

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZHUHAI COSMX BATTERY CO., LTD.,
Petitioner,

v.

NINGDE AMPEREX TECHNOLOGY LIMITED,
Patent Owner.

IPR2023-00587
Patent 10,964,987 B2

Before DONNA M. PRAISS, KRISTINA M. KALAN, and
JEFFREY W. ABRAHAM, *Administrative Patent Judges*.

PRAISS, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Zhuhai CosMX Battery Co., Ltd. (“Petitioner”)¹ filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–17 of U.S. Patent No. 10,964,987 B2 (Ex. 1001, “the ’987 patent”). Ningde Ampere Technology Limited (“Patent Owner”)² filed a Preliminary Response (Paper 9, “Prelim. Resp.”). We authorized a Reply by Petitioner and a Sur-Reply by Patent Owner on the issue of discretionary denial under 35 U.S.C. § 314(a) (Ex. 1024) that the parties subsequently filed (Paper 10, “Reply”; Paper 11, “Sur-Reply”).

Under 35 U.S.C. § 314(a), we may not institute an *inter partes* review unless the information presented in the petition “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.” However, institution of *inter partes* review is discretionary. *See Harmonic Inc. 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.”). For the reasons stated below, we exercise our discretion not to institute an *inter partes* review.

II. BACKGROUND

A. *The ’987 Patent (Ex. 1001)*

The ’987 patent, titled “Separator and Energy Storage Device,” issued on March 30, 2021. Ex. 1001, codes (45), (54). The patent relates to a separator having inorganic particles that greatly improves the rate

¹ Petitioner identifies itself as the real party in interest. Pet. 62.

² Patent Owner identifies itself as the real party in interest and informs us that it is a wholly owned subsidiary of Ampere Technology Limited. Paper 3, 1.

performance and cycle performance of an energy storage device. *Id.* at code (57). The patent describes maintaining the pore structures in the separator as the reason for this improvement. *Id.* at 1:43–46. According to the '987 patent, in the cycle of charging and discharging a lithium-ion battery, there will be a gap between the electrode and the separator resulting in a reduction of the cycle capacity, which affects service life. *Id.* at 1:27–31. The patent describes solving the gap problem and maintaining adhesive force between the separator and the electrode by providing a separator with a porous layer comprising inorganic particles and a binder where the ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in the range of 0.3 to 3.0. *Id.* at 1:39–53. The patent states that the “Dv90 of the inorganic particles refers to a particle size which reaches 90% the cumulative volume from the side of small particle size in the granularity distribution on a volume basis.” *Id.* at 1:53–56.

B. Illustrative Claim

Petitioner challenges all of the claims of the '987 patent, which are claims 1–17. Pet. 7. Claim 1, the sole independent claim, is illustrative and reproduced below:

1. A separator, comprising: a porous substrate; and a porous layer arranged on a surface of the porous substrate, wherein the porous layer comprises inorganic particles and a binder, and a ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in a range from 0.3 to 3.0.

Ex. 1001, 16:25–30.

C. Asserted Grounds of Unpatentability

Petitioner contends that claims 1–17 of the '987 patent are unpatentable based on the following grounds (Pet. 18):

Claim(s) Challenged	35 U.S.C. §³	Reference(s)/Basis
1, 2, 4–9	102	Nishikawa ⁴
10–16	103	Nishikawa
17	103	Nishikawa, Honda ⁵
1, 2, 4–9	102	Iwai ⁶
3	103	Iwai

Petitioner also relies on a declaration from Samuel P. Gido, Ph.D.

(Ex. 1003). Patent Owner relies on a declaration of Dean R. Wheeler, Ph.D.

(Ex. 2001).

D. Overview of Prior Art

1. Nishikawa

Nishikawa describes a separator for a nonaqueous secondary battery containing a microporous membrane, at least one surface of which is laminated with a heat resistant porous layer containing a heat resistant resin containing an inorganic filler. Ex. 1005, 2:47–51. Nishikawa states that its inorganic filler satisfies the following two characteristics: (1) $0.1 \leq d_{50} \leq 1$ (μm) and (2) $0 < \alpha \leq 2$ where d_{50} is the average particle diameter (μm) of weight accumulation of 50% by weight calculated from a smaller particle side of a particle size distribution by laser diffraction, and α represents

³ The relevant sections of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, took effect on March 16, 2013. The '987 patent claims priority to applications with filing dates after this date. *See* Ex. 1001, code (22), (30). For the purposes of this Decision, AIA statutes apply.

⁴ Nishikawa et al., US 7,976,987 B2, issued July 12, 2011 (Ex. 1005).

⁵ Honda et al., US 2015/0263325 A1, published Sept. 17, 2015 (Ex. 1007).

⁶ Iwai et al., US 2014/0248525 A1, published Sept. 4, 2014 (Ex. 1006).

homogeneity of the inorganic filler expressed by $\alpha=(d90-d10)/d50$, where d90 “represents an average particle diameter (μm) of weight accumulation of 90% by weight calculated from a smaller particle side in a particle size distribution by laser diffraction” and d10 “represents an average particle diameter (μm) of weight accumulation of 10% by weight calculated from a smaller particle side in a particle size distribution by laser diffraction.” *Id.* at 3:43–58.

2. *Honda*

Honda discloses a separator for a nonaqueous secondary battery that includes a “porous substrate” and a “porous layer that is provided on one side or both sides of the porous substrate.” Ex. 1007 ¶¶ 21–23. Honda’s porous layer includes a resin and inorganic filler. *Id.* ¶ 23. Honda teaches a porous layer “in which a resin has a fibril shape to form a three-dimensional network structure by which a filler is trapped.” *Id.* ¶ 164.

3. *Iwai*

Iwai teaches a separator for a nonaqueous secondary battery that includes a porous substrate and an adhesive porous layer provided on one or both sides of the porous substrate, which porous layer includes a resin and a filler wherein “a difference between a particle diameter at 90% cumulative volume of the filler and a particle diameter at 10% cumulative volume of the filler [is] 2 μm or less.” Ex. ¶ 35.

E. Related Proceedings

The parties indicate that the ’987 patent is the subject of *Ningde Amperex Tech. Ltd. v. Zhuhai CosMX Battery Co., Ltd.*, Case No. 2:22-cv-00232 (E.D. Tex.) (“Texas Litigation”), and *Zhuhai CosMX Battery Co., Ltd. v. Ningde Amperex Tech. Ltd.*, Case No. 5:22-cv-04510 (N.D. Cal.)

(“California Litigation”).⁷ Pet. 62; Paper 3, 1. The parties also list as a related matter U.S. Patent Application No. 17/178,843, which claims the benefit of the ’987 patent’s filing date, as well as *inter partes* review proceeding IPR2023-00586 involving Patent Owner’s co-owned U.S. Patent No. 10,833,363. Pet. 62; Paper 3, 2.

F. Claim Construction

Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

Petitioner asserts that no terms need construction because the claims encompass the prior art mappings under any construction consistent with *Philips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Pet. 17. Patent Owner states that the parties previously agreed that the term “Dv90” means “a particle size which reaches 90% of the cumulative volume from the side of small particle size in the granularity distribution on a volume basis” and that the use of the term in the Petition and the Gido Declaration is consistent with this definition. Prelim. Resp. 10–11 (citing Ex. 1003 ¶ 99; Ex. 2010, 2).

We determine we need not explicitly construe any claim term at this stage of the proceeding. *See Realtime Data*, 912 F.3d at 1375.

⁷ Patent Owner states that the California Litigation has been voluntarily dismissed so only the Texas Litigation remains. Prelim. Resp. 3 n.1.

G. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art (“POSA”) would have “at least a bachelor’s degree or equivalent degree . . . in chemistry, chemical engineering, materials science, or a similar discipline . . . as well as three or more years of experience in electrochemical energy storage devices, lithium-ion battery technology, separators, . . . or other applications of polymer chemistry, ceramic chemistry, and ceramic processing” with more experience compensating for less formal education and vice versa. Pet. 16–17 (citing Ex. 1003 ¶ 14).

Patent Owner adopts Patent Owner’s definition of a person of ordinary skill in the art. *See* Prelim. Resp. 11. Accordingly, for the purposes of this Decision, we adopt Petitioner’s proposal regarding the level of ordinary skill in the art.

III. DISCRETION TO DENY INSTITUTION UNDER § 314(a)

Institution of an *inter partes* review is discretionary. *See* 35 U.S.C. § 314(a) (authorizing institution of an *inter partes* review under particular circumstances, but not requiring institution under any circumstances); *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. Inc. v. Iancu*, 138 S. Ct. 1348, 1356 (2018) (“[Section] 314(a) invests the Director with discretion on the question whether to institute review” (emphasis omitted)); *Harmonic*, 815 F.3d at 1367 (“[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.”).

When determining whether to exercise discretion to deny institution in view of a parallel proceeding, we consider the following 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.

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). “These factors relate to whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding.” *Id.*

Patent Owner argues that we should exercise our discretion under 35 U.S.C. § 314(a) and not institute trial, given that trial in the parallel district court litigation⁸ is scheduled for February 5, 2024; fact discovery will close in mid-September 2023; initial expert reports are due September 18, 2023; Nishikawa and Iwai, the sole primary prior art references asserted in this *inter partes* review, are also asserted in the Texas litigation; and the Petition is weak because it is based on erroneous assumptions and unsupported argument. Prelim. Resp. 57–61; Sur-Reply 1–5.

Petitioner argues that we should not deny institution under *Fintiv* “because Petitioner presents a compelling unpatentability challenge.”

⁸ Our *Fintiv* analysis refers to the Texas Litigation as the “parallel district court litigation” because both parties focus their arguments exclusively on the Texas Litigation. As noted earlier, Patent Owner states that the California Litigation has been voluntarily dismissed so only the Texas Litigation remains. Prelim. Resp. 3 n.1.

Pet. 64. Petitioner also asserts that the state of the parallel district court litigation favors institution in view of claims 10–16, which are challenged in the Petition but not involved in the litigation. Pet. 65; Reply 3–4. Petitioner also provides a stipulation to “not pursue the same petitioned invalidity grounds in the related district court action . . . nor . . . any invalidity ground that includes *Nishikawa*, *Honda*, or *Iwai*.” *Id.* According to Petitioner, the median time-to-trial in the Eastern District of Texas is 24.2 months. Pet. 65. Petitioner thus projects trial to occur in June or July 2024, which Petitioner estimates is one month before an anticipated final written decision in this *inter partes review* proceeding, and argues that the trial date is merely a neutral factor. *Id.*

For the reasons stated below, we exercise our discretion to deny institution in view of the parallel district court litigation.

A. *Likelihood of a Stay*

A district court stay of parallel litigation pending resolution of an *inter partes review* allays concerns about inefficiency and duplication of efforts, which strongly weighs against exercising the authority to deny institution. *Fintiv*, Paper 11 at 6.

Neither party has brought to our attention any request for a stay or any indication that a stay is likely in the parallel district proceeding. Pet. 65 (“No stay has been requested . . .”); Prelim. Resp. 57 (stating that “a stay pending institution of this IPR has not been requested”). Thus, we find this factor does not weigh against discretionary denial, and we regard the factor as neutral. *See Fintiv*, Paper 11 at 11–12.

B. *Proximity of Trial Date to Projected Statutory Deadline*

The projected statutory deadline for issuance of a final written decision in this proceeding is in late September 2024. According to Patent

Owner, trial in the parallel district court litigation has been scheduled for February 5, 2024, about 8 months before the statutory deadline. Prelim. Resp. 57–58 (citing Ex. 1022). Patent Owner argues that Petitioner agrees that trial will occur prior to any anticipated final written decision and that the Board has denied institution in view of similar or smaller gaps between the trial date and the projected statutory deadline. *Id.* at 58 (citing *EClinicalWorks, LLC v. Decapolis LLC*, IPR2022-00229, Paper 10 at 9 (PTAB Apr. 13, 2022) (denying institution where the jury trial would occur “roughly one to two months before any final decision”); *Samsung Elecs. Co., Ltd. v. California Inst. of Tech.*, IPR2023-00130, Paper 10 at 16 (PTAB May 4, 2023) (“*Samsung*”) (denying institution where the final decision would be eight months after the court’s scheduling order or five months after the time-to-trial statistics for the court); *Roku, Inc. v. IOENGINE, LLC*, IPR2022-01553, Paper 11 at 10–11 (PTAB May 5, 2023) (denying institution where the final decision would be seven months after the court’s scheduling order or six months after the time-to-trial statistics for the court)); Sur-Reply 1.

Petitioner argues that trial would be six months before a statutory deadline if the district court’s schedule is maintained and about one month before a statutory deadline if the median time-to-trial of 24.2 months holds true. Pet. 65. Because this decision on institution is being issued in late September 2023, the statutory deadline for a final written decision would be late September 2024, which makes the trial date of February 5, 2024 about 8 months before the statutory deadline as Patent Owner calculates. Correspondingly, Petitioner’s calculated time period after the median time-to-trial for the statutory deadline for a final written decision would be 3 months rather than 1 month. Petitioner argues that this factor is “at worst

neutral” because the Board has instituted with a similar time frame between trial and final written decision. *Id.* (citing *NetNut v. Bright Data*, IPR2021-01492, Paper 12 at 9–16 (PTAB Mar. 21, 2022) (“*NetNut*”) (co-pending trial date six months before the final written decision deadline); *Protect Animals with Satellites v. OnPoint Sys.*, IPR2021-01483, Paper 11 at 18 (PTAB Mar. 4, 2022) (“*Protect Animals with Satellites*”) (co-pending trial date one month before the final written decision deadline); Reply 1.

The Director has clarified the application of the second *Fintiv* factor in the Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings With Parallel District Court Litigation (“*Fintiv* Memo”).⁹ Specifically, the *Fintiv* Memo states that when applying the second factor, the Board “will consider the speed with which the district court case may come to trial and be resolved,” but that “the proximity to trial should not alone outweigh all . . . other factors.” *Id.* at 8. While parties may submit median time-to-trial statistics for the district court for the Board’s consideration, we will “also consider additional supporting factors such as the number of cases before the judge in the parallel litigation and the speed and availability of other case dispositions.” *Id.* at 8–9.

The evidence presented by the parties suggests that a trial in the parallel district court litigation is likely to occur prior to the due date of our final written decision if we were to institute an *inter partes* review. Based on the court’s scheduling order, trial would occur about eight months before the statutory deadline. A trial date about eight months before our statutory due date weighs heavily in favor of discretionary denial. Based on

⁹ Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

Petitioner's median-time-to-trial data, trial would occur about three months before the statutory deadline. Although much closer in proximity to our statutory deadline, this timing still weighs in favor of discretionary denial, especially considering that fact discovery and initial expert reports will be completed this month (*id.* at 3 (setting September 18, 2023 for completion of fact discovery and for serving disclosures for expert witnesses by the party with the burden of proof)).

Here, the parties have not provided any evidence or arguments regarding the caseload of the assigned judge or whether extensions of time have been sought or are anticipated in the parallel district court litigation.

The facts here distinguish the instant proceeding from other *Fintiv* analyses to which Petitioner directs us. *See NetNut*, Paper 12 at 10–11 (where the parties presented evidence that the jury selection date had been delayed by almost six months, that the parties had sought extensions, and that fact discovery had not been completed); *Protect Animals with Satellites*, Paper 11 at 12–13 (trial schedule had been delayed due to additional patents asserted in the district court case).

Because the evidence presented by the parties suggests that, by any measure, a trial in the parallel district court litigation is likely to occur months before the due date of our final written decision if we were to institute an *inter partes* review, this factor heavily favors exercising our discretion to deny the Petition.

C. Investment in the Parallel Proceeding

Regarding *Fintiv* factor 3, Patent Owner asserts the parties will have expended significant efforts in the parallel litigation by the expected institution date since fact discovery has been ongoing since December 2022 and will close in mid-September 2023, before the expected institution

decision date. Prelim. Resp. 59. Patent Owner points to the time and resources spent taking depositions in Hong Kong; the at least seven expert witnesses who have been disclosed by the parties whose initial reports will have been completed by September 18, 2023; the exchange of the parties' respective infringement and invalidity contentions; and the completion of claim construction by mid-August 2023. *Id.* at 59–60.

Petitioner acknowledges that the parties exchanged infringement and invalidity contentions and that the claim construction hearing was scheduled for August 2023. Pet. 64–65. Petitioner does not dispute that fact discovery closes and initial expert reports will be completed September 18, 2023, i.e., before the institution decision date. Ex. 1023 (Texas Litigation Docket). Nevertheless, Petitioner asserts “Factor 3 further favors institution because almost no parallel investment has occurred.” Pet. 64.

In the Reply, Petitioner maintains its position and asserts that before Patent Owner filed its Preliminary Response, Patent Owner represented to the district court that the litigation “is still in its early stages.” Reply 1 (citing Ex. 1025). Petitioner’s argument is not persuasive because the pertinent inquiry concerns the investment in the parallel proceeding by the court and parties “at the time of the institution decision.” *Fintiv*, Paper 11 at 9. Petitioner also takes issue with Patent Owner’s quantification of the number of depositions and pages of documents produced during discovery as being inflated because those documents concern “other asserted patents and issues unrelated to validity,” or constitute third-party discovery. Reply 2. Petitioner’s argument, however, does not challenge the stage of discovery at the time of the institution decision. In addition, both parties point out that definiteness under 35 U.S.C. § 112 is an issue that has been presented in the district court proceeding. Pet. 24 n.4, 52 n.7; Reply 2 (stating that a

substantive order related to the patent at issue in the Petition that could issue by the time of this decision on institution is “whether claims of the ’987 patent are indefinite”); Sur-Reply 2 (stating “both parties presented expert testimony about claim construction and indefiniteness of the term ‘Dv90’” in a related district court proceeding). Petitioner further asserts that the filing of this Petition over three months after Patent Owner served its initial infringement contentions represents diligence in filing and favors institution because it is reasonable to wait to learn which claims are asserted against it. Reply 3.

We conclude that this factor heavily favors denial of institution, because the district court proceeding has already advanced beyond fact discovery to the completion of initial expert reports.

D. Overlap of Issues

Regarding *Fintiv* factor 4, Patent Owner asserts there is substantial overlap between the Petition and the parallel litigation, because Nishikawa and Iwai, the sole primary prior art references asserted in this proceeding, are also being asserted in the invalidity contentions in the parallel litigation. Prelim. Resp. 60.

In response, Petitioner points out that only the *inter partes* review proceeding involves claims 10–16 of the ’987 patent. Reply 3. Petitioner also stipulates that it “will not pursue the same petitioned invalidity grounds in the related district court action . . . nor will [Petitioner] pursue any invalidity ground that includes *Nishikawa*, *Honda*, or *Iwai*.” *Id.* at 3–4 (citing *Microsoft Corp. v. WSOU Investments, LLC*, IPR2021-00930, Paper 8 at 11 (PTAB Dec. 2, 2021); *Ericsson Inc. v. Koninklijke KPN N.V.*, IPR2022-00079, Paper 9 at 13 (PTAB May 22, 2022)).

Concerns about the degree of overlap may be mitigated where a petitioner agrees not to pursue in the parallel proceeding the grounds advanced in the petition. *Sand Revolution II, LLC v. Continental Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 11–12, 12 n.5 (June 16, 2020) (informative). “The PTAB *will not discretionarily deny institution of an IPR . . . in view of parallel district court litigation where a petitioner stipulates not to pursue in a parallel district court proceeding the same grounds as in the petition or any grounds that could have reasonably been raised in the petition.*” *Fintiv* Memo, 7–8 (emphasis added); *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential as to § II.A).

Here, Petitioner’s stipulation extends to the same grounds raised in the Petition, but does not extend to any ground “that could have been reasonably raised,” pursuant to *Sotera*. Patent Owner points to the narrowness of the proffered stipulation in the Sur-Reply and asserts this factor “only marginally weighs in favor of institution.” Sur-Reply 3. Because Petitioner’s stipulation obviates some potential for duplication or redundancy with respect to the patentability of the challenged claims (albeit not to the extent a full *Sotera*-type stipulation would have) and the parallel litigation does not include claims 10–16, we determine that the fourth *Fintiv* factor weighs against denial of institution.

E. Identity of Parties

Regarding *Fintiv* factor 5, Patent Owner asserts that denying institution is supported by the same parties being involved in both the Petition and the parallel district court litigation. Prelim. Resp. 60. In the Sur-Reply, Patent Owner contends that this factor has been found to weigh against institution where the gap between the trial date and the final written

decision deadline is large as it is here. Sur-Reply 3 (citing *Samsung*, Paper 10 at 20). Petitioner asserts that this factor is “at worst neutral.” Pet. 65 (citing *Protect Animals with Satellites*, Paper 11 at 12–13); Reply 4.

Petitioner here is a defendant in the parallel district court litigation. The Board has found that “this factor favors denial if trial precedes the Board’s Final Written Decision and favors institution if the opposite is true.” See, e.g., *Huawei Tech. Co. v. WSOU Inv., LLC*, IPR2021-00225, Paper 11 at 14 (PTAB June 14, 2021) (internal quotation marks omitted). Thus, because trial in the parallel district court litigation is likely to precede the final written decision in this case by a significant period of time as discussed above, this factor favors denial of institution under § 314(a).

F. Other Circumstances, Including the Merits

The *Fintiv* Memo states, among other things, that “where the PTAB determines that the information presented at the institution stage presents a compelling unpatentability challenge, that determination *alone* demonstrates that the PTAB should not discretionarily deny institution under *Fintiv*.” *Fintiv* Memo, 4–5 (emphasis added). Further, “[c]ompelling, meritorious challenges are those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.” *Id.* at 4. Thus, the *Fintiv* Memo does not change the statutory standard for institution under 35 U.S.C. § 314(a), but, rather, negates the other *Fintiv* factors in the face of a compelling challenge. We consider whether there are compelling merits when, as here, our analysis of the first five *Fintiv* factors favors denial of institution. See *CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 5 (PTAB Feb. 27, 2023) (precedential).

1. *Principles of Law*

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic*, 815 F.3d at 1363 (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)); see also 37 C.F.R. § 42.104(b) (requiring a petition for *inter partes* review to identify how the challenged claim is to be construed and where each element of the claim is found in the prior art patents or printed publications relied upon).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). “Inherent anticipation requires that the missing descriptive material is ‘necessarily present,’ not merely probably or possibly present, in the prior art.” *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295 (Fed. Cir. 2002) (quoting *In re Robertson*, 169 F.3d 743, 745, (Fed. Cir. 1999)). “[T]he reference must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements arranged as in the claim.” *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1083 (Fed. Cir. 2008) (internal quotation marks omitted). In other words, it is not enough to be able to find all of the pieces of the claimed invention somewhere in a prior art reference; rather, those elements must be set out in the prior art reference in the same way they are in the claimed invention. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (“Because the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must

not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’”) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved based on underlying factual determinations including: (1) the scope and content of the prior art; (2) differences between the prior art and the claims at issue; (3) the level of ordinary skill in the pertinent art; and (4) when presented, objective evidence of nonobviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements,” but “must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). A reason to combine or modify the prior art may be found explicitly or implicitly in market forces; design incentives; the “interrelated teachings of multiple patents”; “any need or problem known in the field of endeavor at the time of invention and addressed by the patent”; and the background knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009) (quoting *KSR*, 550 U.S. at 418–21).

2. *Asserted Anticipation of Claim 1 by Nishikawa*

Petitioner contends that Nishikawa discloses every limitation of claim 1 either explicitly or inherently, including the limitation “a ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in a range from 0.3 to 3.0.” Pet. 18–24. However, Petitioner acknowledges that Nishikawa “defines its D90 with reference to a cumulative weight distribution” rather than “cumulative volume . . . in the granularity distribution on a volume basis” as Dv90 is defined by the ’987 patent. Pet. 22 (citing Ex. 1005, 3:52–55; Ex. 1001:53–56). Petitioner asserts that a POSA would recognize that a cumulative volume distribution and a cumulative weight distribution will have the same D90 value “because volume is directly proportional to weight” where a single material is used for the inorganic filler. Pet. 22 (citing Ex. 1005, 22:26–35, 22:46–51; Ex. 1003 ¶ 97).¹⁰ For the claimed ratio, Petitioner contends that Nishikawa’s Examples 4 and 5 have a heat resistant porous layer thickness of 3.15 µm on each side of the membrane for a total thickness of 6.3 µm. Pet. 23 (citing Ex. 1005, 16:24–44, Table 1; Ex. 1003 ¶ 100). Dr. Gido’s paragraph 100 states that “Table 1 . . . lists the thickness of the heat resistant porous layer in Example 1 (which is, in this aspect the same as Examples 4 and 5).” Ex. 1003 ¶ 100.

In response, Patent Owner contends that a POSA would not have converted Nishikawa’s particle size distribution determined from one type of measurement based on weight to the claimed particle size distribution determined by another type of measurement based on volume because “particles rarely, if ever, have perfectly uniform shapes, perfectly uniform

¹⁰ We understand Petitioner’s citation to Ex. 1003’s paragraph 97 (referring to a heat resistant resin being considered a binder) to be a typographical error meant to direct us to paragraph 99 (referring to density).

densities, perfectly uniform porosities, and perfectly uniform surface properties.” Prelim. Resp. 14 (citing Ex. 2001 ¶¶ 62–66). Patent Owner also contends that neither the Petition nor Dr. Gido provide any explanation or basis for why Example 1’s thickness of the heat resistant porous layer must be the thickness for both Examples 4 and 5, or why the thickness is assumed to be exactly one half of the total porous layer thickness of Example 1.

Prelim. Resp. 20–21. According to Patent Owner, importing Example 1’s thickness to Examples 4 and 5 because they were “produced in the same manner” does not address the difference in the coating slurry used in Examples 4 and 5. Prelim. Resp. 22–23 (citing Ex. 2001 ¶¶ 83, 84; Ex. 1005, 22:37–40, 22:46–51). Patent Owner further supports its position that being produced in the same manner is not a valid assumption that the thickness is identical to Example 1’s thickness by comparing the thickness of Example 1 (6.3 μm) with the thicknesses of Examples 2 (10.9 μm) and 3 (8.5 μm) reported in Nishikawa’s Table 1 which are also described as having been “produced in the same manner.” Prelim. Resp. 23–24 (citing Ex. 1005, Example 2, Example 3, Table 1).

Even if Nishikawa derives its weight-based d90 from a volume-based Dv90 as Petitioner asserts in its Reply (Reply 4), the Petition and Dr. Gido’s assumption that the porous layer thicknesses of Examples 4 and 5 are the same as the porous layer thickness of Example 1 is not plainly supported by the record for purposes of an anticipation challenge which requires that a claimed property necessarily be present. Consequently, Petitioner does not present a compelling, meritorious challenge to claim 1 as anticipated by Nishikawa.

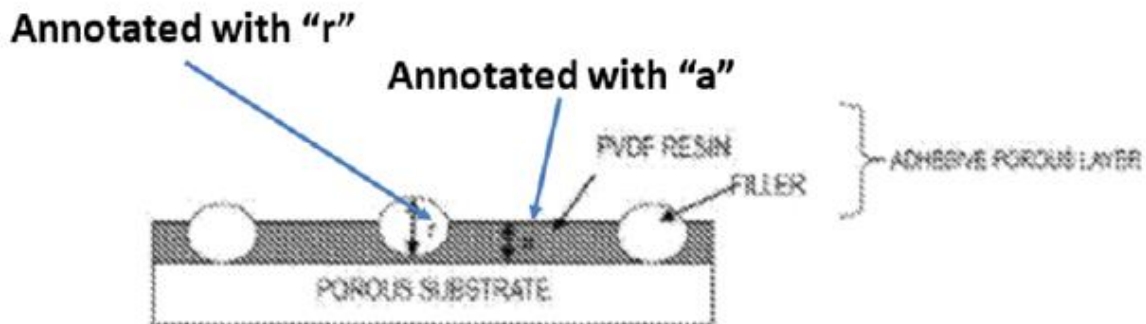
3. *Asserted Anticipation of Claim 1 by Iwai*

Petitioner's alternative challenge to independent claim 1 asserts that Iwai anticipates the claim *inter alia* "because a POSA would have recognized that, in each of Iwai's Examples 7 and Comparative Example 2 separators, a ratio of the D90 of the inorganic filler to the thickness of the porous membrane must have a value that falls within the claimed range." Pet. 45 (citing Ex. 1003 ¶¶ 156–175). Although Iwai defines D90 as a volume particle size distribution, Iwai does not explicitly state a D90 value for its filler contained in a porous layer, but, rather, states the difference between D90 and D10. Ex. 1006 ¶¶ 40, 41. According to the Petition and Dr. Gido, Iwai's separators in Example 7 and Comparative Example 2 inherently have a ratio of D90 of the inorganic particles to the thickness of the porous membrane within the claimed range. Pet. 51–52; Ex. 1003 ¶ 175. The Petition and Dr. Gido derive a value range for D90 based on Iwai's D90-D10 values to conclude that D90 must be greater than 1.6 μm and less than 2.8 μm for Example 7 and greater than 1.1 μm and less than 1.9 μm for Comparative Example 2. Pet. 45–50 (citing Ex. 1003 ¶¶ 158–173).

In order to calculate a ratio for Iwai's Example 7 and Comparative Example 2, Petitioner contends the thickness of Iwai's adhesive porous layer is 2.2 μm in Example 7 and 3.1 μm in Comparative Example 2. Pet. 48, 51 (citing Ex. 1005, Table 1; Ex. 1003 ¶¶ 165, 174). The basis for Petitioner's assertion is Table 1, which indicates these values in a column labeled "Average thickness a (μm) of adhesive porous layer." *Id.* Neither the Petition nor Dr. Gido provide any further explanation for the thickness value used.

Patent Owner responds that the Petition relies on D90 values that Iwai does not directly measure and a "thickness a" from Iwai's Table 1 that

constitutes the thickness of only Iwai’s polyvinylidene-fluoride (PVDF) resin without accounting for the “volume average particle diameter r of the filler particles that are intended to protrude from the adhesive.” Prelim. Resp. 48, 50 (citing Ex. 1003 ¶¶ 165, 174; Ex. 1006 ¶¶ 37, 43–45). Patent Owner directs us to Iwai’s disclosure that thickness “ a ” represents an average thickness of the adhesive porous layer and “ r ” represents a volume average particle diameter of the filler that is desirably larger than the thickness “ a ” of the PVDF resin to form a non-uniform adhesive porous layer having a surface roughness from 0.8 μm to 8.0 μm . *Id.* at 51–56 (citing Ex. 2001 ¶¶ 148, 150, 153, 155–157; Ex. 1006 ¶¶ 68, 170–171, Table 1, Table 2). Patent Owner illustrates the relationship between Iwai’s dimensions “ a ” and “ r ” with an annotated schematic from Iwai’s prosecution record shown below. Prelim. Resp. 51 (citing Ex. 2019, 30).



In the above schematic, a resin layer is shown in gray tone above a white layer labeled “porous substrate” with white circular shapes protruding from the resin layer that are labeled “filler.” Ex. 2019, 30. The labeled PVDF resin and filler are bracketed and labeled “Adhesive Porous Layer.” *Id.* Patent Owner annotates the schematic with arrows highlighting “ a ” and “ r .” Prelim. Resp. 51.

Thus, Patent Owner contends that the Petition relies upon an unreliable thickness value for Iwai that does not accurately reflect Iwai’s

porous layer thickness because neither the Petition nor Dr. Guido account for contributions to the overall layer thickness from the protruding filler particles of diameter “r.” *Id.* at 56–57.

In the Reply, Petitioner contends that for purposes of anticipation a POSA need only to have understood that Iwai teaches the claimed separator, that Dr. Guido explained that a POSA would, and that Dr. Guido could rebut any criticisms after institution. Reply 5.

As discussed above, “[c]ompelling, meritorious challenges are those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.” *Fintiv* Memo 4. While the Petition and Dr. Guido provide an explanation for the full range in which Iwai’s D90 necessarily would be found, the Petition and Dr. Guido identify only a single value for the adhesive porous layer thickness of Iwai’s Example 7 and Comparative Example 2. Pet. 48, 51; Ex. 1003 ¶¶ 165, 174. The Petition and Dr. Guido direct us to the average thickness “a” of Iwai’s adhesive porous layer without taking into account Iwai’s disclosure of the ratio of the average thickness layer “a” to the volume average particle diameter “r.” Iwai describes the volume average particle diameter “r” being “projected at a proper height . . . formed on a surface of the adhesive porous layer.” Ex. 1006 ¶ 43. Thus, the evidence of record purportedly mapping claim 1’s recited “thickness of the porous layer” to Iwai does not plainly lead to a conclusion that Iwai necessarily discloses to a POSA the claimed “ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in a range from 0.3 to 3.0.” Consequently, Petitioner does not present a compelling, meritorious challenge to claim 1 as anticipated by Iwai.

4. *Asserted Obviousness of Claim 10 over Nishikawa*

The Petition challenges method claim 10 of the '987 patent as obvious over Nishikawa. Pet. 30–35. Claims 11–17 depend from claim 10. Ex. 1001, 17:5–18:18. As noted above, claims 10–17 are not challenged in the parallel district court litigation.

Claim 10 of the '987 patent is reproduced below:

10. A method for preparing the separator of claim 1, wherein the method comprises steps of:

- [a] mixing inorganic particles with a binder to generate a mixture;
- [b] adding a first solvent into the mixture;
- [c] stirring the mixture with the first solvent to obtain a uniform coating solution;
- [d] coating the uniform coating solution onto a surface of a porous substrate to form a wet film;
- [e] the coating solution is in a range from 7% to 25%; and
- [f] wherein a ratio of Dv90 of the inorganic particles to the thickness of the porous layer is in a range from 0.3 to 3.0.

Ex. 1001, 16:59–17:4 (bracketed labeling of the recited steps added).

Petitioner asserts *inter alia* that Nishikawa's disclosure of a mixed solvent containing dimethylacetamide (DMAc) discloses the claimed "first solvent," and that stirring Nishikawa's mixed solvent together with a resin and an inorganic filler would obtain "a uniform coating solution" as required by claim 10's steps [a] through [c]. Pet. 30–32 (citing Ex. 1003 124–128; Ex. 1005, 22:26–33, 22:46–51). Petitioner points out that Nishikawa's DMAc is one of the solvents disclosed in the '987 patent. *Id.* at 31 (citing Ex. 1001, 2:35–38). The portion of the '987 patent that Petitioner directs us to states "the first solvent is one or more independently selected from the

group consisting of N-methylpyrrolidone (NMP), dimethylacetamide (DMAC) and dimethylformamide (DMF).” Ex. 1001, 2:35–38.

Regarding the “uniform coating solution,” Petitioner asserts that Nishikawa teaches that it is favorable for the heat resistant porous layer formed from the coating slurry to have uniform minute pores, therefore a POSA would have recognized that uniformity in the coating slurry would lead to the desired uniformity in the heat resistant porous layer and would have known how to achieve such uniformity. Pet. 33 (citing Ex. 1003 ¶¶ 127–128). For step [f], the ratio of Dv90 of the inorganic particles to the thickness of the porous layer, Petitioner relies on the same analysis of Nishikawa discussed above for claim 1.

Patent Owner responds that Nishikawa does not teach using a single DMAc solvent, but rather a mixed solvent of 50/50 DMAc/tripropylene glycol (“TPG”), and that a POSA would not understand using a single solvent, as Petitioner argues, would result in the same or equivalent coating slurry, porous layer, and separator properties of Nishikawa’s Examples 4 and 5. Prelim. Resp. 41–42. Patent Owner directs us to Nishikawa’s disclosure that its solvent is made up of 50% TPG by weight, which is a poor solvent that results in an irregular phase structure, not to the formation of a uniform coating solution required by claim 10. *Id.* at 43–44 (citing Ex. 1005, 11:1–5; Ex. 2001 ¶¶ 130–133).

In the Reply, Petitioner asserts that there is no basis on which to reject Nishikawa’s “mixed solvent” as meeting claim 10’s “first solvent.” Reply 5.

In addition to the lack of support in the record for the Petition and Dr. Gido’s assumption that the porous layer thicknesses of Examples 4 and 5 are the same as the porous layer thickness of Example 1 discussed above in connection with the anticipation challenge of claim 1, the cited record does

not plainly support Petitioner’s assertion that Nishikawa teaches or suggests claim 10’s recited “uniform coating solution.” The Petition acknowledges that Nishikawa teaches a mixed solvent containing DMAc and TPG to provide a coating slurry. Pet. 31; Ex. 1003 ¶ 64; Ex. 1005, 22:26–33 (Example 4), 22:46–51 (Example 5). Nishikawa teaches that the solvent mixture includes a polar solvent (DMAc preferred) and a poor solvent (such as TPG) that “induces a microscopic phase separation structure to facilitate formation of pores upon providing the heat resistant porous layer.” Ex. 1005, 11:1–5. The Petition does not sufficiently explain why such a phase separation structure produced by Nishikawa’s mixed solvent meets claim 10’s recited “uniform coating solution.” Consequently, Petitioner does not present a compelling, meritorious challenge to claim 10 as obvious over Nishikawa’s teachings.

5. Summary

Based on the preliminary record, Patent Owner has raised substantial issues with Petitioner’s analysis of challenged independent claims 1 and 10, so that even if we were to determine that Petitioner met the lower threshold for instituting an *inter partes* review, the evidence does not plainly support Petitioner’s position at this stage. Thus, we determine that Petitioner has not presented a “compelling, meritorious challenge[]” to any claim of the ’987 patent. *See Fintiv* Memo, 4. Accordingly, we find that the sixth *Fintiv* factor does not weigh against discretionary denial.

G. Balancing the *Fintiv* Factors

We have considered the circumstances and facts before us in view of the *Fintiv* factors. We take “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review” when evaluating these factors. *Fintiv*, Paper 11 at 6; *Fintiv* Memo. As

discussed above, only factor 4 weighs against discretionary denial, factor 1 is neutral, and factors 2, 3, and 5 weigh in favor of discretionary denial of institution, with factors 2 and 3 weighing heavily in favor. Moreover, Petitioner has not submitted a *Sotera*-type stipulation that would make discretionary denial inappropriate under the *Fintiv* Memo, and likewise, the Petition does not show compelling evidence of unpatentability under factor 6.

Given the late stage of the parallel district court litigation, the substantial investment by the parties in that proceeding, and the lack of strong countervailing considerations, including the absence of compelling merits in the Petition, the evidence of record favors exercising our discretion to deny institution of an *inter partes* review.

IV. CONCLUSION

Upon consideration of the Petition, the Preliminary Response, the Reply, the Sur-Reply, and the evidence presented, we exercise our discretion under 35 U.S.C. § 314(a) to deny institution of an *inter partes* review challenging claims 1–17 of the '987 patent.

V. ORDER

For the foregoing reasons, it is hereby:

ORDERED that the Petition is *denied*, and no trial is instituted.

IPR2023-00587
Patent 10,964,987 B2

FOR PETITIONER:

Michele Bosch
Joshua Goldberg
Grace Klock Mills
Daniel Klodowski
Anthony Hartmann
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP
michele.bosch@finnegan.com
joshua.goldberg@finnegan.com
gracie.mills@finnegan.com
daniel.klodowski@finnegan.com
anthony.hartmann@finnegan.com

FOR PATENT OWNER:

Christopher Douglas
Nicholas Choi
ALSTON & BIRD LLP
christopher.douglas@alston.com
nick.choi@alston.com