

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INNOSCIENCE (ZHUHAI) TECHNOLOGY COMPANY, LTD.,
AND
INNOSCIENCE AMERICA, INC.
Petitioner,

v.

EFFICIENT POWER CONVERSION CORPORATION,
Patent Owner

Case IPR2023-01381
U.S. Patent No. 8,350,294

AUTHORIZED RESPONSE TO DIRECTOR'S REVIEW REQUEST

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I. INTRODUCTION

Petitioner's Request for Director Review (Paper 46) ("Request") should be denied as it relies on a fundamental mischaracterization about the amended claims and the technology at issue. Petitioner contends, incorrectly, that the amended claims "add competing and contradictory limitations," because "one limitation requires *high* doping concentration" and the other added limitation "requires low *doping* concentration." Paper 46 at 2-3. Petitioner argues that the specification of the '294 Patent lacks enablement because it fails to disclose how to resolve the contradiction.

Petitioner's Request should be denied because the two limitations are not contradictory at all, and both together are enabled by the '294 patent. As the Board found, the '294 patent teaches that a high acceptor-type dopant concentration can be used to achieve a compensated GaN layer with no 2DEG region below the gate, as required by one of the new limitations. *See* Paper 45 at 60-61 ("It is undisputed that enhancement mode transistors were known in the art and that the doping level of a layer under the gate needed to be sufficiently high to deplete the 2DEG under the gate.") (citing EX1001 at 1:45-56). The second limitation—the claimed semi-insulating GaN layer characteristic—is achieved, not by a low acceptor-type dopant concentration, but instead through passivation by hydrogen. *Id.* at 61 ("It is also undisputed that using hydrogen to passivate active acceptors was a known

method in the art.”) (citing EX1008 at 7). The Board found that, in light of the guidance provided by the ’294 patent, ordinarily skilled artisans would need only routine experimentation to tune these parameters to achieve the claimed invention. *Id.* (citing EX2024 ¶¶ 28-31).

In short, Petitioner’s request is based on a straw man that mischaracterizes both the disclosures of the ’294 patent and suggests an inherent contradiction in the amended claims where none exists. Petitioner’s Request fails to demonstrate errors in the FWD’s enablement analysis, and should be denied.

II. THE ’294 PATENT’S SPECIFICATION ENABLED THE AMENDED CLAIMS

“The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.” *United States v. Telectronics, Inc.*, 857 F.2d 778, 785 (Fed. Cir. 1988). The FWD’s enablement analysis is entirely consistent with the test and accounts for the knowledge of those skilled in the art coupled with the guidance provided by the ’294 patent specification.

The ’294 patent teaches that (1) providing high Mg (an example of an acceptor-type donor) concentration will achieve a GaN gate layer with no 2DEG, and (2) using hydrogen passivation can, at the same time, achieve a semi-insulating material in that layer. First, it teaches high acceptor-type dopant concentration

(using Mg as an example) in the compensated GaN layer to achieve enhancement mode devices (*i.e.*, with no 2DEG). Paper 31 at 7 (citing EX1001 at 3:16-17).

Second, the specification identifies that passivation of the acceptor impurity by hydrogen leads to a semi-insulating compensated layer. *See id.* (citing EX1001 at 3:43-52). The FWD relied upon this guidance and the background knowledge (as explained by Patent Owner's expert) to find that skilled artisans could "tune" these parameters to achieve a compensated GaN layer providing an enhancement-mode device (*i.e.*, no 2DEG below the gate) in a semi-insulating material (due to passivation by hydrogen). Paper 45 at 60-61 (citing EX2024 ¶¶ 28-31).

Petitioner wrongly suggests that the Board's finding that the amended claims are enabled conflicts with its finding that the amended claims are not obvious because "a claim exclusively enabled by prior art is necessarily obvious over that prior art." *See* Paper 46 at 8 (relying on *In re '381 Patent Infringement Litig.*, 578 F. Supp. 2d 711 (D. Del. 2008)). But the Board here ***did not*** find that the amended claims were "exclusively enabled" by the prior art. Rather the Board found that '294 patent disclosed the result-effective doping and passivation variables and explained the direction to adjust those variables to achieve the desired electrical effects: high Mg doping for no 2DEG enhancement mode and increased passivation for semi-insulating material. As the Board found, the prior art provided no such guidance. Paper 45 at 60-61. The Board's FWD discussed prior art only to

show the background knowledge that ordinarily skilled artisans possessed regarding the adjustment of doping levels and passivation, which allowed them to obtain the invention without undue experimentation by simply tuning the result-effective variables disclosed in the '294 patent. *See* Paper 45 at 61 (“[W]e agree with Patent Owner and Dr. Schubert . . . that this same ordinarily skilled artisan could use the disclosures of the '294 patent to form the claimed transistors without undue experimentation.”). Thus, unlike *'381 Patent Infringement Litig.*, this is not a case where the “patent only surmises how the claimed [invention] could be used.” *Id.* at 736. The '294 patent directs skilled artisans to “tune” specific variables (Paper 45 at 61 (citing EX2024 ¶¶ 28-31)) to obtain specific desired results, based on the undisputed knowledge of those skilled in the art.

III. THE FWD’S UNDUE EXPERIMENTATION ANALYSIS IS CORRECT

“[A]n extended period of experimentation may not be undue if the skilled artisan is given sufficient direction or guidance.” *In re Colianni*, 561 F.2d 220, 224 (CCPA 1977). A considerable amount of experimentation is permissible if the experimentation is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988). As explained *supra* §II.A, the specification provides key guidance identifying the result-effective variables and how to modify the variables and achieve the desired

outcome to enable the claimed invention. Paper 45 at 60-61; Paper 31 at 6-11. And the Board, on review of a full record, agreed—expressly explaining that, in view of such guidance, any experimentation would have been routine. *See* Paper 45 at 59-61; *see also* EX1001 at 1:45-56 (enhancement mode), 3:43-45 (passivation of p-type impurity), 3:37-39 (passivation), 3:46-52 (reduced capacitance); Paper 31 at 10-11; EX2024 ¶¶ 28-31. The Request ignores the Board’s express findings and wrongly criticizes the FWD as “jump[ing] past analyzing the relevant factual considerations” for enablement. Paper 46 at 9-10. It did not.

IV. THE REQUEST DOES NOT MEET THE STANDARD FOR DIRECTOR REVIEW

The Office revised its policy on Director Review—limiting review to “decisions presenting . . . (b) important issues of law or policy, (c) erroneous findings of material fact, or (d) erroneous conclusions of law.” The Request does no such thing—it asks merely for reconsideration of the merits without presenting any factual or legal error.¹ The Request does not meet the standard for Director Review, so it should be denied for this additional and independent reason.

V. CONCLUSION

For the foregoing reasons, the Request should be denied.

¹ In contrast, Patent Owner is requesting Director Review based on an important issue of policy. Paper 47. These same parties have litigated the validity of the same patents with the same prior art in the ITC. This is a perfect example of an IPR that should not have been maintained once another tribunal already decided the issues.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of the foregoing Authorized Response to Director's Review Request is being served on counsel of record by filing this document through the Patent Review Processing System, with a copy served via electronic mail to the following email address, as authorized in the Petition:

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Dated: April 25, 2025

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