

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

Case No. IPR2024-00094

Patent No. 7,812,409

**PETITIONER'S RESPONSE TO THE DIRECTOR'S
SEPTEMBER 17, 2025 ORDER AUTHORIZING ADDITIONAL BRIEFING**

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PETITIONER’S EXHIBIT LIST

EXHIBIT NO.	DESCRIPTION
1001	U.S. Patent No. 7,812,409 (the “’409 Patent” or “Patent-in-Suit”)
1002	File History for the U.S. Patent No. 7,812,409
1003	Declaration of Dr. David Liu
1004	Curriculum Vitae of Dr. David Liu
1005	U.S. Patent No. 6,888,196, Kobayashi (“Kobayashi”)
1006	U.S. Patent No. 5,763,914, Hshieh et al. (“Hshieh”)
1007	Kikkawa, T. et al., “A Quarter-Micrometer Interconnection Technology Using a TiN/Al-Si-Cu/TiN/Al-Si-Cu/TiN/Ti Multilayer Structure,” IEEE Transactions on Electron Devices, Vol. 40, No. 2, February 1993 (“Kikkawa”)
1008	Declaration of Dr. Sylvia D. Hall-Ellis
1009	Complaint, <i>Force Mos Technology, Co. Ltd. v. ASUSTeK Computer, Inc.</i> , No. 2:22-cv-00460 (E.D. Tex.)
1010	First Amended Complaint, <i>Force Mos Technology, Co. Ltd. v. ASUSTeK Computer, Inc.</i> , No. 2:22-cv-00460 (E.D. Tex.)
1011	U.S. Patent No. 6,541,818 to Pfirsch et al. (“Pfirsch”)
1012	Kim, Sang-Gi et al., “Trench Corner Rounding Technology Using Hydrogen Annealing for Highly Reliable Trench DMOSFETs,” International Symposium on Power Semiconductor Devices and ICs (ISPSD), May 22-25, 2000, Toulouse France
1013	Curriculum Vitae of Dr. Sylvia D. Hall-Ellis

EXHIBIT NO.	DESCRIPTION
1014	Attachment 1A MARC Record
1015	Attachment 1B Library of Congress Authorities sh 85042254
1016	Attachment 1C Library of Congress Authorities sh 85099890
1017	Attachment 1D OCLC
1018	Docket Control Order, <i>Force Mos Technology, Co. Ltd. v. ASUSTeK Computer, Inc.</i> , No. 2:22-cv-00460 (E.D. Tex.)
1019	Petitioner's <i>Sotera</i> Stipulation
1020	Transcript from the Deposition of Dean Neikirk, Ph.D., October 30, 2024
1021	Petitioner's Demonstrative Exhibits, Feb. 21, 2025
2031	Joint Exhibit of Relevant Excerpts from <i>Force MOS Technology Co., Ltd. v. ASUSTeK Computer, Inc.</i> , Case No. 2:22-cv-00460-JRG; U.S. District Court, Eastern District of Texas, Marshall Division

I. INTRODUCTION

The Director's Order of September 17, 2025, ("Order") implicates three questions underlying whether the Director should reconsider the Board's Final Written Decision canceling claim 1 of the '409 Patent. The record answers all three questions in the same way—there is no basis to disturb the Board's carefully considered decision.

The Director has already answered the first question Patent Owner presented in its request for reconsideration: whether the Director should use discretion to revisit the Board's decision to institute this IPR. The answer is no, as the Order expressly declined to consider Patent Owner's untimely request. Order at 2–3.

The second question is whether the jury's verdict or the district court's findings and conclusions regarding inequitable conduct *require* as a matter of law that the Director reverse the Board's Final Written Decision. This answer is also no, per Supreme Court and Federal Circuit precedent.

That leaves the third question, which appears to be the main focus of the Order: whether there is anything about the arguments and evidence presented in the district court that would undermine the Board's Final Written Decision. Again, the answer is no. If Patent Owner had believed that evidence or argument from the district court supported its position in this proceeding, then surely Patent Owner would have alerted the Board to such circumstances *before* the Final Written

Decision. Patent Owner did no such thing, and for good reason. If anything, the evidence and arguments from the district court further support the Final Written Decision. The district court judge and jury heard from two new witnesses who did not testify in this IPR, and the testimony of both new witnesses support the Board's Final Written Decision. Even more, the Board considered and relied on prior art evidence that the jury did not see, and the Board properly applied a lower burden of proof than did the judge or jury in the district court.

For all of these reasons, Petitioner respectfully submits that there is no reason to disturb the Board's Final Written Decision, and the Director should deny Patent Owner's request for reconsideration.

II. ARGUMENT

A. The Director Has Already Declined to Review Institution

In its request for reconsideration, Patent Owner urged the Director to reverse the Board's decision to institute this IPR in the first place. Paper No. 38 at 12–14. Patent Owner cited no precedent for this extraordinary request, as Petitioner explained in its original response. Paper No. 39 at 2. Since then, the Board has expressly declined Patent Owner's untimely request. Paper No. 41 at 2–3 (“Patent Owner's request to reconsider the Board's institution decision and to terminate the proceeding because the Board should have denied institution will not be considered at this time given the timing of Patent Owner's notice of the jury verdict.”).

B. Neither the Jury Verdict nor Any District Court Finding or Conclusion Mandates Reconsideration

District court decisions on patent invalidity and Board decisions on patentability sometimes reach different conclusions, and there is nothing wrong with that as a matter of law. The two proceedings involve different burdens of proof, and as Petitioner previously explained, the Supreme Court has held that the Board’s cancellation of patent claims does not violate the patent owner’s Seventh Amendment right to a jury trial. *Oil States Energy Services, LLC v. Greene’s Energy Group, LLC*, 584 U.S. 325, 331, 344–45 (2018); *see also* Paper No. 39 at 2–3.

Nor does the jury verdict of no invalidity mandate disturbing the Board’s Final Written Decision. The Federal Circuit has upheld Board decisions canceling claims where a jury had found the same claims not invalid. *XY, LLC v. ABS Glob., Inc.*, 723 F. App’x 1000 (Fed. Cir. 2018) (“*XY I*”); *XY, LLC v. Trans Ova Genetics*, 890 F.3d 1282, 1288, 1294 (Fed. Cir. 2018) (“*XY II*”). In *XY I* and *XY II*, the Federal Circuit heard simultaneous appeals from a Board decision canceling the same claims and a jury verdict of no invalidity. The Federal Circuit affirmed the Board’s decision without further comment under Federal Circuit Rule 26. *XY I*, 723 F. App’x 1000. At the same time, the Federal Circuit applied collateral estoppel in the district court appeal, precluding further enforcement of the canceled claims—even though the jury had found no invalidity. *XY II*, 890 F.3d at 1288, 1294; *see also Pers. Audio, LLC v. CBS Corp.*, 946 F.3d 1348, 1350–54 (Fed. Cir. 2020) (declining to revisit Board

decision canceling claims even after a jury had found the same claims not invalid).

Accordingly, under both Supreme Court and Federal Circuit precedent, the jury verdict of no invalidity does not require reversal of the Board's decision to cancel claim 1 of the '409 patent.

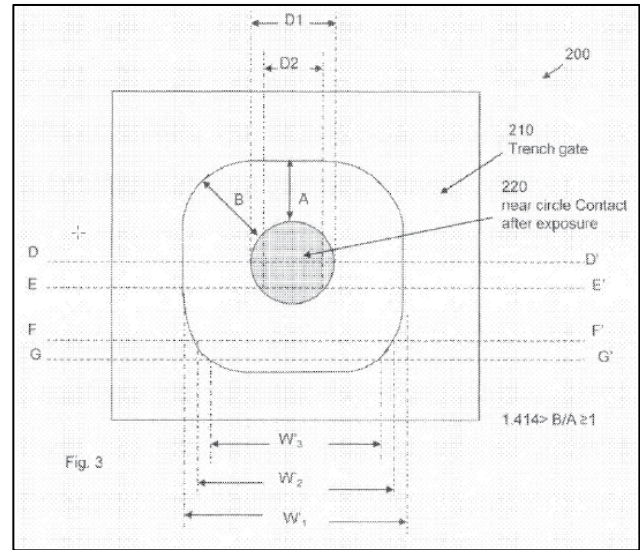
C. The District Court Evidence and Arguments *Support* the Board's Final Written Decision

1. The Board's Final Written Decision

Claim 1 of the '409 patent is directed to the configuration of a particular type of transistor, known as a "trenched semiconductor power device." Paper No. 37 at 3–7. The Board found claim 1 to be unpatentable based on Ground 4, which is the combination of Kobayashi (US 6,888,196) and the inventor's own prior art, Hshieh (US 5,763,914). *Id.* at 8–9, 22–38.

Most of the Board's decision is undisputed. Without objection from either party, the Board interpreted claim 1 according to its plain and ordinary meaning. *Id.* at 10–15. On the merits, Patent Owner did not dispute that Kobayashi disclosed six of the seven features recited in claim 1, including the preamble and limitations 1[b], 1[c], 1[d], 1[e], and 1[f]. *Id.* at 22, 36–37. The only disagreement involved limitation 1[a], which recites "said trenched gates surrounding said transistor cells as closed cells constituting substantially square-shaped cells with rounded corners." *Id.* at 23–36. The parties disputed whether the prior art taught square-shaped cells with rounded corners. *Id.*

The parties agreed that the “rounded corners” recited in claim 1 require “top view rounding,” which means that the rounded corners of the cells may be observed from the top view perspective, as shown in Figure 3 of the ’409 patent. *Id.* at 5, 11–15.



The Board found by a preponderance of the evidence that top-view rounding was known. *Id.* at 29. The parties disputed whether Kobayashi taught top-view rounding, as opposed to side-view rounding. *Id.* at 24, 28. The Board noted that top- and side-view rounding are related because the “trench and side view rounded corners surround the cell to form the cell corners visible from the top view.” *Id.*

The Board also credited the testimony of Dr. Kuan-Yu Liu, who testified that top-view rounding of corners was well-known as a way of reducing undesirable higher peak electric fields that were known to occur at sharp corners. *Id.* at 29–30 (citing Ex. 1003, ¶¶ 37, 39, 42–44, 55–57, 122, 133, 135–41). The Board further credited Dr. Liu’s testimony that the inventor’s own prior art, Hshieh, showed top-view rounding. *Id.* at 27–30. The Board concluded that it would have been nothing more than “minor and commonplace modification” to modify Kobayashi with Hshieh’s top-view rounding and that such rounding would not change Kobayashi’s

function. *Id.* at 30. The Board found Dr. Liu’s testimony on these points to be consistent with other evidence, including the Kim reference.¹ By contrast, the Board criticized Patent Owner for ignoring the relevant prior art teachings. *Id.* at 31–36. The Board also rejected Patent Owner’s argument—repeated by its expert, Dr. Dean Neikirk (Ex. 2021)—that Hshieh’s “non-orthogonal cells” taught away from combining Hshieh’s rounded corners with Kobayashi’s square cells. *Id.*

2. The District Court Evidence and Arguments

There are three main differences between the evidence and arguments considered by the Board and in the district court, respectively. First, the Board considered and relied on prior art evidence that the jury did not see. Second, two of the three witnesses who testified in the district court did not testify to the Board, and both provided testimony that supports the Final Written Decision. Third, the Board properly applied a lower burden of proof than the district court.

a. The Board Relied on Prior Art Evidence Not Presented in the District Court

As noted above, the Board cited Kim as further evidence that it was known to round corners to eliminate corner vulnerability. Paper No. 37 at 27–29. Kim was

¹ Kim et al., Trench Corner Rounding Technology Using Hydrogen Annealing for Highly Reliable Trench DMOFETS, Int’l Symp. on Power Semiconductor Devices and ICs (ISPSD), May 22–25, 2000, Toulouse France. Ex. 1012 (“Kim”).

not presented or considered in the district court jury trial or inequitable conduct bench trial. This evidence supports upholding the Final Written Decision.

b. Two of Three District Court Witnesses Did Not Testify Here, and Both Support the Final Written Decision

The district court judge and jury heard testimony from three witnesses related to the issue of '409 patent invalidity. Two of these three witnesses—Dr. Stanley Shanfield and Patent Owner's Chief Technology Officer, Mr. Kaoway Tu—did not testify to the Board, and *both* of their testimonies *support* the Board's conclusion. Patent Owner's expert, Dr. Neikirk, also testified in the district court, offering essentially the same testimony that the Board considered and rejected.

1) Dr. Shanfield's District Court Testimony

Like Dr. Liu did here, Dr. Shanfield testified in the district court that claim 1 of the '409 patent is invalid as either anticipated by Kobayashi or obvious in view of Kobayashi combined with Hshieh. Ex. 2031 at 4–30. Dr. Shanfield testified that the text of Kobayashi describes rounding the corners at the top of the trench, not just at the bottom as shown in Figure 6C. *Id.* at 28:14-24. Dr. Shanfield's testimony further supports the Board's conclusion that side-view rounding and top-view rounding are related. *See* Paper No. 37 at 28.

Dr. Shanfield also testified that Hshieh taught using rounded corners to address the punch-through problem in the corners, which can cause “the device burning out because it's being driven too hard.” Ex. 2031 at 15:14–17:2, 28:25–

29:22, 100:6–102:13. Dr. Shanfield explained that this is the same problem that the '409 patent later purported to solve, and that it would have been obvious to combine the earlier Hshieh prior art teaching s with Kobayashi to solve this problem. *Id.*

Dr. Shanfield further rebutted Dr. Neikirk's testimony about the "three-dimensional diffusion" effect. He explained that regardless of the cause of sharp corner vulnerability, it was known to reduce the vulnerability by simply rounding the corners. *Id.* at 100:13–102:13.

Dr. Shanfield's testimony is entirely consistent with the testimony from Dr. Liu that the Board credited in reaching its conclusion that it would have been obvious to combine Hshieh's rounded corners with Kobayashi's square cells to reduce the vulnerabilities known to be associated with sharp corners. *See* Paper No. 37 at 26–29. Dr. Shanfield's district court testimony therefore supports the Board's Final Written Decision.

2) Kaoway Tu's District Court Testimony

Unlike the Board, the district court judge and jury also heard from Patent Owner's Chief Technology Officer, Mr. Kaoway Tu. Ex. 2031 at 121:14–124:18. Mr. Tu acknowledged that the inventor's own prior art Hshieh reference showed the same rounded corners that were later described and claimed in the '409 patent. *Id.* at 121:16–54:1. This is Patent Owner's own witness—the Chief Technology Officer, of all people—confirming that the inventor's own prior art taught the very

same rounded corners later recited in claim 1 of the '409 patent.

Mr. Tu also described the effect of avalanche, which Dr. Shanfield and Dr. Liu both agreed is one risk of sharp corners—and that rounding the corners reduced this vulnerability. *Id.* at 122:2-12 (Tu), 101:18–102:13 (Shanfield); Paper No. 37 at 26 (citing Ex. 1003, ¶¶ 133, 137) (Liu). The Board credited Dr. Liu's testimony on this point, and the testimony that both Dr. Shanfield and Mr. Tu provided in the district court supports the Board's conclusion. *Id.*

3) Dr. Neikirk's District Court Testimony

Dr. Neikirk also testified in the district court, offering essentially the same opinions that he provided to the Board. For example, Dr. Neikirk testified in district court as he did here that it would not have been obvious to combine Hshieh's rounded corners with Kobayashi's square cells because Hshieh's rounded corners allegedly were directed to solving a different problem, the "three-dimensional diffusion effect." Ex. 2031, 42:15–43:13. The Board already considered and rejected Dr. Neikirk's testimony on this same point. Paper No. 37 at 34–36.

Further, when pressed during cross examination in the district court, Dr. Neikirk acknowledged that the three-dimensional diffusion effect is just another cause of weak points in the corners that can be addressed by rounding the corners, which further supports the Board's conclusion. Ex. 2031 at 137:16–140:9. After the District Judge cautioned him against argumentative answers, Dr. Neikirk

ultimately acknowledged that Hshieh taught rounding sharp corners to prevent corner vulnerability and weak points in the corners, exactly as the Board concluded.

7	Q. (BY MR. McMAHON) Dr. Neikirk, here we see Dr. Hshieh in
8	Hshieh '914 showed rounding sharp corners to prevent the
9	corner vulnerably earn and weak points in the corners. Right?
10	A. Yes.

Ex. 2031 at 138:12–139:10; Paper No. 37 at 25–27.

c. The District Court Applied a Different Burden of Proof

The Board properly found that Petitioner had established the unpatentability of claim 1 by a preponderance of the evidence. Paper No. 37 at 22, 29, 38. By contrast, both the judge and jury in the district court applied the higher “clear and convincing evidence” burden of proof in considering the invalidity and inequitable conduct claims. *See, e.g.*, Ex. 2031 at 63:8-12, 91, 195 (CL 6), 198 (CL 20). The differing burdens provide yet another reason not to disturb the Board’s decision.

III. CONCLUSION

Unlike the district court, the Board applied a lower burden of proof and had the benefit of considering additional evidence, including the Kim reference. And the two new witnesses who testified in the district court *both* support the Board’s conclusions. For these reasons, Petitioner respectfully submits that the evidence and arguments presented in the district court provide no reason to reconsider the Board’s well-reasoned decision, and Patent Owner’s request should be denied.

Dated: October 17, 2025

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on October 17, 2025, I caused a true and correct copy of Petitioner's Response to the Director's September 17, 2025 Order Authorizing Additional Briefing was served on Patent Owner via email at the following addresses:

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Dated: October 17, 2025

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