

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Caihong Display Devices Co., Ltd.,

Petitioner,

v.

Corning Incorporated,

Patent Owner.

Case No.: IPR2025-01017

U.S. Patent No. 8,642,491

**PETITIONER'S OPPOSITION TO PATENT
OWNER'S DISCRETIONARY DENIAL BRIEF**

TABLE OF CONTENTS

I.	I. INTRODUCTION	1
II.	REASONS WHY THE BOARD SHOULD NOT EXERCISE ITS DISCRETION TO DENY INSTITUTION	4
	A. THE NEWLY CREATED SETTLED EXPECTATIONS DOCTRINE IS IMPROPER	4
	B. SETTLED EXPECTATIONS ARE OUTWEIGHED BY MATERIAL ERROR DURING PROSEUTION	6
	1. Grounds 2 and 3 demonstrate material error.....	7
	2. Ground 1 also demonstrates clear material error by overlooking or misapprehending the relevant teachings in Miwa ‘535.	10
	3. § 314 does not provide a basis to deny the Petition.	13
	C. ANALYSIS OF THE <i>FINTIV</i> FACTORS DEMONSTRATES THAT DISCRETIONARY DENIAL IS NOT APPROPRIATE	14
	1. Whether the court granted a stay.....	15
	2. Proximity of the court’s trial date	16
	3. Investment in parallel proceedings.....	16
	4. Overlap of issues	16
	5. Identity of the parties.....	19
	6. Other circumstances, including the merits	20
III.	THE DIRECTOR’S MEMORANDUM VIOLATES THE ADMINISTRATIVE PROCEDURES ACT	27
IV.	CONCLUSION.....	28

TABLE OF AUTHORITIES

CASES

<i>3Shape A/S v. Align Technology, Inc.</i> , IPR2020-00223, Paper 12 at 33-34 (PTAB May 26, 2020).....	18
<i>Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH</i> , IPR2019-01469, Paper 6, 8 (PTAB Feb. 13, 2020).....	7
<i>Anthony Inc. v. ControlTec, LLC</i> , IPR2025-00559 and IPR2025-00636, Paper 9 (PTAB July 16, 2025).....	20
<i>Apple Inc. v. Gesture Technology Partners, LLC</i> , 127 F.4th 364 (Fed. Cir. 2025).....	20
<i>Apple v. Finitiv, Inc.</i> , IPR2020-00019, Paper 11, at 6 (PTAB Mar. 20, 2020).....	15
<i>Becton, Dickinson & Co. v. B. Braun Melsungen AG</i> , IPR2017-01586, Paper 8, 17–18 (PTAB Dec. 15, 2017).....	7
<i>Bio-Tech. Gen. Corp. v. Genentech, Inc.</i> , 80 F.3d 1553, 1563–64 (Fed. Cir. 1996).....	17
<i>Certain Glass Substrates for Liquid Crystal Displays, Products Containing the Same, and Methods for Manufacturing the Same (II)</i> , Inv. No. 337-TA-1441	15
<i>Corning Inc. v. Caihong Display Devices Co., Ltd.</i> , Case No. 1-24-cv-02328 (EDVA)	15
<i>Dabico Airport Solutions Inc., v. AXA Power ApS</i> , IPR2025-00408, Paper 21 at 2 (PTAB June 18, 2025).....	4
<i>Ecto World, LLC v. RAI Strategic Holdings, Inc.</i> , IPR2024-01280, Paper 13 at 6 (PTAB May 19, 2025).....	13
<i>Emerson Elec. Co. v. SIPCO, LLC</i> , IPR2019-00545, Paper 16 at 13 (PTAB Aug. 30, 2019)	17

<i>General Plastic Industrial Co. v. Canon Kabushiki Kaisha</i> , IPR2016-01357 (PTAB Sept. 6, 2017).....	14
<i>Intel Corp. v. Proxense LLC</i> , IPR2025-00327, Paper 12 at 2 (PTAB Jun. 26, 2025).....	4
<i>INVT SPE LLC v. Int'l Trade Comm'n</i> , 46 F.4th 1361, 1370 (Fed. Cir. 2022)	17
<i>J.T. Eaton & Co. v. Atl. Paste & Glue Co.</i> , 106 F.3d 1563, 1571 (Fed. Cir. 1997).....	22
<i>Mendoza v. Perez</i> , 754 F.3d 1002, 1020 (D.C. Cir. 2014)	27
<i>Motor Vehicle Mfrs. Ass'n v. State Farm</i> , 463 U.S. 29, 43, 1983	18
<i>NHK Spring Co. v. Intri-Plex Techs. Inc.</i> , IPR2018-00752, Paper 8 at 19 (PTAB March 2, 2020).....	4
<i>Ormco Corp. v. Align Tech., Inc.</i> , 463 F.3d 1299, 1311–12 (Fed. Cir. 2006)	21
<i>Oticon Medical AB v. Cochlear Ltd.</i> , IPR2019-00975, Paper 15 (Oct. 16, 2019)	9
<i>POSCO CO., Ltd. v. Arcelormittal</i> , IPR2024-01376, Paper 11 at 13 (PTAB March 18, 2025)	15
<i>Samsung Electronics Co. v. Dynamics, Inc.</i> , IPR2020-00499, Paper 41 at 13 (PTAB Aug. 12, 2020)	18
<i>Skullcandy, Inc. v. Earin AB</i> IPR2025-00690, Paper 9 at 2 (PTAB July 31, 2025)	6
<i>Sotera Wireless, Inc. v. Masimo Corp.</i> , IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020)	19
<i>Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n</i> , 851 F.2d 342, 344 (Fed. Cir. 1988)	17
<i>West Virginia v. EPA</i> , 597 U.S. 697 (2022)	4
<i>Wirtgen Am., Inc. v. Caterpillar Paving Prods. Inc.</i> , IPR2018-01201,	

Paper 13 at 12 (PTAB Jan. 8, 2019).....	17
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STATUTES

19 U.S.C. § 1337(c)	19
35 U.S.C. § 311(a).....	5
35 U.S.C. § 314(a)	5
35 U.S.C. § 315(e)(2).....	17
35 U.S.C. § 314.....	28
35 U.S.C. § 314(a)	28

OTHER AUTHORITIES

157 Cong. Rec. S1364, 2011.....	5
H.R. Rep. No. 112-98, at 39–40, 2011.....	19
H.R. Rep. No. 112-98, at 46, 2011.....	5
S. Rep. No. 112-31, at 33, 2011).....	19

PETITIONER’S EXHIBIT LIST

EX1001	U.S. Patent No. 8,642,491 (the “’491 Patent”)
EX1002	Prosecution History of the ’491 Patent
EX1003	Declaration of Dr. Frank Ernst
EX1004	JP2004-189535A (“Miwa ’535”) Certified Translation
EX1005	JP1998059741 (“JP-741”) Certified Translation
EX1006	U.S. 2005/0101469 (“Peuchert ’469”)
EX1007	JP2002308643 (“JP ’643”) Certified Translation
EX1008	JP2003192377 (“Miwa ’377”) Certified Translation
EX1009	Introduction to Glass Science and Technology, 2 nd Ed. (2005)
EX1010	Foshan Ceramics Research Institute Testing Co., Ltd, Test Report: Sample #5
EX1011	Foshan Ceramics Research Institute Testing Co., Ltd, Test Report: Sample #6
EX1012	<i>Curriculum Vitae</i> of Dr. Frank Ernst
EX1013	U.S. Patent No. 4,018,965
EX1014	U.S. PG PUB 2004/0224834
EX1015	W. Vogel, Glass Chemistry, 2 nd Ed., Chapter 4: Classical Theories of Structure, Springer-Verlag (1994)

I. INTRODUCTION

The Petition should be granted and a trial instituted because the PTAB serves as the most efficient forum for determining patentability for U.S. Patent No. 8,642,491 (the “‘491 Patent”) and represents the only forum in which Petitioner can obtain complete relief. Indeed, while the International Trade Commission (ITC) can adjudicate patent validity, that determination does not result in claim invalidity because the ITC lacks authority to cancel claims.

The “settled expectations” doctrine emphasizes the protection of patent owners’ reliance interests, particularly for patents that have been in force for an extended period, weighing the disruptive impact of late-stage challenges against the public interest in correcting erroneous grants of monopoly rights. However, while the doctrine counters established precedent, the doctrine is not absolute; there is no bright-line rule for when expectations become sufficiently “settled,” and institution may proceed where compelling circumstances, such as material errors by the examiner during prosecution, justify review to ensure the integrity of the patent system. Here, the petitioner demonstrates such material errors across all three grounds, overcoming any presumption of settled expectations and warranting institution.

Grounds 1, 2, and 3 present compelling challenges to the ‘491 Patent based on prior art that either was not considered during prosecution or was materially

misapplied. The examiner's errors in overlooking key disclosures and failing to properly analyze obvious modifications constitute material errors that justify institution despite any claimed settled expectations.

Discretionary denial based on settled expectations is less compelling when new, unconsidered prior art surfaces, as it indicates that the patent's issuance may have been flawed from the outset, undermining the foundation of any "settled" reliance. Specifically, the examiner materially erred by failing to identify or apply Miwa '535 appropriately, Miwa '377, which discloses a single example that anticipates several of the claims of the '491 patent, and JP '643, which also discloses a single example that largely meets the requirements of the '491 patent claims. This oversight constitutes a material error because it directly impacts the patentability assessment under 35 U.S.C. § 102 (anticipation) or § 103 (obviousness), as these references would have rendered the claims unpatentable had they been evaluated. The error is material because it stems from an incomplete prior art search during prosecution, allowing claims to issue that do not meet statutory requirements.

Here, examiner committed material errors during prosecution that directly impact the patentability analysis under both anticipation and obviousness standards. These errors provide a strong foundation for institution regardless of any settled expectations concerns. These errors align with the *Advanced Bionics* framework: (1) the art is substantially the same as previously presented, but (2) the Office erred in a

manner material to patentability. By demonstrating this material error, the petitioner overcomes § 325(d) concerns and, by extension, the settled expectations doctrine, as the patent's longevity cannot shield it from correction of clear prosecutorial mistakes. Institution thus serves the AIA's purpose of weeding out weak patents without unduly disrupting legitimate expectations.

Permitting this patent to evade review due to its age would perpetuate an erroneous grant, contrary to the public interest and the America Invents Act's (AIA) goal of efficient post-grant challenges.

In totality, the material errors across each the grounds outweigh any settled expectations. Absent institution, the public would bear the cost of an erroneously granted patent, eroding confidence in the USPTO. Therefore, the IPR should be instituted to rectify these errors, consistent with Acting Director Stewart's emphasis on equitable application of discretion.

Discretionary denial is not appropriate.

II. REASONS WHY THE BOARD SHOULD NOT EXERCISE ITS DISCRETION TO DENY INSTITUTION

A. THE NEWLY CREATED SETTLED EXPECTATIONS DOCTRINE IS IMPROPER

Patent Owner posits that the age of the '491 patent precludes institution of the IPR based on the so-called settled expectations, citing *Dabico Airport Solutions Inc., v. AXA Power ApS*, IPR2025-00408, Paper 21 at 2 (PTAB June 18, 2025) (discretionarily denying review for a patent that had been in force for “almost eight years”); *Intel Corp. v. Proxense LLC*, IPR2025-00327, Paper 12 at 2 (PTAB Jun. 26, 2025) (“[T]he challenged patents have been in force over nine years, creating settled expectations, and Petitioner does not provide any persuasive reasoning why an *inter partes* review is an appropriate use of Board resources.”).

The doctrine, which permits denials for patents held unchallenged for several or more years with significant reliance interests lacks statutory grounding, imposes arbitrary restrictions, and undermines the AIA’s core purpose. More significantly, the doctrine is in direct contradiction to the Board’s own precedential decisions. *NHK Spring Co. v. Intri-Plex Techs. Inc.*, IPR2018-00752, Paper 8 at 19 (PTAB March 2, 2020) (precedential).

The settled expectations doctrine requires clear congressional authorization due to its vast economic and political significance. *West Virginia v. EPA*, 597 U.S. 697 (2022). By shielding older patents from IPR review based on their age and

reliance interests, the doctrine protects billions in patent-driven revenue across countless industries likely impacting billions of dollars in licensing or market investments. Such a policy, which creates a *de facto* amnesty for long-held patents, even if they are invalid, and significantly alters the AIA's balance between patent owners and challengers, a matter of "deep economic and political significance" requiring explicit statutory authority (*West Virginia*, 597 U.S. at 716).

The AIA's text and legislative history provide no such authorization. 35 U.S.C. § 314(a) permits the Director to institute IPR if there is a "reasonable likelihood" of prevailing, with discretion limited to administrative considerations like efficiency or preventing harassment (H.R. Rep. No. 112-98, at 46, 2011; 157 Cong. Rec. S1364, 2011). The legislative history emphasizes IPRs as a mechanism to challenge weak patents and foster innovation, with no mention of patent age or reliance as barriers. The settled expectations doctrine, if applied in the present instance imposes a substantive restriction absent from the AIA's framework.

The AIA's silence on time-based or reliance-based denials, coupled with its focus on patent quality demonstrates that the doctrine exceeds the Director's authority. Congress intended IPRs to be broadly accessible under 35 U.S.C. § 311(a), which grants "a person who is not the owner" the right to petition without age-based restrictions.

The settled expectations doctrine's widespread application threatens the patent system's integrity. By shielding older patents like the '491 patent, it perpetuates invalid monopolies, stifles innovation, and increases litigation costs, contrary to the AIA's goals.

B. SETTLED EXPECTATIONS ARE OUTWEIGHED BY MATERIAL ERROR DURING PROSECUTION

Without conceding the propriety of the newly minted settled expectations doctrine, the patent examiner's material errors during prosecution outweigh those settled expectations. This is particularly evident where, as is here, petitioner presented three compelling bases for challenging the '491 patent, one of which (Ground 3) demonstrates anticipation for several claims. *See Skullcandy, Inc. v. Earin AB* IPR2025-00690, Paper 9 at 2 (PTAB July 31, 2025) ("the challenged patent issued nine years ago, creating strong settled expectations. While ordinarily that counsels for discretionary denial, Petitioner persuasively explains that the patent examiner materially erred during prosecution of the challenged patent.").

In determining whether to deny institution under § 325(d), the following two-part framework applies: (1) 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, whether the petitioner has demonstrated that the *Office*

erred in a manner material to the patentability of challenged claims. Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6, 8 (PTAB Feb. 13, 2020) (precedential). The *Becton, Dickinson* factors provide useful insight into how to apply the *Advanced Bionics* framework under 35 U.S.C. § 325(d). *Id.* at 9 (referencing *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, 17–18 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph))

While *Miwa '535* was cited during prosecution of the '491 Patent, previously considered *JP '741*, *Peuchert '469*, *JP '643*, or *Miwa '377*. And, more importantly, the Office has not previously considered any of the combinations of these references that form the grounds for this Petition. And, as discussed below, it is clear that the Examiner overlooked the specific individual examples disclosed by the prior art. *See Advanced Bionics, LLC, Id.* (“[I]f the record of the Office’s previous consideration of the art is not well developed or silent, then a petitioner may show the Office erred by overlooking something.”).

1. Grounds 2 and 3 demonstrate material error.

The material error in Ground 2 centers on the examiner's failure to properly analyze *JP '643 Sample 5*, which was substantively before the Office through its U.S. equivalent (U.S. Patent No. 6,881,692) that was cited and considered during prosecution, but was inadequately examined for its specific embodiments and

obvious combinations with other prior art. The examiner materially erred by not recognizing that Sample 5 of JP '643 expressly discloses a liquidus viscosity, which clearly exceeds the claimed 100,000 poise, while also disclosing compositional ranges that substantially overlap with the claimed invention. Furthermore, the examiner failed to consider the obvious combination with JP '741, which teaches using SnO₂ as a fining agent to avoid toxic materials and Peuchert '469, which provides motivation for BaO optimization, despite these references addressing the same technical field of alkali-free glasses for display applications and representing obvious solutions to well-known problems in glass manufacturing. *See, e.g.*, EX1003, ¶¶259-263, 340-342.

The material error in Ground 3 is the examiner's complete failure to identify and consider Miwa '377 during prosecution, which constitutes a clear material error given that this prior art reference directly anticipates multiple claims through its Sample 8 disclosure. *See, e.g.*, EX1003, ¶¶381-382. Miwa '377 was never cited, considered, or applied during the prosecution of the '491 Patent, yet Sample 8 specifically discloses all critical claim elements and expressly teaches the liquidus viscosity requirement. This oversight represents a fundamental failure in the prior art search, as Miwa '377 is in the identical technical field (alkali-free boroaluminosilicate glasses for LCD substrates produced by drawdown methods) and was publicly available well before the priority date, meaning the examiner's

failure to locate and apply this highly relevant anticipatory reference constitutes material error that directly impacts the patentability determination.

Thus, the framework of part 1 of *Advanced Bionics* does not favor discretionary denial. *Oticon Medical AB v. Cochlear Ltd.*, IPR2019-00975, Paper 15 (Oct. 16, 2019) (declining to exercise discretion under 35 U.S.C. § 325(d), because the petitioner relied on a new prior art reference not considered during prosecution).

Second, the portions of JP '741, Peuchert '469, JP '643, and Miwa '377, particularly JP '643 and Miwa '377 being relied upon by Petitioner are not cumulative to the prior art considered by the Examiner during prosecution. While patent owner alleges the prior art is cumulative to the art cited during prosecution (Patent Owner Discretionary Denial Brief at 22), patent owner provides no analysis of how the prior art relied upon in the petition is cumulative because it is not.

Third, with respect to *Becton Dickinson* factor (c), the prior art relied upon in Grounds 2 and 3, particularly JP '643 and Miwa '377, did not form a basis of any rejection issued by the Examiner during prosecution.

Fourth, there is no overlap between the arguments presented during prosecution and the way Petitioner relies upon the prior art, particularly JP '643 and Miwa '377 in Grounds 2 and 3, respectively.

Fifth, and most compelling with respect to *Becton Dickinson* factor (e), either JP '643 or Miwa '377 disclose at least one specific example of a glass composition

(Sample 5 in JP '643 and Sample 8 in Miwa '377) having a metal oxide composition that falls substantially within the ranges recited in the claims of the '491 patent.

Patent Owner largely attempts to point the Director's (and Board's) attention to purported facts in dispute. However, the case for anticipation and obviousness could not be any clearer as in each of Grounds 2 and 3 a single example with defined values clearly and without any doubt invalidate the claims identified in the Petition as presented.

2. Ground 1 also demonstrates clear material error by overlooking or misapprehending the relevant teachings in Miwa '535.

Although Miwa '535 was cited and considered during prosecution, the Office has not previously considered Miwa '535 in combination with the other art cited in this Ground.

The material error in Ground 1 centers on the examiner's failure to properly analyze the specific teachings of Miwa '535 Embodiment 15 when converted to the appropriate mole percentages and combined with the obvious modifications suggested by Peuchert '469. While Miwa '535 was cited during prosecution and formed the basis of an obviousness rejection that was overcome, the examiner materially erred by not recognizing that Embodiment 15, when its disclosed weight percentages are converted to mole percentages, falls within substantially all of the claimed compositional ranges with only the BaO limitation requiring an obvious

modification. The examiner failed to appreciate that a person of ordinary skill in the art would have been motivated to reduce or eliminate BaO based on the well-established principle that Ba^{2+} and Sr^{2+} have similar ionic field strengths (0.99 vs. 1.26) and play equivalent roles as network modifiers in boroaluminosilicate glass structures, as evidenced by Peuchert '469's teaching thereby providing motivation for optimizing the BaO/SrO ratio including reducing BaO to zero while maintaining the overall glass properties and liquidus viscosity requirements. EX1003, ¶386.

a. The Examiner erred by failing to consider the relevant disclosure of Miwa '535

During prosecution, the Applicant argued that:

In accordance with the invention, it was discovered that to achieve these goals, the glass has to have both a MgO content greater than or equal to 1.0 mole percent and an $\text{RO}/\text{Al}_2\text{O}_3$ ratio greater than or equal to 1.00. The criticality of the MgO content and the $\text{RO}/\text{Al}_2\text{O}_3$ ratio to low gaseous inclusion levels for tin fining and high liquidus viscosities for downdraw forming is discussed at, for example, page 10, line 19, to page 15, line 26, of applicant's specification. Figure 3 further illustrates the criticality of the $\text{RO}/\text{Al}_2\text{O}_3$ ratio to gaseous inclusion levels for a MgO content greater than or equal to 1.0 mole percent.

As we will now show, the Miwa reference cited in the May 10th Office Action does not disclose or suggest the criticality of having both a $\text{RO}/\text{Al}_2\text{O}_3$ ratio ≥ 1.0 and a MgO content ≥ 1.0 mole%.

EX1002 at 000047 (emphasis in the original)

An Exhibit was submitted with the response that purported to convert the weight percent to mol percent in Miwa '535 and the Applicant argued that:

The Miwa reference has 22 examples, 16 of which (i.e., 72%) have no MgO. Consequently, a person of ordinary skill in the art would never realize the importance of having a MgO content ≥ 1.0 mole% from a reference such as Miwa which, most of time, does not use any MgO. Moreover, the remaining 6 examples of Miwa that use some MgO do not disclose or suggest the present invention.

EX 1002 at 000047-000048

Relying on these arguments the Examiner allowed the application because:

The prior art fail to disclose or suggest with sufficient specificity an alkali-free glass comprising in mole percentages the recited components, wherein the glass has the specific recited relationship of the alkaline earth metal oxides to the Al_2O_3 content, the glass has greater than or equal to 1 mole percent MgO, and the glass limits the amounts of As_2O_3 and Sb_2O_3 content present in the glass. Furthermore, the glass has a liquidus viscosity that is greater than or equal to 100,000 poise and is made for the downdraw process.

EX 1002 at 000017

In addition to the fact that it is understood that Dr. Ellison, the sole inventor of the '491 patent, has acknowledged that at least some of the examples underlying the crux of the purported invention were prophetic, a point never brought to the Examiner's attention, the Examiner materially erred. The Examiner erred by overlooking the fact that Embodiment 15 of Miwa '535 falls within claimed ranges when obvious $\text{BaO} \rightarrow \text{SrO}$ substitution is made based on similar ionic field strengths, overlooking that the modified composition would retain the purported critical $\Sigma[\text{RO}]/[\text{Al}_2\text{O}_3] \geq 1.00$ requirement, and misunderstanding the scope of obvious modifications within the same technical field. *See, e.g.*, EX1003, ¶¶ 76-108. Indeed,

these facts directly contradicts both the Applicants arguments presented during prosecution and, more importantly, the reasons for allowance proffered by the Examiner.

It is clear that the Examiner was not aware that the examples supporting the Applicant's arguments were prophetic and that what was shown in Embodiment 15 of Miwa '535, since any reasonable examiner would have recognized that the values disclosed are within the ranges recited in the claims. *See Ecto World, LLC v. RAI Strategic Holdings, Inc.*, IPR2024-01280, Paper 13 at 6 (PTAB May 19, 2025) (precedential) (citing *Advanced Bionics, Id* at 9) (“if the Examiner applied the asserted prior art or substantially the same prior art during prosecution, then a petitioner must demonstrate that, for example, the previously presented art teaches the limitations of the challenged claims, and that no reasonable examiner could have found otherwise”).

Taken as a whole, the evidence shows that Examiner materially erred in allowing the application over Miwa '535's disclosure.

3. § 314 does not provide a basis to deny the Petition.

The filing of this Petition is not abusive, neither the Office nor the Board has previously addressed the grounds raised in this Petition, and instituting this proceeding would be an efficient use of the Board's resources. Accordingly, denial

under § 314(a) is not warranted. *See General Plastic Industrial Co. v. Canon Kabushiki Kaisha*, IPR2016-01357 (PTAB Sept. 6, 2017) (precedential).

C. ANALYSIS OF THE *FINTIV* FACTORS DEMONSTRATES THAT DISCRETIONARY DENIAL IS NOT APPROPRIATE

The *Fintiv* factors do not weigh in favor of discretionary denial in this case.

In its brief, Patent Owner contends that the Petition should be denied based on the *Fintiv* factors, along with certain additional considerations set forth in the Director's Memorandum dated March 26, 2025. *See* Patent Owner's Discretionary Denial Brief, Paper 6 at 2. Contrary to Patent Owner's assertions, however, discretionary denial is not warranted here, as a holistic analysis of the *Fintiv* factors demonstrates.

Additionally, Petitioner acted diligently and expeditiously in filing its Petition, which sets forth compelling, well-supported grounds demonstrating that the claims of the '491 Patent should never have been granted in the first place. Patent Owner's arguments to the contrary are both unsubstantiated and unpersuasive.

Although there are two co-pending proceedings involving the '491 Patent – *Certain Glass Substrates for Liquid Crystal Displays, Products Containing the Same, and Methods for Manufacturing the Same (II)*, Inv. No. 337-TA-1441 and *Corning Inc. v. Caihong Display Devices Co., Ltd.*, Case No. 1-24-cv-02328 (EDVA) – this Petition should not be denied under the discretionary factors set forth

in *Apple v. Finitiv, Inc.*, IPR2020-00019, Paper 11, at 6 (PTAB Mar. 20, 2020), for at least the following reasons.

1. Whether the court granted a stay

The co-pending district court litigation involving the ‘491 Patent has been stayed and that stay will remain in place until the completion of the ITC’s investigation and any subsequent appeals.

Although the co-pending ITC investigation has not been stayed, that investigation does not involve all of the claims of the ‘491 Patent. Moreover, because the ITC does not permit the filing of a counterclaim for invalidity, the co-pending ITC investigation cannot and will not address all of the claims of the ‘491 Patent, including independent claim 1. It is only through this IPR proceeding that Petitioner can possibly obtain complete relief.

This factor is, at best, neutral as to discretionary denial. *See POSCO CO., Ltd. v. Arcelormittal*, IPR2024-01376, Paper 11 at 13 (PTAB March 18, 2025): “We determine that, given *Fintiv*’s explanation of this situation, the weight of the district court’s stay pending the ITC Investigation and the weight of the lack of a stay of in the ITC Investigation itself depends, in part, on factor four. Thus, we determine that factor one, by itself, is neutral or bears little weight in our overall analysis, but consideration of the district court stay pending ITC investigation elevates the importance of factor four.”

2. Proximity of the court's trial date

The district court action is currently stayed and that stay will remain in place until at least August 2026, when the ITC is scheduled to issue a Final Determination in the co-pending investigation. Accordingly, it is unlikely that the district court action will be tried before the Board's projected statutory deadline for a FWD.

Although a Final Determination is scheduled to be issued in the co-pending ITC investigation in August 2026, that FD will necessarily not involve all of the claims of the '491 Patent, including independent claim 1.

This factor is, at best, neutral to discretionary denial when the relationship between ITC proceedings and PTAB adjudications are properly weighted, as is discussed further in factor 4 below.

3. Investment in parallel proceedings

The parties and the ITC will have expended significant resources by the December 16, 2025 Decision on Institution (DI) deadline. This factor is, at best, neutral to discretionary denial when the relationship between ITC proceedings and PTAB adjudications are properly weighted, as is discussed further in factor 4 below.

4. Overlap of issues

Because the co-pending district court action will remain stayed until after the Board's statutory deadline for a FWD, there will be no overlap of issues in the two proceedings due to the estoppel provisions of 35 U.S.C. § 315(e)(2).

Reliance on a parallel ITC Investigation to deny institution of the IPR would be a clear legal error. *Wirtgen Am., Inc. v. Caterpillar Paving Prods. Inc.*, IPR2018-01201, Paper 13 at 12 (PTAB Jan. 8, 2019); *see also Emerson Elec. Co. v. SIPCO, LLC*, IPR2019-00545, Paper 16 at 13 (PTAB Aug. 30, 2019). Petitioner will not be free of threats of litigation from Patent Owner even if it prevails in the ITC investigation. *See INVT SPE LLC v. Int'l Trade Comm'n*, 46 F.4th 1361, 1370 (Fed. Cir. 2022) (“ITC determinations of patent infringement and validity do not have preclusive effect on district courts, even when affirmed by the Federal Circuit.”); *see also Bio-Tech. Gen. Corp. v. Genentech, Inc.*, 80 F.3d 1553, 1563–64 (Fed. Cir. 1996) (ITC decisions do not bind a subsequent federal court under the doctrine of claim preclusion); *Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 851 F.2d 342, 344 (Fed. Cir. 1988) (“[T]his court has stated that the ITC’s determinations regarding patent issues should be given no *res judicata* or collateral estoppel effect.”). Consequently, the Board has frequently declined to deny IPR petitions in view of parallel ITC proceedings, that is up until Acting Director Stewart created a basis out of thin air.

Significantly, the issue of validity of all pending claims is not an issue in the ITC investigation, including independent claim 1 (from which all of the claims being asserted depend). *See Samsung Electronics Co. v. Dynamics, Inc.*, IPR2020-00499, Paper 41 at 13 (PTAB Aug. 12, 2020) (declining to exercise discretion after

determining claim limitations at issue before the Board were not at issue in the ITC proceeding); *3Shape A/S v. Align Technology, Inc.*, IPR2020-00223, Paper 12 at 33-34 (PTAB May 26, 2020) (declining to exercise discretion after finding that the ITC investigation would not resolve all claims at issue in the IPR proceeding). Indeed, while the ITC's decision in the co-pending investigation may be informative, in this case, because the ITC will not be considering all of the claims of the '491 Patent, that investigation “does not render our proceeding duplicative or amount to a waste of the Board’s resources.” *Wirtgen*, Paper 13 at 11. Accordingly, instituting trial here would be a more efficient alternative to the stayed district court litigation and the co-pending ITC investigation. *See Samsung*, Paper 41 at 13.

The 2022 Vidal Memo codified barring ITC-based denials because “the ITC lacks authority to invalidate a patent and the ITC's invalidity rulings are not binding on the Office or on district courts.” EX1012. The 2025 memorandum’s reversal, prioritizing ITC timing, lacks reasoned explanation (*Motor Vehicle Mfrs. Ass’n v. State Farm*, 463 U.S. 29, 43, 1983) contrary to settled precedent on this issue.

The AIA’s legislative history emphasizes the PTAB’s role as the primary forum for patentability disputes, not deference to the ITC’s non-binding infringement findings (H.R. Rep. No. 112-98, at 39–40, 2011; S. Rep. No. 112-31, at 33, 2011).

The ITC's limited jurisdiction under 19 U.S.C. § 1337(c) excludes invalidity adjudication, making it an improper basis for denying PTAB review. By prioritizing the ITC's projected determination over Petitioner's meritorious challenge, the PTAB allows potentially invalid claims to persist, harming industry competition, consumer prices and the like.

Finally, to reduce the potential for even a partial overlap of issues, if the Board institutes trial on this Petition, Petitioner will not assert in the ITC investigation and the parallel District Court action the same prior art combinations or any grounds that could have reasonably been raised on which trial is instituted. The most efficient course is for the Board to address the issues before it and the ITC to address only the issues that would remain. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential as to § II.A).

This factor weighs against discretionary denial.

5. Identity of the parties

Patent Owner is the plaintiff in the district court action and complainant in the ITC investigation. Petitioner is one of five defendants named in the district court action and one of several respondents in the ITC investigation. That fact, however, is also true of a great many patent owners and petitioners in IPR proceedings and is fully consistent with the purpose of IPRs providing a process for accused infringers

to challenge patents being asserted against them in litigation. This factor should therefore not weigh to denying institution.

6. Other circumstances, including the merits

a. The expiration date of the ‘491 patent is not dispositive as to discretionary denial

Patent Owner submitted that the ‘491 patent’s expiration in October 2026, before the projected FWD deadline in this proceeding weighs in favor of discretionary denial. That, however, should have no bearing. If a patent can be asserted for patent infringement in a U.S. Court, as is the case with the ‘491 patent, it is squarely within the discretion of the Patent Office to assess patentability of the claims, particularly where there was clear material error by the Examiner in allowing the application in the first instance. *Anthony Inc. v. ControlTec, LLC*, IPR2025-00559 and IPR2025-00636, Paper 9 (PTAB July 16, 2025) (declining to exercise discretion to deny institution of IPRs filed against patents that would expire shortly before the institution date based on material error during prosecution); *Apple Inc. v. Gesture Technology Partners, LLC*, 127 F.4th 364 (Fed. Cir. 2025) (“We confirm here that the Board has jurisdiction over IPRs concerning expired patents.”)

b. Patent Owner’s compelling economic and public-health interests are unsupported conjecture

Patent Owner purports that significant commercial development, centering on EAGLE XG GLASS, which has won industry awards while benefiting from the

attenuation of heavy metal use in the manufacture of glass articles, has value in weighing the question of discretionary denial. *See* Patent Owner's Discretionary Denial Brief, Paper 6 at Sec. V.I.A.3.

None of those statements are supported by evidence and thus can be ignored as conjecture. More significantly, Patent Owner offered no evidence to tie to its commercial product development or, more importantly, the alleged commercial success of that product to any invention(s) claimed in the '491 patent. It is well-settled that "[e]vidence of commercial success, or other secondary considerations, is only significant if there is a nexus between the claimed invention and the commercial success." *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311–12 (Fed. Cir. 2006).

In addition to the fact that it is understood that Dr. Ellison, the sole inventor of the '491 patent, has acknowledged that at least some of the examples underlying the crux of the purported invention were prophetic, a point never brought to the Examiner's attention, any alleged secondary consideration, particularly unexpected results or commercial success, must be fully commensurate in scope with the claimed invention. Indeed, "if the commercial success is due to an unclaimed feature of the device, the commercial success is irrelevant." *Ormco*, 463 F.3d at 1312. The same is true if the feature that gives rise to the commercial success was known in the prior art. *See J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed.

Cir. 1997) (“[T]he asserted commercial success of the product must be due to the merits of the claimed invention beyond what was readily available in the prior art.”); *Richdel, Inc. v. Sunspool Corp.*, 714 F.2d 1573, 1580 (Fed.Cir.1983) (holding claims obvious despite purported showing of commercial success when patentee failed to show that “such commercial success as its marketed system enjoyed was due to anything disclosed in the patent in suit which was not readily available in the prior art”).

c. The merits of the petition are clear and strong

Patent Owner contends that Dr. Ernst's analysis improperly treats complex glass compositions as systems allowing "independent change of one oxide with little or no material effect on other oxides and/or glass properties." DD Brief at 37. Patent Owner argues that simultaneous modifications—specifically BaO→SrO substitution combined with Sb₂O₃→SnO₂ fining agent replacement—create unpredictable interactions that Dr. Ernst failed to adequately consider.

Contrary to Patent Owner's characterization, Dr. Ernst's analysis is grounded in well-established glass chemistry principles that account for oxide interactions in boroaluminosilicate systems. While glass systems are indeed complex, they follow predictable structure-property relationships when modifications involve functionally equivalent components.

The BaO→SrO substitution relies on the network modifier equivalence principle, where cations with similar ionic field strengths perform nearly identical roles in glass structure. EX1003, ¶73.

The prior art itself demonstrates that these modifications are not speculative but represent established glass formulation practices:

- Miwa '535 discloses multiple embodiments with varying BaO/SrO ratios, establishing substitution precedent
- JP '643 teaches that BaO and SrO "improve chemical resistance and devitrification resistance" through similar mechanisms
- JP '741 demonstrates SnO₂ fining effectiveness in similar glass matrices

Patent Owner's criticism mischaracterizes the technical approach. The analysis does not treat the modifications as "simple substitutions" but rather as scientifically-grounded optimizations based on quantitative ionic field strength calculations demonstrating Ba²⁺/Sr²⁺ equivalence and empirical validation from analogous compositions in the '491 patent specification.

The simultaneous nature of the modifications reduces rather than increases uncertainty because both modifications support the same glass performance objectives, the applied prior art demonstrates successful implementation of similar modification patterns, and the modifications stay within established compositional ranges rather than exploring unknown territory

Furthermore, the '491 patent specification itself acknowledges that similar compositional variations produce predictable property changes, supporting the validity of the modification approach.

Patent Owner's criticism fails to recognize that Dr. Ernst's analysis applies well-established glass chemistry principles to predict the effects of compositional modifications. Rather than representing oversimplified substitution, the approach:

1. Accounts for critical structural relationships through charge balance and network connectivity analysis
2. Predicts complementary rather than conflicting effects from simultaneous modifications.
3. Relies on validated precedent from prior art and scientific literature.
4. Maintains conservative parameters within proven compositional ranges.

The technical foundation demonstrates that the proposed modifications would produce predictable and beneficial outcomes rather than the unpredictable negative interactions suggested by Patent Owner. The glass chemistry principles governing these systems provide sufficient guidance for a person of ordinary skill in the art to implement the modifications with reasonable expectation of success.

Moreover, each of Grounds 1, 2 and 3 directly counters the crux submitted during prosecution that “to have both a MgO content greater than or equal to 1.0 mole percent and an RO/AlO₃ ratio greater than or equal to 1.00.” EX1002 at

000047. These purportedly critical features, with evidentiary support in the patent specification, were already well-known in the prior art as shown in the Petition.

Petitioner's arguments are strong and are well supported by a factual record and expert testimony. Dr. Ernst's background in materials science and ceramic engineering provides appropriate expertise for analyzing glass chemistry and composition-property relationships in boroaluminosilicate systems. Dr. Ernst's declaration explains why the limitations of the challenged claims are necessarily present in the references or why they would have been obvious in light of the prior art disclosure(s) and the knowledge of a POSITA. The fact that the Petition mirrors Dr. Ernst's analysis—not the other way around, as Patent Owner baselessly alleges—simply shows that the Petition is well-supported by Dr. Ernst's analysis and should do nothing to diminish the weight that ought to be accorded to his testimony. Patent Owner's flawed argument provides no support for discretionary denial.

1. Ground 1 demonstrates material error through new prior art combinations

Ground 1 presents Miwa '535 Embodiment 15 in combination with Peuchert '469, where the prior art closely matches the claimed glass composition through obvious modifications. The examiner materially erred by failing to recognize that, **embodiment 15 of Miwa '535 meets substantially all claim limitations** when obvious BaO→SrO substitution is made based on established ionic field strength

principles, the alleged **critical $\Sigma[\text{RO}]/[\text{Al}_2\text{O}_3] \geq 1.00$ ratio is maintained** at 1.20, and a skilled person would have made obvious **modifications to preserve essential glass properties** while meeting the claimed compositional constraints.

2. Ground 2 demonstrates clear obviousness with express prior art support

Ground 2 combines JP '643, JP '741, and Peuchert '469, where JP '643 Sample 5 provides strong compositional overlap with the claims. The examiner materially erred by not recognizing that **sample 5 of JP '643 meets most claim limitations directly** with only minor obvious modifications required, **the liquidus viscosity is expressly disclosed** meeting the claimed 100,000 poise requirement, and **obvious fining agent substitutions** are motivated by well-established desires to eliminate toxic materials.

3. Ground 3 presents clear anticipation by previously unconsidered art

Ground 3 demonstrates anticipation by Miwa '377 Sample 8, which was never considered during prosecution. The examiner's failure to locate this art represents a material error because Sample 8 meets the critical requirements through inherent properties that necessarily result from its disclosed composition.

This factor should therefore weigh heavily against discretionary denial balancing out any of the other factors that may be neutral and/or favor denial. *See*

POSCO CO., Ltd., Id (“consideration of the district court stay pending ITC investigation elevates the importance of factor four”).

III. THE DIRECTOR’S MEMORANDUM VIOLATES THE ADMINISTRATIVE PROCEDURES ACT

Petitioner respectfully submit that the Director’s Memorandum establishing the current process for discretionary denial review violates the Administrative Procedures Act (“APA”). *First*, the Director’s Memorandum represents binding agency policy and so should properly be promulgated through notice-and-comment rulemaking. *See Mendoza v. Perez*, 754 F.3d 1002, 1020 (D.C. Cir. 2014). *Second*, the Director’s Memorandum exceeds the Director’s statutory authority and/or violates the AIA (American Invents Act). Nothing in the AIA authorizes the Director to deny IPR petitions based on the factors referenced in the Director’s Memorandum. *Third*, the factors and considerations identified in the Director’s Memorandum are arbitrary and capricious. Attempts to apply the *Fintiv* factors has led to unpredictable disparities among similarly situated IPR petitioners because of the uncertainty and malleability of those factors. The Director’s Memorandum worsens this problem by introducing several additional unpredictable and malleable factors. *Fourth*, discretionary denial for any basis other than as authorized in 35 U.S.C. §314(a) is unauthorized. The Director does not have absolute discretion regarding whether to institute IPR; that discretion is limited to the bases authorized in 35 U.S.C. §314.

IV. CONCLUSION

The Petition presents exceptionally strong technical grounds demonstrating that the '491 Patent claims were anticipated or rendered obvious by prior art in the same technical field addressing identical problems. The combination of express prior art disclosures, obvious modifications based on established scientific principles, and material examiner error during prosecution creates a compelling case for unpatentability that strongly favors institution and ultimate cancellation of the challenged claims. Thus, the Director should decline to exercise discretion to deny institution in this case.

Dated: September 18, 2025

Respectfully submitted,

/Daniel J. Pereira/

Daniel J. Pereira (Reg. No. 45,518)
Merchant and Gould PC
1900 Duke Street, Suite 600
Alexandria, VA 22314
Telephone: (703) 518-4509
E-Mail: dpereira@merchantgould.com

Attorney for Petitioner

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), the undersigned certifies that this Opposition includes 6002 words, as measured by Microsoft Word®.

/Daniel J. Pereira/
Daniel J. Pereira (Reg. No. 45,518)

CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned hereby certifies that the above document was served on September 18, 2025, by filing this document through the Patent Trial and Appeal Board P-TACTS System, as well as delivering a copy via express mail upon the following attorneys of record for the Patent Owner:

Jason Eisenberg

Kristina Kelly

Chase Hammond

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

jasone-ptab@sternekessler.com

kckelly-ptab@sternekessler.com

chammond-ptab@sternekessler.com

/Daniel J. Pereira/

Daniel J. Pereira (Reg. No. 45,518)