Optoelectronics Tech Co. v. Samsung Display Co.*, IPR2023-00987, Paper 46 at 122 (P.T.A.B. Jan. 6, 2025) (determining challenged claim BOE infringes was not unpatentable); *Mianyang Boe Optoelectronics Tech Co. v. Samsung Display Co.*, IPR2023-00988, Paper 44 at 101 (P.T.A.B. Mar. 10, 2025) (determining challenged claim BOE infringes was not unpatentable); *Mianyang Boe Optoelectronics Tech Co. v. Samsung Display Co.*, IPR2023-01075, Paper 46 at 33 (P.T.A.B. Jan. 6, 2025) (determining no challenged claim was unpatentable). BOE's RPI subsequently filed and then withdrew another IPR petition challenging an SDC patent. *See Mianyang Boe Optoelectronics Tech Co. v. Samsung Display Co.*, IPR2023-01221, Paper 10 at 2 (P.T.A.B. Nov. 7, 2023) (granting BOE's motion to terminate where "Petitioner wishes to terminate this *Inter Partes* Review before the IPR Proceeding is instituted. Patent Owner does not oppose.") (quoting Paper 9 at 1). BOE's RPI then filed a second petition challenging the same patent, resulting in an IPR in which 12 of 18 challenged claims were confirmed as patentable in a final written decision. *See Mianyang Boe Optoelectronics Tech Co. v. Samsung Display Co.*, IPR2024-00620, Paper 41 at 91 (P.T.A.B. Sept. 17, 2025). BOE could have challenged the '503 Patent at the same

time as these others; it has not explained why it waited two and a half years to do so now.

BOE's knowledge further creates settled expectations for Samsung Display and supports denying institution. *See Aquestive Therapeutics, Inc. v. Iono Pharma, LLC*, IPR2025-00874, Paper 11 at 2 (P.T.A.B. Oct. 3, 2025) (denying institution when "Petitioner had notice of Patent Owner's patent applications and the resulting patent for several years before filing its Petition"); *see also Dabico*, IPR2025-00408, Paper 21 at 3; *iRhythm Techs., Inc. v. Welch Allyn, Inc.*, IPR2025-00363, -00374, -00376, -00377, -00378, Paper 10 at 3 (P.T.A.B. June 6, 2025) (denying institution because "Petitioner's awareness of Patent Owner's applications and failure to seek early review of the patents favors denial"); *Belden Inc. v. CommScope, Inc. of N.C.*, IPR2025-00833, Paper 13 at 2 (P.T.A.B. Sept. 12, 2025) ("Patent Owner also provides evidence of patent marking of the commercialized product.").

Indeed, BOE specifically targeted Samsung Display's innovative OLED technology to implement in its OLED displays, engaged in widespread infringement of Samsung Display's technology and misappropriated Samsung Display's trade secrets, as discussed above.

B. *Fintiv* Favors Denial of Institution

The *Fintiv* factors also favor discretionary denial. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (P.T.A.B. Mar. 20, 2020) (precedential)

("*Fintiv*"). All or nearly all factors support denying institution, while none counsel against it.

1. The District Court Has Not Granted a Stay, And There Is No Evidence That It Will

Samsung Display's -430 case, in which the '503 Patent is asserted, is not stayed. Nor is it likely to be stayed. The U.S. District Court for the Eastern District of Texas never stays a case before IPR is instituted. *See, e.g.*, *Trover Grp., Inc. v. Dedicated Micros USA*, No. 2:13-cv-1047, 2015 WL 1069179, at *6 (E.D. Tex. Mar. 11, 2015) ("This Court's survey of cases from the Eastern District of Texas shows that when the PTAB has not yet acted on a petition for inter partes review, the courts have uniformly denied motions for a stay.") (citations omitted); *accord Barkan Wireless IP Holdings, L.P. v. Samsung Elecs. Co., Ltd.*, No. 2:18-cv-28, 2019 WL 8647996, at *2 (E.D. Tex. Mar. 15, 2019); Ex. 2006 at 5 (noting zero stays granted in the Eastern District of Texas pre-institution between 2018 and 2021). It rarely does so when fewer than all asserted claims are subject to IPR, as is likely to be the case here for the reasons discussed throughout this brief. *Realtime Data LLC v. Rackspace US Inc.*, No. 6:16-cv-961, 2017 WL 772654, at *3 (E.D. Tex. Feb. 28, 2017) (denying stay because, "given that there are asserted claims in this case that are not subject to IPR petitions, at this time there is no possibility that the IPR proceedings could fully resolve patent validity"); Ex. 2006 at 4 ("[W]hat data does exist indicates a fairly even coin toss regarding whether a stay [pending IPR] is

granted or denied"). And even when all claims are subject to IPR, the court will often deny a stay when the case involves direct competitors, as is the case here. *See, e.g.*, *FlatFrog Laboratories AB v. Chemtronics Co.*, No. 2:23-cv-306, 2024 WL 3014621, at *3 (E.D. Tex. June 14, 2024) ("While the Court might otherwise be inclined to grant a stay where Final Written Decisions on all asserted claims are expected very close to trial, the parties being direct competitors relevant to the accused products changes the balancing of factors."); *Peloton Interactive, Inc. v. Flywheel Sports, Inc.*, No. 2:18-cv-390, 2019 WL 3826051, at *3 (E.D. Tex. Aug. 14, 2019) ("[C]ourts within this district are generally reluctant to stay proceedings when the parties are direct competitors") (citations omitted).

This factor therefore favors denial of institution. *See Samsung Elecs. Co. v. Headwater Rsch. LLC*, IPR2025-00932, Paper 8 at 2 (P.T.A.B. Sept. 26, 2025) ("[T]here is insufficient evidence that the district court is likely to stay its proceeding even if the Board were to institute trial… resulting in significant duplication of effort, additional expense for the parties, and a risk of inconsistent decisions.").

2. Trial Will Occur Before Any Final Written Decision

The district court has scheduled trial for February 8, 2027, ***more than a month before*** any final written decision would be due in this proceeding. Ex. 2001. This factor supports denial of institution, even though BOE has filed a *Sotera* stipulation. *See, e.g.*, *Nvidia Corp. v. Neural AI, LLC*, IPR2025-00609, Paper 18 at 2 (P.T.A.B.

Sept. 12, 2025) (denying institution when trial was set for one month before projected final written decision due date); *Shenzhen Tuozhu Tech. Co. v. Stratasys, Inc.*, IPR2025-00354, Paper 11 at 2–3 (P.T.A.B. June 12, 2025) ("Petitioner's [*Sotera*] stipulation reduces, but does not eliminate, the inefficiencies discussed above.").

3. The Parties Have Invested In Parallel Proceedings

While the parties' respective district court cases are still in relatively early stages, the parties have nonetheless invested more than insignificant resources in each one. Samsung Display, for example, served detailed infringement contentions in September. *See* Order, *Samsung Display*, No. 2:25-cv-430, Dkt. No. 35. BOE has, presumably, been preparing invalidity contentions, which were until recently due this month and are now due in January 2026. *See* Joint Mot. to Amend, *Samsung Display*, No. 2:25-cv-430, Dkt. No. 52. And by the time the Board's institution decision is due, the parties will have engaged in extensive fact discovery and will have started claim construction. *See* Ex. 2001. This factor therefore disfavors institution or is, at most, neutral. *See, e.g.*, *BOE Tech. Grp. Co. v. Element Cap. Com. Co. Pte. Ltd*, IPR2023-00808, Paper 9 at 23, 2023 WL 7715885, at *8 (P.T.A.B. Nov. 15, 2023) ("the parties and the District Court ha[d] invested substantial resources in th[e] litigation" because, among other things, "[s]ignificant discovery ha[d] been completed, including the exchange of infringement and

invalidity contentions, document requests and interrogatories, and proposed claim terms for construction").

4. There Is Complete Overlap Between Proceedings

By challenging every claim in the '503 Patent, BOE has challenged all claims asserted in the district court. *See* Pet. While the Petition challenges additional claims, it is still "inefficient to proceed because the district court may resolve validity of enough overlapping claims to resolve key issues in the petition." *Fintiv* at 13. And while BOE stipulated (*see* Paper 7) that it will not pursue the Petition's Grounds or any other ground that it could reasonably have raised based on patents or printed publications, that does not meaningfully reduce the overlap between this proceeding and the district court case. Inevitably, the claims and prior art the Board evaluates will overlap with invalidity issues in district court, where BOE can still assert system prior art and § 112 arguments, supporting denial. *Fintiv* at 12–13.

That "the petitioner and the defendant in the parallel proceeding are the same party" further supports denial. *Id.* at 15.

5. Other Considerations Favor Denial of Institution

Several other considerations further support denial of institution.

First, the fact that BOE has been found to have infringed and to have misappropriated Samsung Display's intellectual property rights shows that BOE has been engaged in continued, rampant violation of Samsung Display's intellectual

property rights on OLED technology, including infringement of the '503 Patent. *See supra* Section II.A. That, at minimum, would be objective indicia of non-obviousness for the '503 Patent, and "resolution of this issue may require additional evidence," for which "a district court [would] be the more appropriate venue." *See Fujirebio Diagnostics, Inc. v. Quanterix Corp.*, IPR2025-01060, Paper 13 at 2–3 (P.T.A.B. Oct. 17, 2025) (denying institution). Moreover, it indicates that an IPR would be a poor use of the Patent Office's resources.

Second, BOE relies extensively on the expert testimony of Dr. Chen (Ex. 1002) to, for example, fill in gaps in the prior art, explain the state of the art, and supply motivations to combine prior art references. BOE's overreliance on materials other than patents and printed publications indicates that its arguments are better resolved in district court than before the Board. The failure to provide focused expert testimony here weighs against institution. *See* USPTO Memorandum, *Interim Processes for PTAB Workload Management* at 2 (Mar. 26, 2025), https://www.uspto.gov/patents/ptab/interim-director-discretionary-process.

Third, the primary reference that BOE relies on for six of its eight grounds of invalidity—Wildes (Ex. 1004)—was expressly considered during prosecution. Ex. 1003 at 16–17, 18–19. BOE has failed to identify any material error in the Patent Office's prior consideration of Wildes. *See* Pet.; *Advanced Bionics, LLC v. MED-EL*

Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (P.T.A.B. Feb. 13, 2020) (precedential).

Fourth, as Samsung Display will explain in more detail in its forthcoming Patent Owner Preliminary Response, BOE's challenge is weak on the merits. Its most important reference, Wildes, does not relate to OLED displays and primarily contemplates a much different application: "the manufacture of ultrasound probes for medical applications." *See* Ex. 1004 at 1:10–11. BOE itself acknowledges that Wildes does not explicitly teach the claimed "array substrate." Pet. at 18–22. And BOE fails to adequately support its arguments that an ordinarily skilled artisan would have modified Wildes or combined it with traditional chip-on-glass mounting techniques like those disclosed in Cristaldi to arrive at the '503 Patent's claims, stating only in conclusory fashion that such approaches would be "easy to manufacture." *Id.* at 67.

Fifth and finally, compelling economic interests favor denying institution. Samsung Display and BOE are direct competitors in a market with few players. *See supra* Section III.A. And BOE is an adjudged infringer of Samsung Display's valid patent rights and misappropriator of Samsung Display's proprietary technology. *Supra* Section II.A. BOE thus manufactures and markets infringing products aimed at the same customers Samsung Display serves, and it has infringed and known that its conduct infringes Samsung Display's intellectual property rights for years.

Granting the Petition will unnecessarily delay Samsung Display in continuing to enforce its rights and allow BOE to continue trying to take business away from Samsung Display and plague the U.S. market with its infringing products. And, as detailed above, Samsung Display has made significant investments in the domestic economy to develop its protected OLED technology. Economic interests thus support denying the Petition.

IV. Conclusion

For all these reasons, Patent Owner respectfully requests that the Director exercise discretionary powers and decline to institute *inter partes* review of the '503 Patent.

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that on this 10th day of November, 2025, a true and correct copy of the foregoing **Patent Owner's Brief on Discretionary Denial and all Exhibits** were served by electronic mail on Petitioner's lead and backup counsel at the following email addresses:

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