

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CANADIAN SOLAR INC.,
Petitioner

v.

MAXEON SOLAR PTE. LTD.,
Patent Owner

Case IPR2024-01040
U.S. Patent No. 8,878,053

**PATENT OWNER PRELIMINARY RESPONSE
UNDER 37 C.F.R. § 42.107(a)**

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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	<i>Intentionally Left Blank</i>
2002	<i>Intentionally Left Blank</i>
2003	Gan, Jon-Yiew, Polysilicon emitters for silicon concentrator solar cells, Stanford University (July 1990) (“Gan Thesis”)
2004	Results charted from DocketNavigator.com Document Search, run on October 8, 2024, for Motion to Stay Pending <i>Inter Partes</i> Review Decided by Judge Rodney Gilstrap
2005	Results charted from DocketNavigator.com Document Search, run on October 8, 2024, for Motion to Stay Pending <i>Inter Partes</i> Review Decided by Judge Rodney Gilstrap with “Stipulated/Agreed” Motions Removed
2006	Federal Court Management Statistics (June 30, 2024)
2007	Order Denying Maxeon Partial Motion to Dismiss (Dkt. 26), <i>Maxeon Solar Pte. Ltd. v. Canadian Solar, Inc.</i> , Case No. 2:24-cv-00210-JRG (E.D. Tex.), July 3, 2024
2008	Docket Control Order (Dkt. No. 33), <i>Maxeon Solar Pte. Ltd. v. Canadian Solar, Inc.</i> , Case No. 2:24-cv-00210-JRG (E.D. Tex.), August 7, 2024
2009	Canadian Solar Inc.’s Invalidity Contentions, <i>Maxeon Solar Pte. Ltd. v. Canadian Solar, Inc.</i> , Case No. 2:24-cv-00210-JRG (E.D. Tex.), Sept. 6, 2024
2010	Feldman, et al., “A Passivated Rear Contact for High-Efficiency n-Type Silicon Solar Cells Enabling High VocS and FF > 82%” (28th European PV Solar Energy Conference & Exhibition, Paris, Sept. 30 – Oct. 4, 2013) (“Feldman”)

Exhibit No.	Description
2011	Chieh-Wa Tsai, et. al, <i>Patent Analysis of High Efficiency Tunneling Oxide Passivated Contact Solar Cells</i> , 13 Energies 3060 (2020)
2012	File History of U.S. Patent No. 8,222,516
2013	File History of U.S. Patent Application No. 17/870,268
2014	<i>Intentionally Left Blank</i>
2015	<i>Intentionally Left Blank</i>
2016	<i>Intentionally Left Blank</i>
2017	<i>Intentionally Left Blank</i>
2018	<i>Intentionally Left Blank</i>
2019	U.S. Patent No. 8,222,516 to Cousins

I. INTRODUCTION

The Board should deny Petitioner Canadian Solar Inc.’s (“CSI”) Petition for *inter partes* review, which challenges claims 9 through 20 (the “Challenged Claims”) of U.S. Patent No. 8,878,053 (“the ’053 patent”). CSI bears the burden to show the Challenged Claims are unpatentable, and has not met that burden here. CSI’s Petition asserts obviousness combinations using references that disclose contradictory, and, in many cases, unworkable teachings. Moreover, CSI’s generic and conclusory motivation-to-combine and reasonable-expectation-of-success arguments permeate the Petition, and fail to reconcile the differences in the asserted art, exposing CSI’s failure to carry its burden to show that any of the Challenged Claims are unpatentable. And, recognizing weaknesses in its asserted grounds, CSI attempts to shortcut this burden by improperly relying on Board decisions in *ex parte* appeals that are related to different claims and different asserted combinations. This is a transparent attempt to influence the Board’s perception of the flawed arguments in CSI’s Petition.

First, CSI fails to establish a reasonable likelihood of showing that any of the asserted prior art combinations would have rendered the Challenged Claims obvious. In each of its asserted grounds, CSI relies on conclusory, unsupported arguments in an attempt to show the Challenged Claims are unpatentable. CSI’s theory of unpatentability relies on a combination premised on replacing

Froitzheim's emitter with a polysilicon emitter and an oxide layer, but CSI fails to provide adequate motivations to combine Gan or Kwark with Froitzheim, or show that a Skilled Artisan would have had a reasonable expectation of success in making such combinations. The Petition falls well short of meeting CSI's burden of identifying with particularity how each of the Challenged Claims is allegedly unpatentable. CSI's burden cannot be met by simply submitting evidence and leaving it to the Board to determine a cogent theory of unpatentability.

Second, CSI improperly seeks to persuade the Board that prior Board decisions in *ex parte* appeals of two later-filed continuation applications of the '053 patent counsel for a finding of unpatentability here. CSI does not go so far as asserting that Patent Owner Maxeon Solar Pte. Ltd. ("Maxeon") is collaterally estopped from defending the Challenged Claims based on these prior decisions (as CSI asserted in its related petition, IPR2024-01039). Regardless, CSI has not shown that the issues, claims, and prior art in those *ex parte* appeals are the same as those in this IPR, or that Maxeon had a full and fair opportunity to litigate any issues relevant to the validity of the '053 patent in those *ex parte* proceedings. CSI's reliance on those proceedings is an attempt to shortcut its burden in this proceeding. But this is improper and ultimately dooms the Petition, as CSI fails to provide the requisite analysis to demonstrate unpatentability of the Challenged Claims.

Third, the *Fintiv* factors weigh in favor of exercising discretion to deny institution under 35 U.S.C. § 314(a). CSI's Petition does not present a compelling unpatentability challenge that would otherwise warrant institution.

Accordingly, Maxeon respectfully requests that the PTAB deny institution of this IPR and preserve the judicial resources of the PTAB and the parties.

II. OVERVIEW

A. The '053 Patent

The '053 patent discloses and claims a novel method of fabricating a tunnel oxide passivated contact (i.e., "TOPCon") solar cell. As illustrated in one embodiment, the solar cell 100 has a front side facing the sun during normal operation to collect solar radiation and a backside opposite the front side:

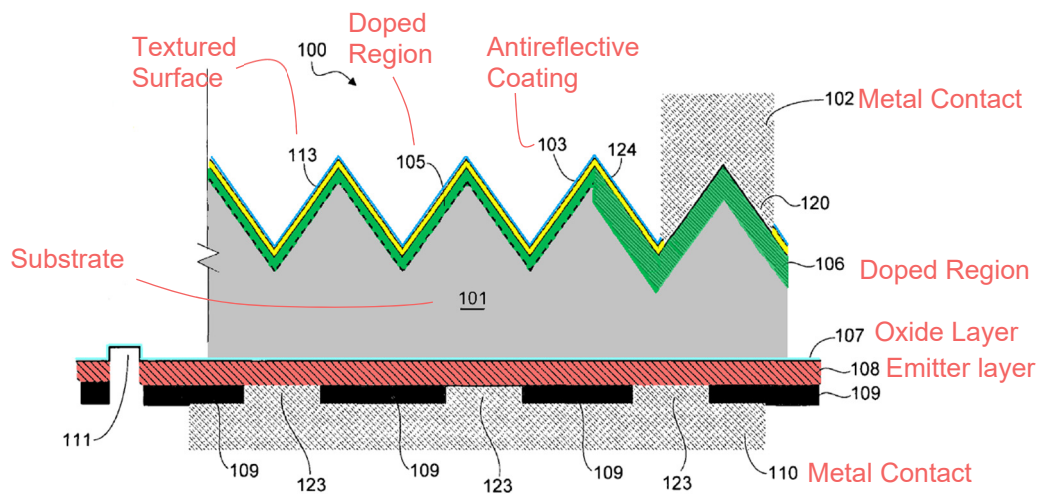


FIG. 1

EX1001, FIG. 1 (annotated).

EX1001, 2:31-34, FIG. 1. The solar cell additionally has a substrate 101 with a textured surface 113, *id.*, 2:35-38, 2:43-45, an antireflective layer 103 over the

textured front surface of the substrate, *id.*, 2:59-60, and a metal contact 102 electrically connected to the front side of the substrate, *id.*, 2:31-33. The solar cell further has an emitter layer 108 over a back surface of the substrate, *id.*, 2:35-38, and a metal contact 110 electrically connected to the emitter layer, *id.*, 2:66-3:2. Critically, the solar cell has a “tunnel” oxide layer 107 between the substrate and emitter layer. *Id.*, 2:57-58. The ’053 patent discloses that the tunnel oxide layer “may comprise silicon dioxide thermally grown to a thickness of about 10 to 50 Angstroms on the backside surface of the substrate 101.” *Id.*, 3:4-9.

The term TOPCon appears to have been coined by researchers at the Fraunhofer Institute for Solar Energy Systems (ISE) in 2013. *See* EX2010. SunPower Corporation (the predecessor to Maxeon) (“SunPower”), however, had designed and patented technology covering a front contact solar cell with an oxide layer years before the “TOPCon” moniker was ever used. *See, e.g.*, EX2019 (U.S. Patent No. 8,222,516 (“the ’516 patent,” parent to the ’053 patent)). In 2020, a group of researchers conducted a patent landscape report related to TOPCon technology and found that “SunPower is the earliest patent assignee among the top six companies” who own the most TOPCon patents, and that SunPower’s “early patents might be the parent applications of the initial structure of the TOPCon solar cell.” EX2011, 10; *see also id.*, FIG. 8 (reproduced below).

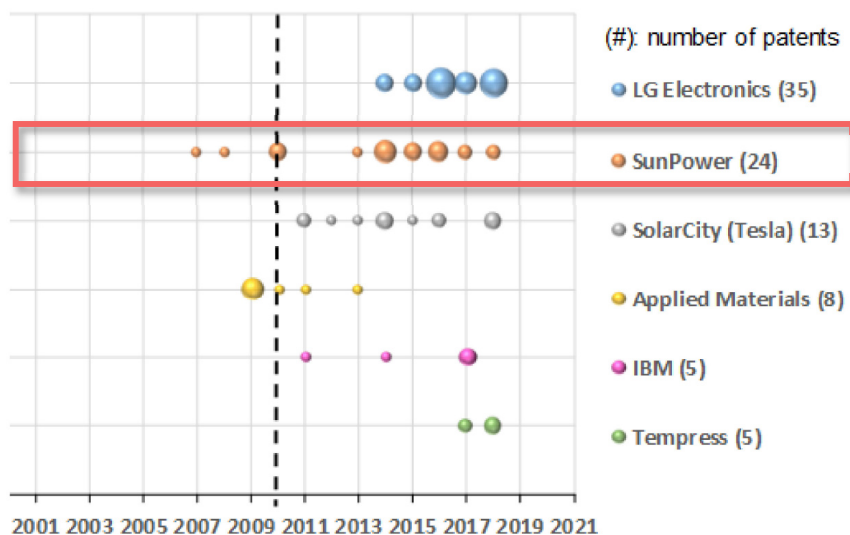


Figure 8. Timeline of technology development of major patent assignees.

EX2011, FIG. 8 (red box added).

Figures 4A-4M of the '053 patent disclose a process for fabricating the solar cell shown in Figure 1, in accordance with an exemplary embodiment of the '053 patent's invention. EX1001, 2:12-14. The process begins by etching an N-type silicon substrate 101 to remove damage and contamination, at which point a tunnel oxide 107 may be disposed on a backside of the substrate. *Id.*, 3:59-4:5. A layer of polysilicon is then disposed on tunnel oxide 107. *Id.*, 4:8-13. A P-type dopant layer (e.g., a borosilicate glass "BSG" layer) is formed on the polysilicon layer. *Id.*, 4:14-21. An N-type dopant layer is then formed on a front side of the substrate. *Id.*, 4:42-50. Both of these dopants are driven in via an annealing step. *Id.*, 4:60-66. Finally, masking oxides are deposited and metal contacts are formed on the device. *Id.*, 5:36-45, 5:56-6:4.

B. The '053 Patent Prosecution History and Related Applications

During prosecution of the '053 patent's parent application (i.e., the '516 patent), the Examiner issued a restriction requirement between the claims “drawn to a solar cell” and those “drawn to a method of making a solar cell.” EX2012, 61. SunPower elected the solar cell claims for the '516 patent and filed a divisional application to pursue the method claims challenged here. EX1002. The '053 patent issued after the Examiner determined that “[t]he prior art of record lacks the instantly claimed backside junction formed at the interface of a first material of a silicon substrate comprising one dopant type and a second material of a polysilicon layer of an opposite dopant type.” *Id.*, 250.

After allowance of the '053 patent, three continuations were filed seeking additional claims of varying scope:

- U.S. Patent Application No. 14/504,771 (“the '771 application”), filed October 2, 2014, claiming “a doped diffusion region in the substrate” and “a front electrode that is coupled to the doped diffusion region on the front surface of the substrate.” EX1005, 470. This application was abandoned after an appeal of the Examiner’s decision to the Board. *Id.*, 506-520, 522.
- U.S. Patent Application No. 16/460,035 (“the '035 application”), filed July 2, 2019, claiming “a plurality of dot-shaped N-type doped

regions in the N-type silicon substrate under the antireflective layer, each of the plurality of dot-shaped doped regions having a dot shape as seen from a plan view of the solar cell” and “a first metal contact disposed on the front surface of the N-type silicon substrate, wherein the first metal contact is in electrical contact with the plurality of dot-shaped N-type doped regions.” EX1018, 235. This application was abandoned after an appeal of the Examiner’s decision to the Board. *Id.*, 285-293, 295.

- U.S. Patent Application No. 17/870,268 (“the ’268 application”), filed July 21, 2022, filed with claims directed towards a solar cell including a dielectric layer. EX2013, 25-27. The ’268 application is currently under examination. *Id.*, 287-304 (a Final Rejection was issued September 16, 2024).

III. PERSON OF ORDINARY SKILL IN THE ART

CSI and its declarant, Dr. Sanjay Banerjee, assert that the “person of ordinary skill in the art in the 053 Patent’s field of solar cell design or manufacture in the [sic] 2008 (‘Skilled Artisan’) would have been someone with an advanced degree involving the discipline of electrical engineering, applied physics, chemistry, or materials science, and at least two years of experience designing, developing, or researching in the field.” Pet., 4; EX1003, ¶45. CSI also asserts,

alternatively, that the Skilled Artisan “would have had a bachelor’s degree in electrical engineering, applied physics, or materials science, and at least three years of experience designing, developing, or researching in the field.” *Id.* For the purposes of this Preliminary Response, Maxeon applies CSI’s level of ordinary skill.

IV. CLAIM CONSTRUCTION

CSI contends “the term ‘in situ’ in dependent claim 15 is appropriate for construction because it is defined in the 053 Patent,” Pet., 20, but CSI then fails to provide an express construction for that term. Rather CSI proffers that “‘in situ’ refers to *processing* that occurs after a single manual loading of the substrate into a furnace or other single chamber or multi-chamber processing tool.” Pet., 56.¹ But in the parallel district court litigation, CSI advocates for an additional limitation on what constitutes the claimed “in-situ” processing, namely that it covers only “in situ” diffusion and not “in-situ” doping. EX2009, 79.

Because this term is in a dependent claim, construction is not necessary to resolve the issues presented at institution.² *Nidec Motor Corp. v. Zhongshan Broad*

¹ Emphasis added throughout unless otherwise indicated.

² Patent Owner reserves the right to address claim construction in the event the Board institutes IPR.

Ocean Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe 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))).

However, it is clear that CSI intends to argue a different construction for the “in situ” term depending on the forum. For example, claim 15 recites “wherein the diffusion of dopants from the first dopant source layer to the layer of polysilicon . . . [is] performed in situ.” EX1001, 7:14-17. For Grounds 3 and 4, the reference CSI relies on to teach the layer of polysilicon only discloses “in-situ” doping of that layer (and not “in-situ” diffusion). *See* Pet. 61 (pointing to Kwark’s polysilicon emitter); EX1008, 743 (“In order to establish unambiguous results for a relatively oxygen free film, POLY films doped in situ . . . were used.”). CSI’s gamesmanship on this point supplies ample reason for the Board to exercise its discretion to deny the Petition in order to prevent inconsistent outcomes between the Board and the parallel litigation. *See* Guidance Memo,³ 1 (noting concerns

³ Director’s Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022) (“Guidance Memo”), available at <https://www.uspto.gov/sites/default/files/>

underlying the Director’s Guidance include the “potential for inefficiency and gamesmanship” in parallel proceedings); *KioSoft Techs., LLC v. PayRange Inc.*, IPR2021-00086, Paper 12 at 14-16 (PTAB March 22, 2021) (denying institution under *Fintiv*, in part, because of petitioner’s inconsistent claim construction positions in the two forums).

V. THE PETITION FAILS TO ESTABLISH A REASONABLE LIKELIHOOD OF PREVAILING ON ANY CHALLENGED CLAIM.

In an IPR, “the burden of proving a proposition of unpatentability” is borne by (and remains at all times with) the petitioner. 35 U.S.C. §§ 314(a), 316(e); *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1375 (Fed. Cir. 2016). To satisfy that burden, a petitioner must “articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness”—“mere conclusory statements” will not suffice. *Magnum Oil*, 829 F.3d at 1380. Indeed, “[i]t is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (quoting 35 U.S.C. § 312(a)(3)); *see also Parus Holdings, Inc. v. Google LLC*, 70 F.4th 1365, 1371

documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigati
on_memo_20220621_.pdf.

(Fed. Cir. 2023) (noting that a party’s burden “cannot be met simply by throwing mountains of evidence at the Board without explanation or identification of the relevant portions of that evidence.”).

“An obviousness determination requires finding that [a Skilled Artisan] would have been motivated to combine or modify the teachings in the prior art *and* would have had a reasonable expectation of success in doing so.” *Regents of the Univ. of Cal. v. Broad Inst., Inc.*, 903 F.3d 1286, 1291 (Fed. Cir. 2018); *Intelligent Bio-Sys.*, 821 F.3d at 1367– 68; *see also, e.g., NJOY, LLC v. JUUL Labs, Inc.*, IPR2024-00536, Paper 17 (PTAB Aug. 12, 2024) (denying institution where petitioner did not show a reasonable expectation of success in combining the asserted references); *Honeywell Int’l, Inc. v. DSM IP Assets, B.V.*, IPR2024-00493, Paper 7 (PTAB Aug. 21, 2024) (same).

CSI’s Petition asserts six grounds of unpatentability⁴ against the Challenged Claims, each based on combining the teachings of Froitzheim (EX1001) with either Gan (EX1007) or Kwark (EX1008), with or without Hartiti (EX1012) or Sivoththaman (EX1013). Pet., 4. As explained below, CSI has not satisfied its burden with respect to *any* of its obviousness grounds. In particular, CSI’s theory

⁴ CSI’s Grounds 2 and 4 include alternatives, adding Hartiti *or* Sivoththaman, resulting in six (not four) grounds actually presented. Pet., 4.

of unpatentability relies on a combination premised on replacing Froitzheim's emitter with a polysilicon emitter and an oxide layer, but CSI fails to provide adequate motivations to combine Gan or Kwarck with Froitzheim, or show that a Skilled Artisan would have had a reasonable expectation of success in making such combinations. So the Board should deny institution.

A. Grounds 1 and 2: CSI fails to show that a Skilled Artisan would have had a reasonable expectation of success to incorporate Gan's "oxide layer" into Froitzheim.

CSI fails to meet its burden to show that a Skilled Artisan would have had a reasonable expectation of success in combining Gan with Froitzheim in the manner CSI contends to arrive at the claimed invention.

As an initial matter, claim 9 does not include the oxide layer recited in claim 16. *Compare* EX1001, 6:52-54, *with id.*, 7:19-22. Yet CSI's obviousness theory for Grounds 1 and 2⁵ is premised on the contention that a "Skilled Artisan would have replaced the p-type *diffused* in-substrate emitter of Froitzheim with a p-type

⁵ CSI incorporates the same arguments that it makes for independent claims 9 and 16 in Ground 1 into Ground 2. *See* Pet., 47, 54. Thus, Ground 2 fails for at least the same reasons as Ground 1. CSI does not rely on Hartiti or Sivoththaman, asserted in Ground 2, in any way that cures the deficiencies of CSI's arguments for the independent claims. *See* Pet., 47-57.

deposited *polysilicon* emitter and an interfacial oxide layer, as taught by Gan.”

Pet., 28 (emphasis in original); *see id.*, 28-46.

As Petitioner, CSI “is master of its complaint.” *SAS Inst., Inc. v. Iancu*, 584 U.S. 357, 363 (2018). CSI bears the burden to show obviousness of the Challenged Claims based on the theory it chooses to present. *Magnum Oil*, 829 F.3d at 1375. This includes showing that a Skilled Artisan would have had a reasonable expectation of success in combining the references in the manner asserted. *Regents of the Univ. of Cal.*, 903 F.3d at 1291; *Intelligent Bio-Sys.*, 821 F.3d at 1367–68; *see also, e.g., NJOY, LLC*, IPR2024-00536, Paper 17; *Honeywell Int’l*, IPR2024-00493, Paper 7.

CSI has not met that burden here. Rather, CSI’s argument for reasonable expectation of success is expressly contradicted by the authors of Gan. In particular, CSI’s claim that “[c]ombining Froitzheim/Gan as described [in the Petition] would have been well within the level of ordinary skill in the art” and involved “simple substitution of one known element and corresponding fabrication steps for another to obtain predictable results,” Pet., 34, is both inconsistent with the teachings in the art and unsupported.

For example, Gan Thesis contradicts CSI’s claim that its combination is “simply ... the combination of well-known prior art steps in solar cell fabrication to yield predictable results.” Pet., 34. Instead of supporting CSI’s theory, Gan

Thesis catalogs a variety of failures, including a “non-reliable oxide-growth recipe [giving] rise to the mishap of [their] solar-cell runs” and that thickness variations may have resulted from oxidation proceeding at unexpected times (e.g., “when the furnace was still at the ramp-up stage” or during a “stand-by period” prior to the polysilicon deposition step). EX2003,⁶ 111-12. Gan Thesis also teaches that even “[w]ith the same oxidation schedule, a wide variation of oxide thicknesses have been found for different times.” *Id.*, 117. Clearly, Gan Thesis provides no assurances that a consistent oxide layer thickness could be achieved and instead suggests “a more reliable way of growing the thin oxide is needed.” *Id.*, 119. Rather, Gan Thesis confirms that, contrary to CSI’s contentions, a Skilled Artisan would not have understood substituting Gan’s oxide layer into Froitzheim’s solar cell to be a “simple substitution” yielding predictable results. Thus, CSI fails to carry its burden to show a Skilled Artisan would have had a reasonable expectation of success in incorporating the oxide layer from Gan into Froitzheim.

Further, CSI cites Dr. Banerjee’s testimony as proffered support for its contention that the combination would yield predictable results. *See* Pet., 34 (citing

⁶ Gan Thesis includes a more in-depth discussion of the experiment described in the cited Gan reference (*see, e.g.*, EX2003, 70-106 (Chapter 5)), and provides significantly more details about its theory, experiment, and conclusions.

EX1003, ¶¶104-105). But the cited paragraphs do not support CSI's argument.

They relate to the teachings of Kwark and Borden, not to the expectation of success in combining Gan with Froitzheim. Thus, CSI's reasonable expectation of success arguments fail not only on the merits because they are contradicted by teachings in the art, but also are unsupported by expert testimony. *Magnum Oil*, 829 F.3d at 1380; *Intelligent Bio-Sys.*, 821 F.3d at 1369.

For these reasons, CSI fails to meet its burden of showing a reasonable likelihood of prevailing as to claims 9 and 16. Claims 10-15 and 17-20 depend from claims 9 and 16, respectively, and thus, CSI also fails to meet its burden as to these claims.

B. Grounds 3 and 4: CSI fails to show a Skilled Artisan would have been motivated to combine Froitzheim and Kwark and have a reasonable expectation of success in doing so.

CSI also fails to meet its burden to show that a Skilled Artisan would have been motivated to combine Kwark with Froitzheim to arrive at the claimed invention, and that they would have had a reasonable expectation of success in doing so.

As noted above, claim 9 does not include the oxide layer recited in claim 16. *Compare* EX1001, 6:52-54, *with id.*, 7:19-22. Yet CSI's obviousness theory for

Grounds 3 and 4⁷ is premised on the contention that a “Skilled Artisan would have been motivated to modify Froitzheim’s emitter to be a polysilicon emitter with an oxide layer because Kwark taught and suggested that this modification would be an improvement transferable to solar cells.” Pet., 58.

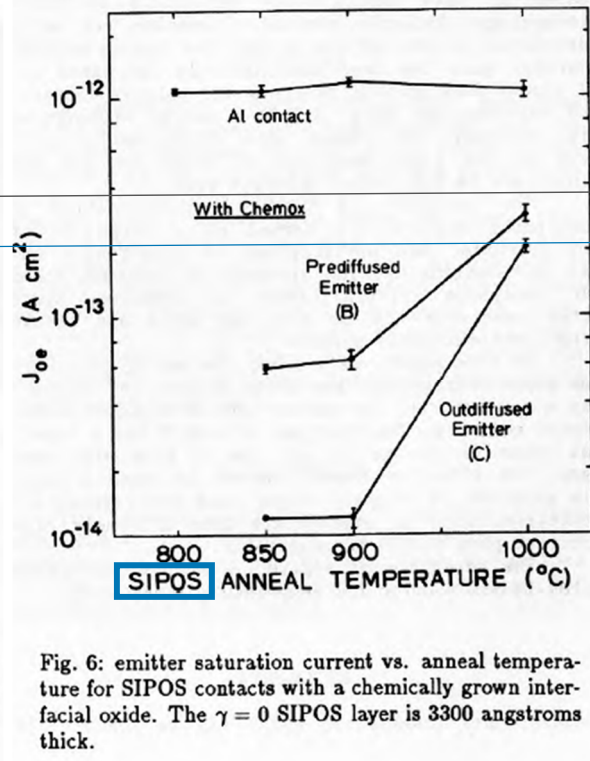
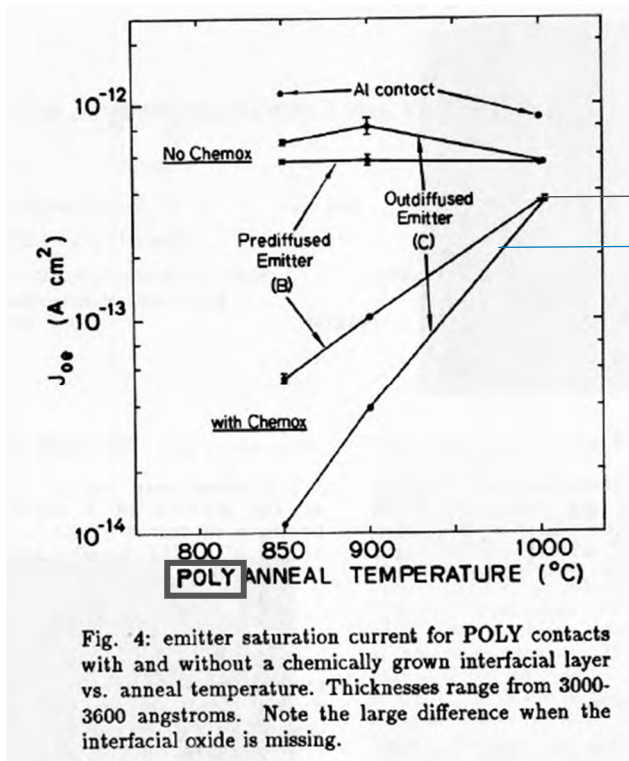
Again, as Petitioner, CSI “is master of its complaint.” *SAS Inst.*, 584 U.S. at 363. Thus, CSI bears the burden to show obviousness of the Challenged Claims based on the theory it chooses to present. *Magnum Oil*, 829 F.3d at 1375. This includes showing that a Skilled Artisan would have had a reasonable expectation of success in combining the references in the manner asserted. *Regents of the Univ. of Cal.*, 903 F.3d at 1291; *Intelligent Bio-Sys.*, 821 F.3d at 1367–68; *see also, e.g., NJOY, LLC*, IPR2024-00536, Paper 17; *Honeywell Int’l*, IPR2024-00493, Paper 7. CSI has not met its burden of showing either here.

Contrary to CSI’s claim, Kwark does not teach that “modify[ing] Froitzheim’s emitter [(i.e., a diffused in-substrate emitter)] to be a polysilicon

⁷ CSI incorporates the same arguments that it makes for independent claims 9 and 16 in Ground 3 into Ground 4. *See* Pet., 64-65. Thus, Ground 4 fails for at least the same reasons as Ground 3. CSI does not rely on Hartiti or Sivohthaman, asserted in Ground 4, in any way that cures the deficiencies of CSI’s arguments for the independent claims. *See* Pet., 64-65.

emitter with an oxide layer” “would be an improvement.” Pet., 58 (citing EX1003, ¶162). In fact, Kwark makes no mention of diffused in-substrate emitters at all, let alone suggesting any improvement thereto. Moreover, Kwark only analyzed polysilicon emitters to test its hypothesis that “lower oxygen content SIPOS^[8] films” could be used in “VLSI bipolar devices and high concentration point contact solar cells.” EX1008, 742. CSI incorrectly attributes the “potential improvements” and “good results” that Kwark found for SIPOS emitter contacts to a polysilicon emitter. *See id.* (“Incorporation of [SIPOS] films into the emitter structure of an NPN bipolar transistor had been found to reduce the emitter saturation current fifty fold (3); this translates into potential improvements of energy conversion efficiency for solar cells”), (“That the $\gamma=0$ films [(aka $\gamma = 0$ SIPOS contacts)] produced such good results was surprising since POLY films of comparable thickness should yield a J_{oe} an order of magnitude larger.”). In particular, Kwark showed that in the “SIPOS contact structure[,] . . . the increase in J_{oe} at higher temperature is not as severe as for the devices in Fig. 4,” which shows the polysilicon emitter.” *Id.*, 743, FIGs. 4, 6 (below).

⁸ Semi-Insulating Polycrystalline Silicon



EX1008, 745, FIGs. 4, 6 (annotated).

In other words, Kwark recognized that polysilicon emitters with a chemical oxide (“Chemox”) rapidly lose performance in saturation current density after high temperature anneal steps (whereas the SIPOS was more resilient).

As further support of this understanding of Kwark, we can look to Gan. Gan, which published later than Kwark and meticulously studied the effects of annealing on an interfacial oxide layer (such as Kwark’s chemox layer), concludes that such a high temperature annealing step actually *breaks down* the oxide layer. EX1007, 245. Gan, for example, teaches that the “thin oxide (interfacial oxide)” found “between the polysilicon and the substrate” in a high speed bipolar transistor “is *not thermally stable*; i.e., it tends to break up during high temperature anneals.”

EX1007, 245.

In fact, Figure 4 of Kwark is entirely consistent with Gan, showing that higher temperature annealing *eliminates* the effects of the oxide. EX1008, 745. Thus, by the 2008 priority date of the '053 patent, a Skilled Artisan would have been well aware that modifying Froitzheim based on Kwark's method of forming a polysilicon emitter, disposing a chemox layer, and then annealing the device at high temperature, would *not* result in a device having an oxide layer disposed between substrate and a polysilicon emitter layer and would not have been motivated to combine Kwark with Froitzheim.

Moreover, CSI's motivation to combine argument is not supported by the testimony it cites. *See* Pet. 58 (citing EX1003, ¶162). The proffered testimony is unrelated to Kwark's alleged teaching that it "would be an improvement" to modify Froitzheim's emitter in the manner CSI's suggests. Rather, it relates to Hartiti or Sivoththaman's alleged teachings of an "in-situ" step. Thus, in addition to being insufficient on the merits, CSI's motivation to combine claim is wholly unsupported by its declarant.

CSI also fails to meet its burden with regard to reasonable expectation of success. Here, again, the cited paragraphs do not support the contentions for which they are relied upon. *See* Pet., 60 (citing EX1003, ¶¶164-165). The proffered testimony is unrelated to reasonable expectation of success, instead providing a

general introduction to the Froitzheim/Kwark ground and discussing whether Froitzheim and Kwark are analogous art. CSI's argument regarding a reasonable expectation of success is, thus, unsupported by expert testimony. But, as discussed, it is also insufficient on the merits.

As explained above, Gan teaches that Kwark's chemox layer break down after high temperature annealing. EX1007, 245. Gan Thesis explains further and conclusively demonstrates that CSI's argument is ill-founded and incorrect. Gan Thesis specifically looked at Figure 4 from Kwark (Figure 3.6 in Gan Thesis) and explained how Kwark's findings were consistent with its own, namely, that "[t]he rapid increase of J_o upon the anneal temperature is due to the breakup of the interfacial oxide." *See* EX2003, 33-34, FIG. 3.6 (annotated below).

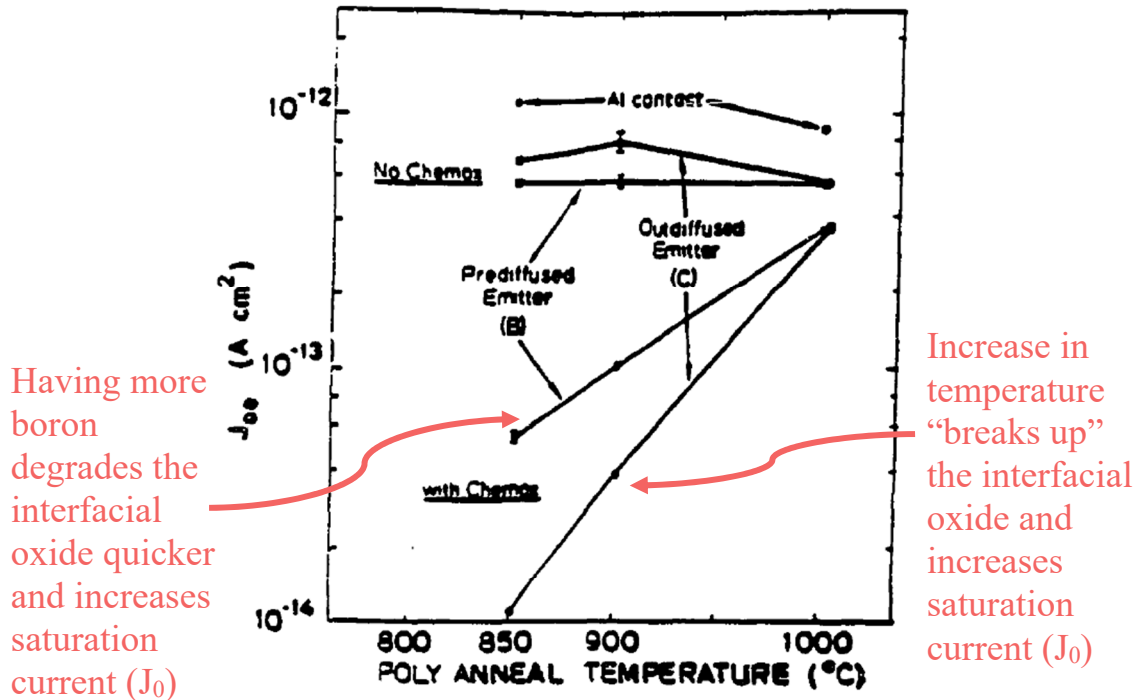


Figure 3.6: $J_{0,e}$ for n-type polysilicon emitters with and without a chemically grown interfacial oxide.

EX2003, FIG. 3.6 (annotated).

Gan Thesis also examined the impact that dopant type (n-type or p-type) has on interfacial oxide layers and found that “boron [(p-type)] degrades the oxide interface more rapidly than phosphorus” (n-type), which is why the Prediffused Emitter B has a higher J_0 . EX2003, 37. Ultimately, Gan Thesis found “that the interface quality of the chemical oxide [(the process disclosed in Kwark)] is not good enough to make the p-type polysilicon SIS emitter with low J_0 .” EX2003, 70-71; *see also id.*, 78 (“[T]he high emitter recombination of as-deposited samples can be entirely attributed to the high interface defect state density of such a thin

chemical oxide.”). Accordingly, contrary to CSI’s conclusory and unsupported claims, Gan Thesis clearly shows that a Skilled Artisan would *not* have had a reasonable expectation of success to combine the p-type polysilicon emitter and chemox-formed interfacial oxide layer disclosed in Kwark with Froitzheim. CSI fails to carry its burden to show otherwise.

For these reasons, CSI fails to meet its burden of showing a reasonable likelihood of prevailing as to claims 9 and 16. Claims 10-15 and 17-20 depend from claims 9 and 16, respectively, and thus, CSI also fails to meet its burden as to these claims.

VI. THE BOARD’S *EX PARTE* APPEAL DECISIONS IN CONTINUATION APPLICATIONS HAVE NO BEARING ON THIS IPR.

CSI alleges that in *ex parte* appeal proceedings for continuation applications stemming from the ’053 patent, the Board already determined that it would have been “obvious to modify a back junction solar cell with a polysilicon emitter with an interfacial oxide layer,” and that the Board should likewise find the same here. *See* Pet., 67-70 (citing EX1005 (’771 application file history); EX1018 (’035 application file history)).

The Board’s prior findings, however, have no bearing on this proceeding. First, CSI does not go so far as allege that Maxeon is collaterally estopped in this IPR, and in any event, such collateral estoppel does not apply to *ex parte* appeal

decisions. Second, none of the combinations asserted here or the Challenged Claims were at issue in the *ex parte* appeal decisions discussed by CSI. Third, CSI retains the burden *in this proceeding*, regardless of what the Board found in prior proceedings.

The Board should reject CSI's attempt to bypass the required showing of obviousness, and instead review CSI's contentions based on the evidence of record in this proceeding and on CSI's explanation thereof. *See SAS Inst.*, 584 U.S. at 363 (petitioner "is master of its complaint"); 37 C.F.R. § 42.22(a)(2) (petitioner "must include . . . [a] full statement of the reasons for the relief requested, including a detailed explanation of the significance of the evidence including material facts, and the governing law, rules, and precedent.").

A. CSI does not assert that Maxeon is collaterally estopped; and collateral estoppel does not apply here.

CSI's argument that the panel here should follow the Board's prior *ex parte* appeal decisions is a watered-down version of the collateral estoppel argument that CSI makes in the related '516 patent IPR. But any collateral estoppel argument must fail. At the outset, CSI does not even assert that Maxeon is collaterally estopped in this proceeding. *See generally* Pet. This ends any inquiry related to collateral estoppel.

Regardless, the Board has rejected estoppel arguments premised on *ex parte* appeal decisions because "[t]he prosecution of [a patent] application is an *ex parte*

proceeding, not an adversarial proceeding such as a district court litigation or *inter partes* review.” *Medtronic Vascular, Inc. v. TMT Sys. Inc.*, IPR2021-01532, Paper 56 at 41 (PTAB Mar. 7, 2023). To be clear, there has been no prior *inter partes* challenge to the validity of any claim of the ’053 patent upon which CSI could rely for estoppel here. This Petition and the parallel district court action are the first time the validity of the ’053 patent has been challenged.

Not applying collateral estoppel to PTAB *ex parte* appeals decisions is also consistent with case law. In *B&B Hardware Inc. v. Hargis Indus., Inc.*, the Supreme Court held that a decision by the TTAB on the issue of likelihood of confusion in an *inter partes* opposition proceeding can have preclusive effect in subsequent federal court litigation, *provided that the ordinary elements of issue preclusion are met*. *B&B Hardware*, 575 U.S. 138, 160 (2015). But the Federal Circuit has also found, while acknowledging *B&B Hardware*’s holding, that “there is *no suggestion* in *B&B Hardware* that an examiner’s decision to register a mark or to refuse registration [(i.e., *ex parte* prosecution activities)] satisfies the traditional requirements of issue preclusion.” *In re Cordua Restaurants, Inc.*, 823 F.3d 594, 601 (Fed. Cir. 2016).

The Federal Circuit has also distinguished the “nature of *inter partes* reexamination from the initial examination process” in the context of collateral estoppel, because the latter lacks an opposing party. *See SynQor, Inc. v. Vicor*

Corp., 988 F.3d 1341, 1350 (Fed. Cir. 2021); *see also In re Craig* 411 F.2d 1333, 1335-36 (C.C.P.A. 1969) (“[T]he prosecution of patent applications is not exactly either a dispute or litigation in the usual sense of these terms.”). And as noted above, consistent with these cases, the Board has previously rejected estoppel arguments premised on *ex parte* prosecution. *See Medtronic Vascular, Inc.*, IPR2021-01532, Paper 56, 39-42.

Likewise, any attempt to transform “an ongoing negotiation between the PTO and the applicant,” into an actual, full and fair litigation fails to meet the requirements of issue preclusion. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (recognizing, in the context of claim construction, that the “prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation”); *see Medtronic Vascular, Inc.*, IPR2021-01532, Paper 56, at 41 (“The prosecution of [a related] application is an *ex parte* proceeding, not an adversarial proceeding such as a district court litigation or *inter partes* review,” and thus finding that the “same issues were not ‘actually litigated.’”). The same incentives to litigate an issue simply do not exist in *ex parte* prosecution of a patent application and in *inter partes* litigation of an issued patent.

Further, as the Board has previously found, there are “procedural distinctions” between “routine examination of patent applications” and *inter partes*

review that “weigh against applying issue preclusion,” namely that, in the latter there is (1) “the availability of cross-examination of witnesses” and (2) “parties may request discovery.” *See BioDelivery Sciences Int’l, Inc. v. MonoSol Rx, LLC*, IPR2015-00168, Paper 88 at 16 (PTAB Feb. 7, 2019)⁹. Accordingly, the “significant safeguard” of having “a full and fair opportunity to litigate” was not afforded to Maxeon through routine examination of the continuation applications. *See Blonder-Tongue Lab’ys, Inc. v. Univ. of Illinois Found.*, 402 U.S. 313, 329 (1971).

For these reasons, collateral estoppel cannot be applied against Maxeon in this proceeding.

B. Neither the challenged claims nor the asserted combinations were involved in the prior proceedings.

The issues decided in the *ex parte* appeal proceedings were different than the issues to be decided here.

First, the majority of the references asserted here were not at issue in the *ex*

⁹ The *BioDelivery* petitioner sought to estop the patent owner based on a prior *inter partes* reexamination proceeding, but the Board found that such reexamination proceedings “are conducted essentially by the same procedure as routine examination of patent applications.” *BioDelivery*, IPR2015-00168, Paper 88 at 16. Thus, the distinctions noted apply here as well.

parte appeal decisions. *See* EX1005, 506-520 EX1018, 285-293. In particular, CSI's primary reference, Froitzheim, was not at issue. Neither were any of CSI's asserted combinations. *Compare, id., with* Pet., 4.

Second, the claims at issue in this proceeding are different than those at issue in both *ex parte* appeal decisions. Where the '053 patent claims methods of fabricating a solar cell, the claims presented in the '771 and '035 applications were directed to solar cells. And CSI does not explain how the claims of the '053 patent present the same issues as those decided by the Board in the '771 and '035 *ex parte* appeals, including only the conclusory statement that the applications "presented device claims corresponding to the 053 Patent's method claims." Pet., 68 (citing EX1003, Appendix A¹⁰).

The chart in Appendix A of Exhibit 1003 is improperly incorporated by reference and should not be considered. *See* 37 C.F.R. § 42.6(a)(3) ("Arguments must not be incorporated by reference from one document into another document."); *Parus Holdings*, 70 F.4th at 1372 (holding that "the 'prohibition against incorporation of arguments from other documents serves various policy

¹⁰ Appendix A of EX1003 purportedly compares claims 9-20 of the '053 patent with the claims of the '771 and '035 applications, but only claims 9, 10, 12, and 15-20 of the '053 patent are included in the chart.

goals, including to “minimize the chance that an argument may be overlooked” and to “eliminate[] abuses that arise from incorporation and combination.”” (citing *General Access Solutions, Ltd. v. Sprint Spectrum L.P.*, 811 F. App'x 654, 657 (Fed. Cir. 2020)); *see also Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12, at 9 (PTAB Aug. 29, 2014) (informative) (declining to consider “conclusory statements [in an expert declaration] for which the Petition does not otherwise provide an argument or explanation”); *Nearmap US, Inc. v. Eagle View Techs., Inc.*, IPR2024-00716, Paper 9, at 14-15 (PTAB Oct. 9, 2024) (“declin[ing] to sift through [expert’s] declaration in order to find the arguments that may support Petitioner’s challenge”); *Berkeley Lights, Inc. v. The University of British Columbia*, IPR2021-01249, Paper 38, at 22 n.7, 45 n.12 (PTAB Jan. 19, 2023) (declining to consider declaration testimony cited “in support of [a] conclusory technical assertion, without additional commentary.”).

In sum, the Board’s *ex parte* appeal decisions, which reviewed different prior art combinations as applied to different claims, should have no persuasive effect in this proceeding.

C. The Board’s prior findings do not relieve CSI of its burden here.

CSI cannot rely on the Board’s findings for different claims and different prior art to shortcut the requirement that “the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each

claim.” *Intelligent Bio-Sys.*, 821 F.3d at 1369 (quoting 35 U.S.C. § 312(a)(3)).

This burden remains at all times with the petitioner. 35 U.S.C. §§ 314(a), 316(e);

In re Magnum Oil, 829 F.3d at 1375.

As Petitioner, CSI is “required to identify the particular teachings of each reference that it proposed to combine and *explain how and why a POSA would have combined the teachings to produce the claimed invention.*” *Samsung Elecs.*

Co. v. KAIST IP US LLC, IPR2017-01046, Paper 14, 7 (PTAB Jan. 22, 2018)

(citing *TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1066 (Fed. Cir. 2016)).

Simply pointing to the Board’s *ex parte* appeal decisions, which reviewed different prior art combinations as applied to different claims, does not meet CSI’s burden.

VII. THE BOARD SHOULD EXERCISE ITS DISCRETION TO DENY INSTITUTION UNDER § 314(A) AND *FINTIV*.

Under 35 U.S.C. § 314(a), the Director has discretion to deny institution. In determining whether to exercise that discretion on behalf of the Director, the PTAB considers the status of parallel litigation. *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018). The ’053 patent is involved in a parallel district court action in the United States District Court for the Eastern District of Texas. *See Maxeon Solar Pte. Ltd. v. Canadian Solar, Inc.*, No. 2:24-CV-00210-JRG (E.D. Tex. Mar. 25, 2024). The PTAB considers six non-exclusive factors in making its determination:

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 PTAB'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 PTAB's exercise of discretion, including the merits.

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020)

(precedential). As explained below, balancing these six factors (the “*Fintiv* Factors”) demonstrates that efficiency and integrity of the America Invents Act are best served by denying institution of this Petition as each factor is either neutral or weighs in favor of denial. Thus, evaluating the *Fintiv* factors as a whole, the Board should deny institution.

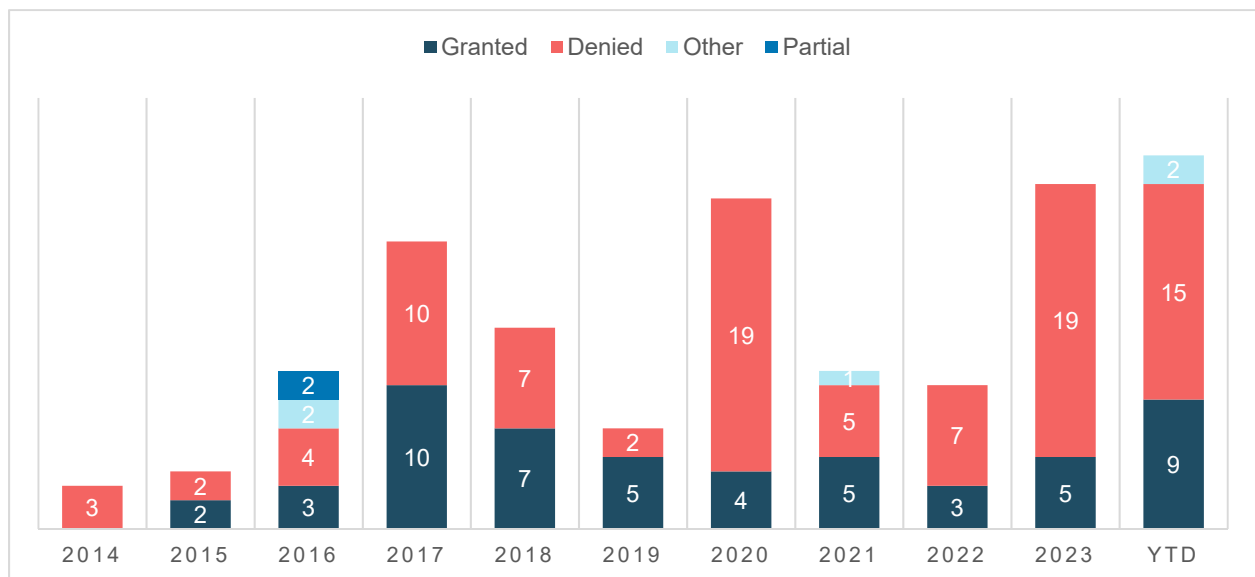
A. *Fintiv* Factor 1 is neutral: No stay has been requested or granted in the district court proceeding.

Fintiv Factor 1 examines whether the district court in the parallel litigation has granted a stay or if there is evidence suggesting that a stay might be granted if a proceeding is instituted. *Fintiv*, IPR2020-00019, Paper 11 at 6. Neither party has filed a motion to stay with the district court. Consequently, this factor remains neutral.

CSI suggests that a stay is likely, which is wrong and, in fact, misleading.

CSI states that “Judge Gilstrap has also frequently granted stays based on instituted IPRs, with at least 48 stays granted and only 41 denied *with prejudice*.” Pet., 18.

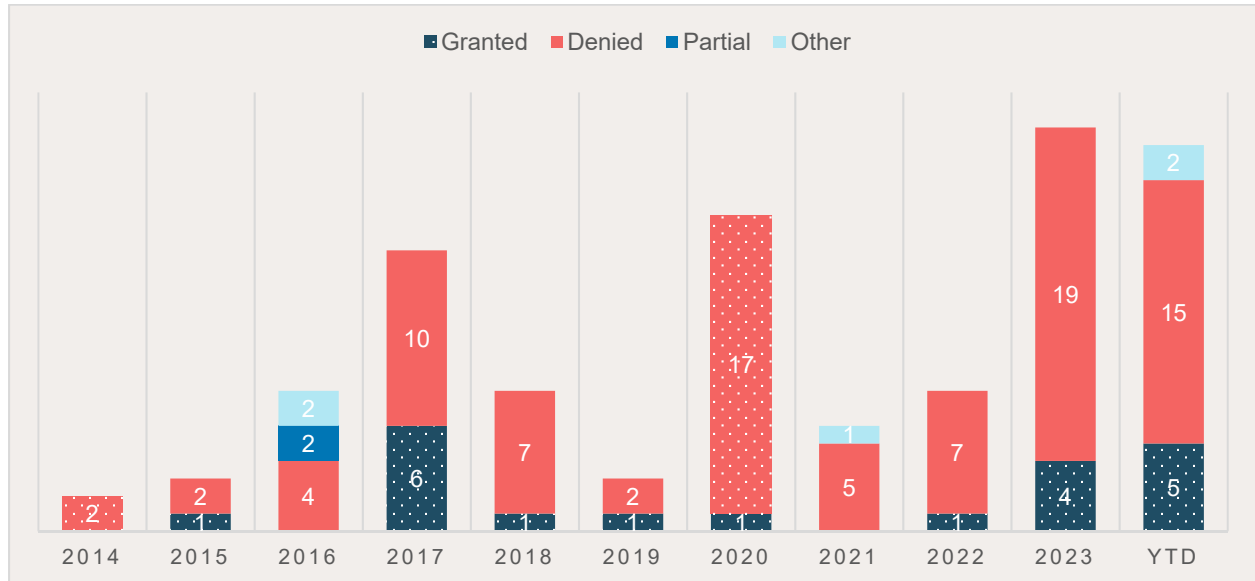
But CSI’s statistics cherry-pick only certain decisions (e.g., leaving out motions denied without prejudice). Taking *all* denials (i.e., both those that are denied with and without prejudice) into consideration, a party’s success rate on a motion to stay pending IPR is only on average 36%.



Motion to Stay Pending *Inter Partes* Review Success by Year
(Gilstrap, J. – E.D. Tex.)¹¹

¹¹ Results charted from DocketNavigator.com Document Search, run on October 8, 2024, for Motion to Stay Pending Inter Partes Review decided by Judge Rodney Gilstrap. See EX2004, available at DocketNavigator.com (last visited on October 8, 2024).

Further, if the motions to stay that were agreed or stipulated to by the parties are omitted from the data set, a party’s success rate before Judge Gilstrap plummets to 16%.



Opposed Motion to Stay Pending *Inter Partes* Review
Success by Year
(Gilstrap, J. – E.D. Tex.)¹²

Thus, CSI’s implication that a stay is likely in Judge Gilstrap’s court is not supported by the data.

Regardless, the PTAB should “decline to infer, based on actions taken in

¹² Results charted from DocketNavigator.com Document Search, run on October 8, 2024, for Motion to Stay Pending *Inter Partes* Review decided by Judge Rodney Gilstrap with “Stipulated/Agreed” motions removed. See EX2005, available at DocketNavigator.com (last visited on October 8, 2024).

different cases with different facts, how the District Court would rule should a stay be requested by the parties in the parallel case here.” *Fintiv*, IPR2020-00019, Paper 15 at 12 (informative). Nor could the PTAB infer how the District Court would rule in this particular case, as CSI provided no facts or analysis alleging to show that it would prevail under the district court’s three-factor test for determining whether to grant a stay. *See NFC Techs. LLC v. HTC Am., Inc.*, Case No. 2:13-cv-1058-WCB, 2015 WL 1069111, at *2 (E.D. Tex. Mar. 11, 2015) (analyzing “(1) whether the stay will unduly prejudice the nonmoving party, (2) whether the proceedings before the court have reached an advanced stage, including whether discovery is complete and a trial date has been set, and (3) whether the stay will likely result in simplifying the case before the court”).

At bottom, this factor is neutral.

B. *Fintiv* Factor 2 is neutral: Trial is scheduled within two weeks of the PTAB’s final written decision deadline.

This factor assesses the proximity of the district court’s trial date to the PTAB’s projected statutory deadline for a Final Written Decision. *Fintiv*, IPR2020-00019, Paper No. 11 at 6. Here, the district court issued a Docket Control Order setting trial for January 26, 2026. *See* EX2008. The projected statutory deadline for the PTAB’s final written decision is only eleven days earlier on January 15, 2026. Although the Director’s Guidance Memo acknowledges that a court’s scheduled trial date may not be “a good indicator of whether the district

court trial will occur before the statutory deadline for a final written decision,” the median time from filing to trial in the Eastern District of Texas averages 19.7 months over the last 6 years, and the most recent data shows 21.6 months.¹³ *See* Federal Court Management Statistics (June 30, 2024) (EX2006) (excerpts below).

			12-Month Periods Ending					
			Jun 30 2019	Jun 30 2020	Jun 30 2021	Jun 30 2022	Jun 30 2023	Jun 30 2024
Median Time (Months)	From Filing to Disposition	Criminal Felony	9.6	11.6	13.1	14.7	20.6	23.9
		Civil ²	8.6	9.2	8.1	8.8	8.5	7.6
	From Filing to Trial ² (Civil Only)		17.5	17.7	20.4	24.5	16.7	21.6

United States District Court – Judicial Caseload Profile (EDTX),
EX2006, 35 (excerpts).

This median timing is consistent with the current trial date set in the EDTX proceeding. Maxeon filed its case on March 25, 2024, making the currently set trial date more than twenty-two months from filing. Accordingly, there is no reason to believe that this trial date will not hold. Given the close proximity between the district court’s trial date and the projected deadline for the PTAB’s Final Written Decision, *Fintiv* factor 2 is neutral. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 15 (PTAB Dec. 1, 2020) (precedential) (finding factor

¹³ Although the court had not yet set a trial date at the time of the Petition, CSI also ignores the median time to trial data.

2 neutral because “trial [was] scheduled to begin around the same time as [the PTAB’s] deadline to reach a final decision”).

C. *Fintiv* Factor 3 favors denial: The parties have and will continue to expend significant effort in the district court litigation.

Factor 3 considers “the amount and type of work already completed in the parallel litigation by the court and the parties at the time of the institution decision.” *Fintiv*, Paper 11 at 9. Here, the Board also looks to the timing of the petition. *Fintiv*, Paper 11 at 11.

By the time the PTAB issues its Institution Decision in January 2025, the parties will have spent considerable resources in the parallel district court action. As of the filing of this paper, the parties have already exchanged infringement and invalidity contentions, served and responded to written discovery requests, and served substantial document productions. Specifically regarding discovery, the parties have exchanged over fifteen letters and emails concerning various issues, including issues related to CSI’s invalidity claims. Each party has also served a third-party subpoena on Maxeon’s corporate predecessor, SunPower Corporation, seeking documents and testimony related to CSI’s invalidity claims. Maxeon also filed a combined motion to dismiss CSI’s inequitable conduct counterclaim and to strike CSI’s inequitable conduct defense, which the court denied as moot after CSI amended its counterclaims and defenses to withdraw its counterclaim and defense. *See* EX2007.

The facts here are similar to those in *Sand Revolution II, LLC v. Continental Intermodal Group — Trucking LLC*, where *Fintiv* factor 3 did not weigh against exercising discretion to deny institution despite that “fact discovery [was] still ongoing, expert reports [were] not yet due, and substantive motion practice [was] yet to come.” IPR2019-01393, Paper 24 at 10-11 (PTAB June 16, 2020) (informative). There, the parties had exchanged infringement and invalidity contentions, and the district court had invested resources “relat[ing] to ancillary matters untethered to the validity issue itself,” such as setting and amending the case schedule and granting several *pro hac vice* motions. *See id.* at 10.¹⁴ Recognizing that “the district court and the parties have not invested substantially in the merits of the invalidity positions,” the PTAB held that *Fintiv* factor 3 “weighs only marginally, if at all, in favor of exercising discretion to deny institution.” *Id.* at 11. Accordingly here, *Fintiv* factor three likewise weighs in favor of the PTAB exercising its discretion to deny institution, or is at least neutral.

D. *Fintiv* Factor 4 is neutral: The issues raised in the Petition and in the district court overlap completely, and CSI’s stipulation does not prohibit denial.

“*Fintiv* factor four looks at the overlap between the issues raised in the IPR

¹⁴ To date, the District Court has granted three *pro hac vice* motions filed by CSI.

petition and in the parallel proceeding in order to evaluate ‘concerns of inefficiency and the possibility of conflicting decisions.’” Guidance Memo, 7; *Fintiv*, IPR2020-00019, Paper 11 at 12. CSI asserts the same grounds in its Petition here that it asserts in the district court action. *Compare* Pet., 4, with EX2009 (“Invalidity Contentions”), 32-46. In fact, the bulk of CSI’s document production accompanying its Invalidity Contentions (as required by (P.R. 3-4 (E.D. Tex.)) comprised the very documents and exhibits filed in this proceeding. Alone, this complete overlap of issues strongly weighs in favor of denial. *Fintiv*, IPR2020-00019, Paper 11 at 12; *see also* Guidance Memo (“[I]f the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this fact has favored denial”).

CSI’s different claim construction positions here and in the district court exacerbates the concern about overlap between the two proceedings. *See* Section IV (Claim Construction). To proceed in both forums on the same grounds of unpatentability, but with different proposed claim constructions, risks inconsistent outcomes between the IPR and the parallel litigation.¹⁵

¹⁵ The standard for claim construction in an IPR is the same standard as that used in proceedings at the district courts. Consolidated Trial Practice Guide (Nov. 2019), 45–46, available at <https://www.uspto.gov/TrialPracticeGuideConsolidated/>;

Further, the overlap is mitigated only slightly by CSI's stipulation. CSI has not provided a *Sotera* stipulation. The Guidance Memo states that the PTAB "will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB." Guidance Memo at 3; *see also id.* at 7-8. But here, CSI only stipulates that, "if this IPR is instituted, it will not assert in any district court or ITC litigation that *any claim at issue in this IPR* is invalid on the basis of any ground raised or that reasonably could have been raised during this IPR." Pet., 19. The PTAB has previously determined that this type of stipulation "leaves open the possibility that Petitioner might still raise in the parallel District Court proceeding a ground that it asserted or reasonably could have asserted in the Petition with respect to a claim

37 C.F.R. § 42.100(b). This standard was adopted to avoid decisions that construe the same or similar claims of a patent inconsistently across the different forums. Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,342 (Oct. 11, 2018). "Minimizing differences between claim construction standards used in the various fora will lead to greater uniformity and predictability of the patent grant, improving the integrity of the patent system." *Id.*

that is not subject to an instituted *inter partes* review.” *Duplo USA Corp. v. MGI Digital Tech.*, IPR2023-00936, Paper 8 at 14 (PTAB Dec. 5, 2023). The ’053 patent contains 20 claims in total and CSI challenges only claims 9-20. *See* EX1001, 6:13-8:23. There is significant overlap between the limitations of the non-challenged claims and the limitations of the Challenged Claims.

Exemplary Non-Challenged Claim	Exemplary Challenged Claim
1. A method of fabricating a solar cell having a front side facing the sun to collect solar radiation during normal operation and a backside opposite the front side, the method comprising:	9. A method of fabricating a solar cell comprising:
forming a layer of polysilicon over a back surface of an N-type silicon substrate on the backside of the solar cell;	forming a layer of polysilicon over a back surface of a silicon substrate;
forming a P-type dopant source over the layer of polysilicon;	forming a first dopant source layer over the layer of polysilicon;
forming a capping layer over the P-type dopant source;	
diffusing P-type dopants from the P-type dopant source to the layer of polysilicon to form a backside junction with the N-type silicon substrate;	diffusing dopants from the first dopant source layer to the layer of polysilicon to form a backside junction with the silicon substrate;
diffusing N-type dopants into a front surface of the N-type silicon substrate; and	diffusing dopants into a front surface of the silicon substrate, the front

forming a metal contact on the front side of the solar cell, wherein the metal contact is electrically coupled to the N-type silicon substrate.

surface of the silicon substrate facing the sun during normal operation; and

forming a metal contact on the front surface of the silicon substrate, wherein the metal contact is electrically coupled to the silicon substrate.

Compare, e.g., EX1001, 6:4-42, *with id.*, 6:42-65. CSI provides no evidence or argument that these claims not “at issue in this IPR” could not, or would not, be added to the parallel district court action. Indeed, fact discovery remains open, and it is possible that discovery will reveal facts (e.g., the existence of additional accused products) that enable Maxeon to add these claims to the parallel district court action. As such, CSI’s stipulation “does not mitigate the risk of duplicative proceedings and conflicting decisions to the same degree as the stipulation in *Sotera*.” *Duplo*, IPR2023-00936, Paper 8 at 14. Accordingly, CSI’s narrower stipulation does not implicate the Guidance Memo’s prohibition against discretionary denial where a *Sotera*-type stipulation is presented, and this factor does not weigh in favor for or against the PTAB exercising its discretion to deny institution pursuant to § 314(a). *Id.* at 15, 18.

E. *Fintiv* Factor 5 favors denial: CSI and the defendant in the parallel proceeding are the same party.

CSI is the defendant in the parallel district court action, which is all that is required to show *Fintiv* factor 5 weighs in favor of denial. *Fintiv*, IPR2020-00019,

Paper No. 11 at 13-14; *Id.*, Paper No. 15 at 15; *Sotera*, IPR2020-01019, Paper 12 at 19; *Sand Revolution II*, IPR2019-01393, Paper 24 at 12-13.

CSI nevertheless argues, contrary to prior Board precedent, that this fact “should weigh against denial because it permits CSI to provide the §315 [sic] stipulation above, thereby avoiding any possibility of duplication.”¹⁶ Pet., 19; *see Sotera*, IPR2020-01019, Paper 12 at 19 (weighing this factor in favor of discretionary denial despite petitioner’s stipulation); *see also Sand Revolution II*, IPR2019-01393, Paper 24 at 12-13 (same). But CSI’s stipulation does not mitigate the risk of duplicative proceedings and conflicting decisions to the same degree as the stipulation in *Sotera*. *See* Part VII.D (*Fintiv* factor 4) *supra*. Further, the Guidance Memo explains that “[p]arallel district court and AIA proceedings involving the same parties and invalidity challenges can increase, rather than limit, litigation costs[, given] . . . the potential for inefficiency and gamesmanship in AIA proceedings.” Guidance Memo at 1.

¹⁶ Maxeon assumes CSI intended to cite § 314, which provides that institution of review is discretionary. The statute, however, does not provide for the ability of petitioners to stipulate and avoid a discretionary denial under *Fintiv*. The effect of stipulations on the PTAB’s exercise of discretion to deny institution is provided solely by Board precedent (e.g., *Sotera*) and the Director’s Guidance Memo.

Thus, this factor favors denial.

F. *Fintiv* Factor 6: No other circumstances, including the merits, warrant institution.

Fintiv factor 6 considers any other circumstances that impact the PTAB's exercise of discretion, including the merits of the petition. *Fintiv*, IPR2020-00019, Paper 11, at 14. The Guidance Memo clarifies that with regard to the merits:

Where the information presented at the institution stage is merely sufficient to meet the statutory institution threshold, the PTAB has the authority, where warranted, to exercise discretion to deny institution in view of the other *Fintiv* factors. In contrast, 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*.

Guidance Memo at 4-5. In *Commscope Techs. LLC v. Dali Wireless, Inc.*, the Director clarified that PTAB panels should “only consider compelling merits if they first determined that *Fintiv* factors 1–5 favored a discretionary denial.” *See*, IPR2022-01242, Paper 23 at 3 (Feb. 27, 2023) (precedential). As explained above, here *Fintiv* factor 1–5 do favor discretionary denial. The Director also explained that “the compelling merits standard is a higher standard than the standard for institution set by statute” as it requires a showing that “it is *highly* likely that the petitioner would prevail with respect to at least one challenged claim,” rather than

being “more likely than not.” *Id.* at 3-4 (citing *Opensky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102 at 49 (PTAB Oct. 4, 2022) (precedential)).

Here, CSI’s Petition fails to meet this higher standard, as it does not present a compelling unpatentability challenge based on the prior art combinations it asserts. As explained in detail above, CSI’s Petition suffers from conclusory, unsupported arguments that do not meet its burden, including failing to show sufficient motivations to combine and asserting only conclusory arguments for showing a reasonable expectation of success in combining Froitzheim with either Gan or Kwark. Moreover, CSI’s reasonable expectation of success arguments are contradicted by the very teachings in those references. Finally, CSI presents a watered-down version of a collateral estoppel argument that CSI raised in a related petition, discussing *ex parte* appeal decisions that have no bearing on whether CSI has met its burden in this proceeding.

For at least these reasons, CSI’s Petition does not present a compelling unpatentability challenge that would warrant institution despite the other *Fintiv* factors, on balance, weighing in favor of denial. Accordingly, the Board should exercise its discretion to deny institution under § 314(a).

VIII. CONCLUSION

For the reasons above, CSI fails to show a reasonable likelihood that any of the Challenged Claims is unpatentable as obvious in view of the cited art. Maxeon, therefore, respectfully requests that the Board deny institution.

Respectfully submitted,

VINSON & ELKINS LLP

A handwritten signature in black ink, reading "Eric J. Klein". The signature is written in a cursive, flowing style.

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CERTIFICATE OF WORD COUNT (37 C.F.R. § 42.24(d))

1. This Patent Owner Preliminary Response complies with the type-volume limitation of 14,000 words, comprising 9,013 words, excluding the parts exempted by 37 C.F.R. § 42.24(a)(1).

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A handwritten signature in black ink, reading "Eric J. Klein". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

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