Trials@uspto.gov
571-272-7822

Paper 13
Date: May 21, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INERGY TECHNOLOGY, INC.,
Petitioner,

v.

FORCE MOS TECHNOLOGY CO., LTD.,
Patent Owner.

IPR2024-00093
Patent 7,629,634 B2

Before GRACE KARAFFA OBERMANN, CHRISTOPHER L. OGDEN, and MARY C. HOFFMAN, *Administrative Patent Judges*.

OBERMANN, *Administrative Patent Judge*.

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

I. INTRODUCTION

Inergy Technology, Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting *inter partes* review of claims 1–9 of U.S. Patent No. 7,629,634 B2 (Ex. 1001, "the '634 patent"). Force MOS Technology Co., Ltd. ("Patent Owner") filed a Preliminary Response. Paper 7 ("Prelim. Resp.").

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2023). We may institute review, however, only upon a determination that "there is a reasonable likelihood that the petitioner would prevail with respect to at least [one] of the claims challenged in the petition." 35 U.S.C. § 314(a). Applying that standard, for reasons set forth below, we institute an *inter partes* review.

A. Real Parties in Interest

Petitioner identifies itself (Inergy Technology, Inc.), ASUSTek Computer, Inc. ("ASUS"), and Panjit International Inc. as real parties in interest. Pet. 1. Patent Owner identifies itself (Force MOS Technology Co., Ltd.) as the sole real party in interest. Paper 6, 2.

B. Related Matters

The parties identify *Force MOS Technology Co., Ltd. v. ASUSTek Computer, Inc.*, No. 2:22-cv-00460 (E.D. Tex.) ("the District Court action") and *Alpha and Omega Semiconductor, Ltd., et al. v. Force MOS Technology Co., Ltd.*, No. 4:22-cv-05448 (N.D. Ca.) as related matters. Pet. 1–2; Paper 6, 2.

Petitioner filed a petition in IPR2024-00094 ("IPR094") on the same day as the instant Petition. The petition in IPR094 challenges claims of U.S.

Patent No. 7,812,409 B2, which is owned by Patent Owner. Concurrently herewith, we enter a decision whether to institute review in IPR094.

II. BACKGROUND

A. The '634 Patent (Ex. 1001)

The '634 patent is titled "Trenched MOSFET with Trenched Source Contact." Ex. 1001, code (54). In the context of the disclosure of the '634 patent, a "MOSFET" refers to "a trench Metal-Oxide Semiconductor Field Effect Transistor,"[1] which is a "type of vertical transistor" that "allows high current to pass through" and for the channel to turn on or off using "a low voltage." *Id*. at 1:11–18. This type of "vertical transistor" includes a gate structure "formed in a trench on top of an epitaxial layer" and source/drain regions "formed on both sides of the gate." *Id*.

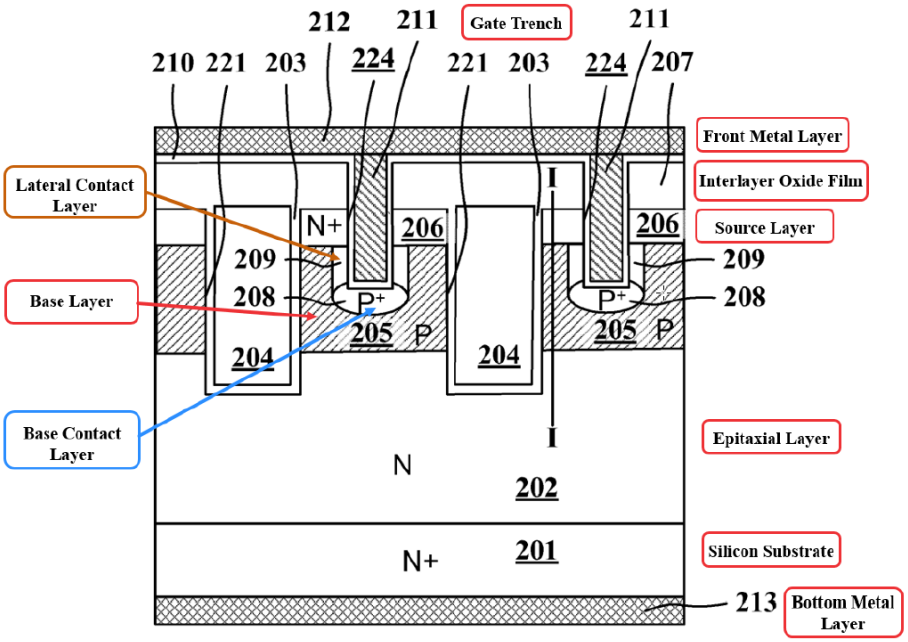
According to the specification, the sidewall of the source contact in a traditional trenched MOSFET design has no ohmic contact with the contact metal plug, which results in poor ruggedness performance. *Id*. at 1:35–38. The specification further reports that, when P base resistance from the channel to the source contact is too high, the device may destruct. *Id*. at 1:38–42.

The specification describes an embodiment of the invention in which a P*-type lateral contact layer is implanted into parts of the sidewall of the source contact trench. *Id*. at 2:1–11. In such an embodiment, a P* base layer may have more doping than a P base layer, but less doping than a P+ base

[1] The specification uses "trench" and "trenched" interchangeably to describe a MOSFET with a trenched source contact. Ex. 1001, 1:6–7, 1:11. The sole independent claim, however, specifies "[a] trenched MOSFET." *Id*. at 5:37.

contact layer, which is located at the bottom of the source contact trench. *Id.* The specification further describes optimizing a P*-type lateral contact layer doping concentration to achieve ohmic contact between the P*-type layer and a contact metal plug without significantly increasing the threshold voltage of the device. *Id.*

We reproduce below Figure 2G from the '634 patent, as annotated by Petitioner.



'634 Patent, Figure 2G (annotations added)

Pet. 8; Ex. 1001, Fig. 2G. Figure 2G is a sectional view of a vertical trenched MOSFET "for describing the processes in accordance with an embodiment of the present invention." Ex. 1001, 2:43–45.

Figure 2G is annotated by Petitioner to label structural features of a trenched MOSFET as described in the '634 patent. Patent Owner does not object to Petitioner's annotations at this juncture. Among other features, Figure 2G illustrates a P+-type base contact layer (**208**) and P*-type lateral contact layer (**209**), which are formed, respectively, "at the bottom and

sidewall of" source contact trenches (**224**). *Id*. at 5:9–12. Source contact trenches (**224**) are formed to reach P-type base layer (**205**). *Id*. at 4:60–61.

B. Challenged Claims

We reproduce below claim 1, the sole independent challenged claim.

> 1. A trenched MOSFET with trenched source contact, comprising:
> a semiconductor region having a drain region, a body region and a source region, comprising, a silicon substrate, an epitaxial layer corresponding to said drain region disposed on the top of said silicon substrate, a base layer corresponding to said body region disposed on the top of said epitaxial layer, and a source layer corresponding to said source region disposed on the top of said base layer;
> a front metal layer formed on the upper surface of said semiconductor region;
> an interlayer oxide film formed between said source layer and said front metal layer.
> a bottom metal layer formed on the lower surface of said semiconductor region;
> a plurality of trenched gates covered by said interlayer oxide film are formed on top of said source layer extending downwardly through said base layer to a portion of said epitaxial layer; and
> a plurality of source contact trenches formed on the top of said interlayer oxide film extending downwardly through said source layer to a portion of said base layer wherein the sidewalls of said trenches in said base layer are covered by ***the lateral contact layer***, wherein the bottom base of said trenches in said base layer are covered by the base contact layer.

Ex. 1001, 5:37–6:17 (emphasis added). The emphasized term is the sole reference in claim 1 to a "lateral contact layer." *Id*. at 6:15.

Each of the other challenged claims, namely, claims 2–9, depends directly from claim 1. *Id.* at 6:18–6:45. Claims 2 and 6 add limitations pertaining to the "doping concentration" of "the lateral contact layer" in the trenched MOSFET of claim 1. *Id*. at 6:18–23, 6:32–37.

C. Asserted Grounds of Unpatentability

The Petition identifies four grounds of unpatentability, which we summarize in the table below.

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1	1, 2, 6	102(b)[2]	Hirler[3]
2	3–5, 7–9	103(a)	Hirler, Kobayashi[4]
3	1, 2	102(b)	Shiraishi[5]
4	1–9	103(a)	Kobayashi, Shiraishi[6]

Pet. 4. In support of its arguments, Petitioner relies on a declaration of Dr. David Kuan-Yu Liu. Ex. 1003.

[2] 35 U.S.C. §§ 102, 103 (2006), *amended by* Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112–29 §§ 102, 103, sec. (n)(1), 125 Stat. 284, 287, 293 (2011) (effective Mar. 16, 2013). The pre-AIA versions of Sections 102(b) and 103(a) apply because the '634 patent issued from a U.S. application filed on February 23, 2008, which is before the effective date of the AIA amendments. *See* Ex. 1001, code (22). Neither party indicates, however, that the result on institution would change under the AIA versions.

[3] Pub. No. DE 102004009083, published Sept. 22, 2005 (Ex. 1006) (certified translation, with no figures) and (Ex. 1005) (original version, with figures).

[4] US Pub. No. 2004/0021174, published Feb. 5, 2004 (Ex. 1008).

[5] US Pub. No. 2005/0029584, published Feb. 10, 2005 (Ex. 1009).

[6] The Petition identifies an additional ground that asserts the same references in reverse order against claims 3–9. Pet. 4. We group these grounds together in our table and analysis. *See Global Shade Corp. v. With-U E-Commerce (Shanghai) Co., Ltd.*, IPR2021-00365, Paper 36 at 56 (PTAB July 25, 2022) (treating grounds together where one ground "merely duplicates" another "but reverses the order of the references"); *In re Bush*, 296 F.2d 491, 496 (CCPA 1961) ("[T]o term one reference primary and the other secondary" is a distinction "of little consequence.").

III. ANALYSIS

A. Level of Ordinary Skill in the Art

The level of ordinary skill in the art at the time of the invention is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)).

Petitioner asserts that a person of ordinary skill in the art at the time of the invention would have had "a Master's degree in electrical engineering, and at least two years of relevant work experience in the field of integrated circuit design and manufacturing." Pet. 13 (citing Ex. 1003 ¶¶ 32–37, 57). Patent Owner does not dispute Petitioner's proposed level of ordinary skill in the art. *See generally* Prelim. Resp.

For the sole purpose of deciding whether to institute review, we adopt Petitioner's proposed level of ordinary skill in the art because, on this preliminary record, it is supported by unopposed declaration testimony and appears to be consistent with the disclosures of the '634 patent and the asserted prior art references. *See* Ex. 1001, 1:6–2:33 (describing the invention and related art in terms of integrated circuit design and fabrication); *see also* Ex. 1006 ¶¶ 1–6 (Hirler); Ex. 1008 ¶¶ 1–37 (Kobayashi); Ex. 1009 ¶¶ 2–29 (Shiraishi).

B. Claim Construction

In an *inter partes* review, the Board construes the terms of a patent claim "in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." 37 C.F.R. § 42.100(b). Under that standard,

claim terms generally are given their plain and ordinary meaning as would have been understood by an ordinarily skilled artisan at the time of the invention and within the context of the entire patent disclosure. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

1. "the sidewalls of said trenches in said base layer"

Petitioner requests an express construction of a single claim term, namely, the term in claim 1 that specifies "the sidewalls of said trenches in said base layer." Pet. 17. We agree with Patent Owner that no express construction of that term is necessary to resolve whether to institute review. *See* Prelim. Resp. 4 (arguing that this term "has no apparent relevance to any of the asserted prior art grounds"). We thus decline to expressly construe the term at this stage of the proceeding. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (claim terms are construed only to the extent necessary to resolve the controversy).

2. "the lateral contact layer"

Patent Owner requests an express construction of a single claim term as well, the term in claim 1 that specifies a "lateral contact layer." Prelim. Resp. 4. In Patent Owner's view, "the Board should construe 'lateral contact layer' as requiring a region of dopant which is implanted into sidewalls of the source contact trenches to have a dopant concentration between P and P+ ('P* doping') for an N-channel MOSFET or between N and N+ ('N* doping') in a P-channel MOSFET." *Id.* at 8.

In other words, Patent Owner argues that the term "lateral contact layer" in claim 1, when read in light of the specification, conveys both a restriction on dopant concentration and a dopant implantation feature. *Id.* We address those arguments in turn below.

a. Dopant Concentration

Patent Owner contends that the phrase "lateral contact layer" in claim 1 requires "a dopant concentration between P and P+ ('P* doping') for an N-channel MOSFET or between N and N+ ('N* doping') in a P-channel MOSFET." Prelim. Resp. 8. Patent Owner relies on opinions of Petitioner's witness, Dr. Lui, elicited in the District Court action. *Id*. Those extrinsic opinions are less probative than the intrinsic words of claim 1, which convey nothing about dopant concentration. *Phillips*, 415 F.3d at 1312–19 (extrinsic evidence is less significant than intrinsic evidence to claim construction).

Patent Owner also contends that "the specification supports Patent Owner's construction." Prelim. Resp. 5. Patent Owner, however, does not address the well-established principle that reading a claim in light of the specification does not mean reading limitations into the claim from the specification. *Id*. at 4–8 (entirety of Patent Owner's arguments on point); *see In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004) (counseling the Board not to import limitations); *In re Zletz*, 893 F.2d 319, 321–22 (Fed. Cir. 1989) (importing limitations is reversible error).

The specification may provide controlling definitions or context necessary to avoid ambiguities, but only as needed and not at the expense of the actual claim language. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (definitions, but only as needed); *White v. Dunbar*, 119 U.S. 47, 51–52 (1886) (context, but not at the expense of the actual claim language). Context for avoiding ambiguities is not on the table, because Patent Owner does not contend that the phrase "lateral contact layer" is ambiguous, and we discern no ambiguity in that term on this record. Prelim. Resp. 4–8.

We find especially significant, on the point of ambiguity, that Patent Owner admits that the plain and ordinary meaning of "'layer' on its own is quite broad, meaning 'a region having unique electrical properties (e.g., n layer).'" *Id*. at 5. Against that backdrop, we are hard pressed to discern any ambiguity in the meaning of the term "lateral contact layer," which plainly indicates a lateral contact region having unique electrical properties. Patent Owner does not explain why the word "layer" in the claim phrase "lateral contact layer" should be read to convey a different and narrower meaning than "'layer' on its own." *Id*.

Nor do we see how the specification provides a controlling definition for the term "lateral contact layer." A special definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998). Patent relies on the following disclosure:

> [T]he silicon substrate, the epitaxial layer, and the source layer are N-type; the base layer and lateral contact layer P* are P-type; and each of the source contact trenches further has a P+-type base contact layer at a bottom thereof and ***the lateral contact layer P* has less doping concentration than the P+ base contact layer at the source contact trench but higher doping concentration than P-base layer*** to achieve ohmic contact between the ***P*-type region, which is lower doping concentration than P+-type region***, and the contact metal plug while threshold voltage Vth is not significantly affected by P*-type region.

Prelim. Resp. 5–6 (quoting Ex. 1001, 2:1–11); *see id*. at 6 (citing similar disclosures to the same effect).

Patent Owner relies on portions of the specification that describe embodiments of the invention, without identifying any language that indicates — with reasonable clarity, deliberateness, or particularity

(*Renishaw PLC*, 158 F.3d at 1249) — that the patentee intended to limit the scope of claim 1 to those embodiments. Prelim. Resp. 4–8. For example, words commonly used to express a definition, such as "lateral contact layer means" or "lateral contact layer is defined as," do not appear in any disclosure raised by Patent Owner. *Id*. at 5–6 (and citations therein).

Furthermore, claims 2 and 6 depend from claim 1, and both expressly specify that "the lateral contact layer has less doping concentration than the base contact layer at bottom." Ex. 1001, 6:22–23, 6:36–37. Claims 2 and 6 show that the patentee knew how to use words in a claim to impose a dopant concentration limitation on the lateral contact layer, but included no such language in claim 1.[7] *See id*. at 6:15, 6:22–23, 6:36–37 (claims 1, 2, and 6).

Patent Owner does not address the principle of claim differentiation, under which "limitations stated in dependent claims are not to be read into the independent claim from which they depend." *Nazomi Commc'ns, Inc. v. Arm Holdings, PLC*, 403 F.3d 1364, 1370 (Fed. Cir. 2005) (quotation omitted); *Phillips*, 415 F.3d at 1314–15 (explaining presumption without invoking "claim differentiation" label). To be clear, on this record, we discern no distinction, and the parties identify none, between the dopant concentration limitation that Patent Owner contends is present in claim 1, and the dopant concentration limitations specified in claims 2 and 6.

[7] The definitional and notice function of a patent claim is so central to patent law that, when a claim's meaning is contested and the claim drafter can amend the claim to state expressly what the drafter contends it says implicitly, the burden is properly on the drafter to amend rather than to shift the burden onto anyone else — a patent examiner, a competitor, the public generally, or the courts — to guess about the claim's meaning. *In re Morris*, 127 F.3d 1048, 1054, 1057 (Fed. Cir. 1997); *White*, 119 U.S. at 51–52.

Compare Prelim. Resp. 8 (Patent Owner's proposed construction of claim 1), *with* Ex. 1001, 6:22–23 (claim 2), 6:36–37 (claim 6).

The doctrine of claim differentiation "is at its strongest 'where,'" as here, "the limitation sought to be 'read into' an independent claim already appears in a dependent claim." *Seachange Int'l, Inc. v. C-Cor, Inc.*, 413 F.3d 1361, 1368–69 (Fed. Cir. 2005). On this record, therefore, we preliminarily determine that Patent Owner requests a construction of the term "lateral contact layer" that renders redundant dependent claims 2 and 6. *Phillips*, 415 F.3d at 1324; *see* 35 U.S.C. § 112 ¶ 4 (2006) ("[A] claim in dependent form shall contain a reference to a claim previously set forth and then *specify a further limitation of the subject matter claimed*." (emphasis added)).

Accordingly, on this record, we preliminarily determine that the phrase "lateral contact layer" does not require "a dopant concentration between P and P+ (P* doping) for an N-channel MOSFET or between N and N+ (N* doping) in a P-channel MOSFET." Prelim. Resp. 8.

b. Dopant Implantation

We next consider Patent Owner's view that "the lateral contact layer" of claim 1 requires "a region of dopant which is implanted into sidewalls of the source contact trenches." Prelim. Resp. 8. We discern no words in claim 1, and the parties identify none, that even remotely touch upon a requirement related to dopant implantation. *See id*. at 7–8; Ex. 1001, 5:37–6:17 (claim 1).

Patent Owner argues that the written description "makes clear that the lateral contact layer is ***implanted*** into the sidewall of the source contact trenches." Prelim. Resp. 7. However, by way of support, Patent Owner again merely directs the Board to written descriptions of embodiments of the

invention. *See id*. at 7–8 (highlighting portions of the specification that describe embodiments of the invention).

Patent Owner does not argue that the phrase "lateral contact layer" is ambiguous, as it appears in claim 1, or that the specification assigns a special meaning to that term. *See* Prelim. Resp. 3–8 (entirety of Patent Owner's arguments on point). Much of our analysis above, provided in the context of Patent Owner's arguments about dopant concentration, applies with equal force to Patent Owner's arguments about dopant implantation.[8]

Construing "lateral contact layer" to import from the specification the dopant implantation limitation advanced by Patent Owner would blur the distinction between claim and disclosure, and violate the well-settled principle that "the name of the game is the claim." *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998). "[I]f we once begin to include elements not mentioned in the claim, in order to limit such claim . . . , we should never know where to stop." *McCarty v. Lehigh Valley R.R. Co.*, 160 U.S. 110, 116 (1895). For sound reasons, "the claims made in the patent are the sole measure of the grant." *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339 (1961); *supra* n.7 (explaining definitional and notice function of patent claims).

Accordingly, on this record, we preliminarily determine that the phrase "lateral contact layer" does not require "a region of dopant which is implanted into sidewalls of the source contact trenches." Prelim. Resp. 8.

[8] An exception is that none of the dependent claims appear, on this record, to require a region of dopant implanted into sidewalls of the source contact trenches. *See* Ex. 1001, 6:18–6:45 (claims 2–9). In other words, principles of claim differentiation do not appear to apply.

C. Assessment of the Challenges

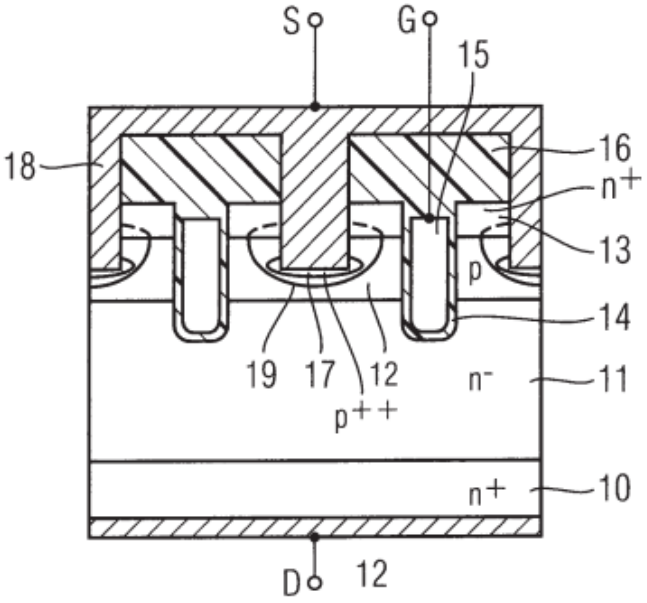
We next address the sufficiency of Petitioner's challenges to support institution of review.

1. Ground Based on Anticipation by Hirler

Petitioner argues that claims 1, 2, and 6 are unpatentable as anticipated by Hirler. Pet. 4 (grounds chart). Regarding claim 1, Petitioner advances arguments that map with particularity every claim limitation to disclosures in Hirler. *Id.* at 21–26. For example, Petitioner maps Hirler's disclosure of body amplification zones (19) to "the lateral contact layer" of claim 1. *Id.* at 26 (citing Ex. 1003 ¶ 73 (Dr. Lui's declaration testimony); Ex. 1005, Fig. 2F (Hirler) (original version, with figures); Ex. 1006 ¶¶ 30, 33 (Hirler) (certified translation, with no figures).

We reproduce below Figure 2F from Hirler.

FIG 2F



Ex. 1005, Fig. 2F (Hirler) (original version, with figures). Figure 2F illustrates "a finished" metal-oxide semiconductor "power transistor

arrangement," including "body amplification zones **19**." Ex. 1006 ¶¶ 30, 33 (Hirler, certified translation, with no figures).

Patent Owner alleges no deficiency in Petitioner's evidence that Hirler anticipates claim 1, except to contend that Hirler does not disclose the dopant concentration and dopant implantation limitations, discussed above, which Patent Owner would draw into claim 1 through the term "lateral contact layer." Prelim. Resp. 8, 12; *see id*. at 12–15 (advancing arguments keyed to that incorrect construction).[9] Based on our preliminary determination that the term "lateral contact layer" in claim 1 includes no such limitations, we find Patent Owner's arguments, keyed to that incorrect construction, do not undercut the sufficiency of Petitioner's showing that it is reasonably likely to prevail at trial on the question of whether Hirler anticipates claim 1. Pet. 24–26. We institute review on that basis.

We next address this challenge as it pertains to claims 2 and 6, which depend from claim 1. Patent Owner incorporates by reference the arguments presented about claim 1, which, on this record, are based on an incorrect construction of "the lateral contact layer." Prelim. Resp. 15. We decline to provide detailed findings about the sufficiency of Petitioner's evidence as to claims 2 and 6, where Patent Owner's counterarguments are keyed to an incorrect claim construction.

In addition, we determine that, under the particular and unique facts presented on this record, the dispute surrounding whether Hirler anticipates claims 2 and 6 is best-suited for resolution on a full trial record, only as necessary to any final written decision, and in view of any final

[9] Patent Owner highlights its right to raise any arguments in a trial-phase response to the Petition. Prelim. Resp. 12 n.4.

determination on the correct construction of the term "lateral contact layer." *See id*. Refraining from supplying preliminary findings may be the prudent course, moreover, where the District Court action will not be stayed, the District Court presently is poised to issue an order on claim construction, and the trial in the District Court action likely will occur about five months before the Board enters any final written decision in the instant case.[10]

2. The Other Patentability Challenges

Having determined that Petitioner is reasonably likely to prevail with respect to at least one challenged claim based on the ground that asserts anticipation by Hirler, we decline to provide detailed preliminary findings as to the other patentability challenges. Here again, we adopt a prudent course to resolve these challenges, in the first instance, on the full trial record, only as necessary to any final written decision, and in view of any final determination as to the correct construction of "the lateral contact layer."

We provide the following remarks as guidance to the parties in an effort to promote a streamlined trial.

For each additional ground of unpatentability identified in the Petition, Petitioner advances arguments that map with particularity every claim limitation to disclosures in the asserted prior art. Pet. 29–66. At this stage of the proceeding, Patent Owner does not contest those arguments,

[10] These remarks are based on information presented in connection with Patent Owner's request for a discretionary denial, which we address below. The parties indicate that a motion to stay the District Court action was denied with prejudice, the District Court recently conducted a claim construction hearing (but has not yet issued a claim construction order), and the District Court likely will conduct a trial about five months prior to entry of any final written decision in the instant case. *See infra* 20–22.

except to contend that the references do not disclose or suggest "the lateral contact layer" of the claimed invention, when that feature is construed to include the dopant concentration and dopant implantation limitations discussed in our claim construction analysis. Prelim. Resp. 15–22.

On this record, where the merits are not contested by Patent Owner except to raise what appears as a plainly incorrect claim construction, the additional ground based on anticipation of claims 1 and 2 by Shiraishi may be relatively strong. Pet. 37–42. That ground does not implicate objective indicia of nonobviousness or the adequacy of any rationale to combine references in the manner claimed. We emphasize, however, that any final determination on the correct meaning of the term "lateral contact layer" may differ from our preliminary determination.

Regarding the additional grounds based on obviousness, *see id*. at 4 (grounds chart), the parties may wish to explore whether the evidence cited in the Petition establishes adequately a reason why an ordinarily skilled artisan would have combined the asserted prior art references in the manner claimed. *See id*. at 29–36, 42–66 (Petitioner's arguments and evidence pertaining to the obviousness challenges). In particular, the parties may wish to address whether any reason set forth in the Petition suggests an exercise of impermissible hindsight reconstruction. *See id*.

D. Discretionary Denial under Section 314(a)

We next address Patent Owner's request that we exercise our discretion to deny institution under 35 U.S.C. § 314(a). Prelim. Resp. 23–27.

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, 579 U.S. 261, 273 (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, and by delegation the Board, "with discretion on the question whether to institute review." (emphasis omitted)).

In light of the District Court action, Patent Owner requests that we exercise our discretion and deny institution based on the factors set forth in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential). Prelim. Resp. 23–27. Petitioner argues that we should decline to exercise our discretion. Pet. 72–75. For the reasons that follow, we decline to exercise our discretion to deny institution in this case.

An advanced state of a parallel district court proceeding is a "factor that weighs in favor of denying the Petition under § 314(a)." *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential). Specifically, an early trial date is part of a "balanced assessment of all relevant circumstances in the case, including the merits." Consolidated Trial Practice Guide (November 2019) 58.[11]

In *Fintiv*, the Board explained that "cases addressing earlier trial dates as a basis for denial under *NHK* have sought to balance considerations such as system efficiency, fairness, and patent quality." *Fintiv*, Paper 11 at 5 (footnote omitted). *Fintiv* sets forth six nonexclusive factors for determining "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.* at 6. These factors consider the following:

[11] Available at https://www.uspto.gov/TrialPracticeGuideConsolidated.

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.

Id. at 5–6. In evaluating these factors, we take "a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review." *Id.* at 6.

We also apply additional guidance issued by the Director on the application of the *Fintiv* factors. *See* Katherine K. Vidal, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022).[12] The *Fintiv* Memo states that "to benefit the patent system and the public good, the PTAB will not rely on the *Fintiv* factors to discretionarily deny institution in view of parallel district court litigation where a petition presents compelling evidence of unpatentability." *Id.* at 2.

[12] Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

We turn next to the arguments raised by the parties with respect to the *Fintiv* factors. Regarding *Fintiv* factors 1–5, we conclude that each weighs in favor of denying institution. We nevertheless grant institution based on our assessment of *Fintiv* factor 6, because the Petition presents compelling evidence of unpatentability. *See CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 4–5 (PTAB Feb. 27, 2023) (precedential) ("In circumstances where . . . the Board's analysis of *Fintiv* factors 1–5 favors denial of institution, the Board shall then assess compelling merits.").

a. *Fintiv* Factor 1: Likelihood of a District Court Stay

A district court stay of parallel litigation pending resolution of an *inter partes* review allays concerns about inefficiency and duplication of efforts, and strongly weighs against exercising our authority to deny institution. *Fintiv*, Paper 11 at 6. Petitioner asserts that "[n]o party has requested a stay of litigation, and so this factor is neutral." Pet. 72. In response, Patent Owner notes that ASUS, Petitioner's real party in interest in the instant case, filed a motion to stay the District Court action. Prelim. Resp. 23 (citing Ex. 2003); Pet. 1. ASUS's motion to stay was denied with prejudice. *See* Paper 8; Ex. 2010. Accordingly, we weigh the first *Fintiv* factor as favoring discretionary denial.

b. *Fintiv* Factor 2: Projected District Court Trial Date

The *Fintiv* Memo directs the Board to "consider the median time from filing to disposition of the civil trial for the district in which the parallel litigation resides." *Fintiv* Memo, 3 (footnote omitted). Based on a median time to trial of 19 months for the U.S. District Court for the Eastern District of Texas as of March 2023, Petitioner estimates that the District Court action would result in a trial occurring in October 2024, which is six months earlier

than the Board's expected final written decision. Pet. 73–74 (citing Ex. 1011). Patent Owner does not dispute this estimate. Prelim. Resp. 24.

As of December 2023, the median time to trial for the Eastern District of Texas is 21.4 months,[13] which projects a district court trial date of December 2024, five months prior to the expected May 2025 due date for our final written decision if we were to institute review on this Petition. Because the district court would address issues relating to the validity of the '634 patent several months before we would issue a final written decision, we weigh the second *Fintiv* factor as favoring discretionary denial.

c. *Fintiv* Factor 3: Investment in District Court Action

We next consider the amount of investment in the parallel proceeding by the district court and the parties. Petitioner argues that the District Court action "is still in the early stages," and that substantial work remains before trial. Pet. 74 (citing Ex. 1012, Ex. 1015). Patent Owner argues that the District Court action is no longer in its early stages. Prelim. Resp. 24. According to Patent Owner, (1) the parties in the District Court action have already exchanged infringement and invalidity contentions, (2) claim construction discovery is complete, and (3) prior to an expected Board institution decision, the opening claim construction brief will have been submitted, the *Markman* hearing will have been held, and fact discovery will be complete. *Id.* (citing Ex. 1012, 4–5; Ex. 2004, 4).

We determine there has been significant investment by the parties and the court in the District Court action, including the completion of preliminary disclosures and claim construction, and the near-completion of

[13] The most recent statistics are available at https://www.uscourts.gov/statistics/table/na/federal-court-management-statistics/2023/12/31-1.

fact discovery. Accordingly, we weigh the third *Fintiv* factor as favoring discretionary denial.

d. *Fintiv* Factor 4: Overlap of Issues

In the *Fintiv* Memo, the Director states, "Consistent with *Sotera Wireless, Inc.*, 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." *Fintiv* Memo, 3 (footnote omitted) (citing *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential)).

Petitioner stipulates "not to pursue invalidity challenges in any district court case based on the same or substantially the same grounds relied upon in this Petition." Pet. 75.

Patent Owner argues that Petitioner's stipulation is too narrow, that Petitioner is not a party in the District Court action, and that the record reflects no *Sotera*-type stipulation from the actual defendant in that proceeding, namely, Petitioner's real party in interest, ASUS. Prelim. Resp. 25. Patent Owner further argues that ASUS's invalidity contentions in the District Court action "include all of the same references as in this Petition" and asserts them in the same anticipation and obviousness challenges. *Id.*; Ex. 2005, 4–5, 21, 23.

In our view, Patent Owner has the better position. The instant case and the District Court action involve the same or substantially the same claims and grounds. *See* Ex. 2005, 4–5, 21, 23. We are directed to no argument or evidence sufficient to show that Petitioner's stipulation binds ASUS or otherwise prevents overlap between this proceeding and the District Court

action. We weigh the fourth *Fintiv* factor, therefore, as favoring discretionary denial.

e. *Fintiv* Factor 5: Whether Parties are the Same

"If a petitioner is unrelated to a defendant in an earlier court proceeding, the Board has weighed this fact against exercising discretion to deny institution under *NHK*." *Fintiv*, Paper 11 at 13–14 (footnote omitted).

Petitioner contends it is not a defendant in the District Court action nor is it an affiliate or subsidiary thereof. Pet. 75. Patent Owner responds that the defendant in the District Court action, namely, ASUS, is identified as a real party in interest in the Petition. Prelim. Resp. 26; Ex. 1010 ¶ 2; Pet. 1.

Given Petitioner's statement that ASUS is a real party in interest, we find that the defendant in the District Court action is not "unrelated" to Petitioner. Accordingly, we weigh the fifth *Fintiv* factor as favoring discretionary denial.

f. *Fintiv* Factor 6: Compelling Merits

We consider whether Petitioner has presented compelling evidence of unpatentability where, as here, our analysis of the first five *Fintiv* factors favors denial of institution. *CommScope Techs.*, Paper 23 at 5. "Compelling, 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. As further explained in *OpenSky Industries, LLC v. VLSI Technology LLC*, "a compelling-merits challenge is a higher standard than the reasonable likelihood required for the institution of an IPR," and is met when "it is highly likely that the petitioner would prevail with respect to at least one challenged claim." IPR2021-

01064, Paper 102 at 49 (PTAB Oct. 4, 2022) (decision on Director review) (precedential).

Petitioner argues that we should not deny institution under *Fintiv* "because the merits are strong." Pet. 75. Conversely, Patent Owner argues that "the merits of the petition are extraordinarily weak." Prelim. Resp. 26.

We find that the evidence, if unrebutted in trial, demonstrates that it is highly likely that Petitioner would prevail at least as to claim 1 based on the first ground, namely, anticipation by Hirler. As explained above, Petitioner identifies with particularity where each limitation of claim 1 is disclosed by Hirler. Patent Owner's counterarguments, on the current record, rest on an incorrect construction of "lateral contact layer."

Specifically, Patent Owner's proposed construction, on this record, appears to improperly import from the specification limitations not reasonably conveyed by any language in claim 1. *See supra* 8-13. Petitioner is highly likely to prevail, on this point of claim construction, where Patent Owner admits that the plain and ordinary meaning of "'layer' on its own is quite broad, meaning 'a region having unique electrical properties (e.g., n layer).'" Prelim. Resp. 5. Furthermore, Patent Owner's proposed construction appears, on this record, to violate basic principles of claim differentiation. *See supra* 11–12.

In addition, Petitioner's seemingly straightforward case for claim 1 being anticipated by Hirler does not implicate objective indicia of nonobviousness or the sufficiency of any reason to combine prior art references in the manner claimed. Accordingly, we determine that Petitioner presents a compelling, meritorious challenge with respect to at least one claim, namely, anticipation of claim 1 by Hirler.

Having identified compelling merits, we do not enter a discretionary denial under Section 314(a). *Fintiv* Memo, 5 ("[T]he PTAB will not deny institution based on *Fintiv* if there is compelling evidence of unpatentability."). But we emphasize that "a determination of 'compelling' merits should not be taken as a signal to the ultimate conclusion after trial" because "all relevant evidence likely will not have been adduced at the point of institution [and] trial should produce additional evidence that may support a determination in the Final Written Decision that unpatentability has not been adequately proven." *OpenSky*, Paper 102 at 49–50.

E. Notices

The Board shall deem waived any issue not raised by Patent Owner in a timely response to the Petition or as permitted in another manner during trial, even if the issue was raised in the Preliminary Response or discussed in this Decision.

Nothing in this Decision authorizes Petitioner, in a manner not otherwise permitted by the Board's rules, to supplement the information supporting any ground advanced in the Petition.

IV. CONCLUSION

For the above reasons, based on this preliminary record, we determine that Petitioner demonstrates a reasonable likelihood that the subject matter of at least one challenged claim is unpatentable.

Accordingly, we institute an *inter partes* review of all challenged claims based on all grounds asserted in the Petition pursuant to 35 U.S.C. § 314(a). *See PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1359–60 (Fed. Cir. 2018) (interpreting relevant statutory provisions and caselaw to require

"a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition").

V. ORDER

It is

ORDERED that, pursuant to 35 U.S.C. § 314(a), *inter partes* review of all challenged claims of the '634 patent is instituted on all grounds of unpatentability set forth in the Petition; and

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

For PETITIONER:

Mackenzie Martin
John G. Flaim
Ellen Cheong
BAKER & McKENZIE LLP
mackenzie.martin@bakermckenzie.com
john.flaim@bakermckenzie.com
ellen.cheong@bakermckenzie.com

For PATENT OWNER:

Michael Saunders
Bryan Atkinson
DICKINSON WRIGHT PLLC
msaunders@dickinson-wright.com
batkinson@dickinsonwright.com