

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

**ROBERT ROZBICKI, MICHAL DANEK, AND
ERICH KLAUHN,**
Appellants,

v.

**TONY CHIANG, GONGDA YAO, PEIJUN DING,
FUSEN E. CHEN, BARRY L. CHIN, GENE Y.
KOHARA, ZHENG XU, AND HONG ZHANG,**
Appellees.

2014-1041

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in Interference No.
105,898.

Decided: November 14, 2014

TODD R. WALTERS, Buchanan Ingersoll & Rooney PC,
of Alexandria, Virginia, argued for appellants. With him
on the brief were S. LLOYD SMITH and ERIN M. DUNSTON.

JOHN R. KENNY, Kenyon & Kenyon LLP, of New York,
New York, argued for appellees. With him on the brief
were MARIA LUISA PALMESE and JOSEPH A. COPPOLA. Of
counsel was GAUDENIS VIDUGIRIS.

Before DYK and O'MALLEY, *Circuit Judges*.*

O'MALLEY, *Circuit Judge*.

This patent appeal arises from an interference proceeding before the United States Patent and Trademark Office Patent Trial and Appeal Board (“PTAB”) relating to technology for depositing and etching barrier materials on wafer substrates. The PTAB construed the term “etching” as “the removal of material to create a pattern.” Relying on this construction, the PTAB found that U.S. Patent Application No. 11/733,671 (“the Chiang Application”) contained adequate written description support for the lone interference count.

On appeal, Rozbicki challenges the PTAB’s construction of “etching” and its written description finding. Because we agree with the PTAB’s claim construction, we *affirm* its written description decision for Chiang claims 31–39, 46, 59–61, 63, 64, 66–71, 83, and 84 as it is supported by substantial evidence. We *vacate* and *remand* the PTAB’s decision for Chiang claims 47, 49, 51, 53, 55, 57, 76–82, 85, 87, 88, and 90, however, because we find that the PTAB’s explanation of how the Chiang Application describes the “net etching” limitation is inadequate.

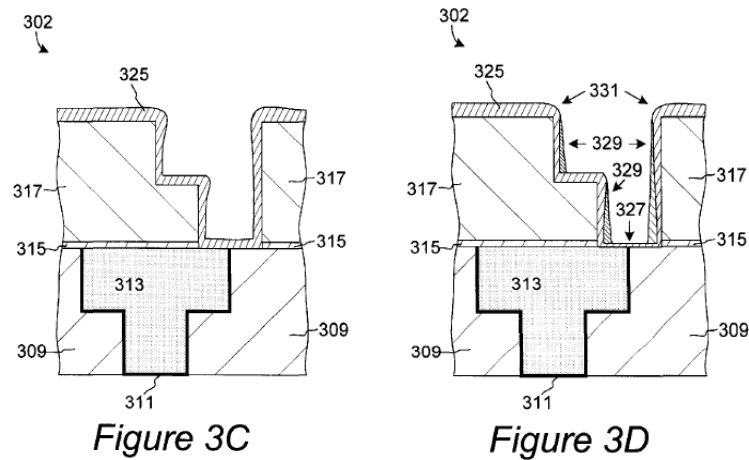
BACKGROUND

This technology relates to wafer substrates to make integrated circuits. The wafer substrates contain semiconductor devices that are electrically connected to form the integrated circuits. Appellee Br. 4. These electrical connections are made using vias, which are openings in a

* Randall R. Rader, who retired from the position of Circuit Judge on June 30, 2014, did not participate in this decision.

layer of silicon dioxide above the wafer substrate. *Id.* These vias are filled with metal to make the electrical connections. *Id.* Previously, semiconductor manufacturers used aluminum to make these electrical connections. *Id.* Eventually, manufacturers switched to copper, which has a lower resistivity. *Id.* This switch, however, required the placement of a layer of barrier material between the silicon dioxide and the copper to prevent the copper from diffusing into the silicon dioxide. *Id.* Normally, this barrier material is placed over the silicon dioxide through a physical vapor deposition process, such as, sputtering or a chemical vapor deposition process. '977 Patent col. 2 ll. 13–16. Sputtering is a process where atoms are ejected from a solid target material towards a substrate by bombarding the target material with energetic particles. Resputtering is the sputtering of previously deposited material. Typical barrier materials can include tantalum, tantalum nitride, tungsten, titanium, titanium tungsten, titanium nitride, etc. '977 Patent col. 2 ll. 11–13. The identical claims-at-issue on appeal from both disclosures are directed to a method of depositing barrier material.

U.S. Patent No. 6,607,977 (“the '977 Patent” or “the Rozbicki Patent”) issued on August 19, 2003. It is titled “Method of Depositing a Diffusion Barrier for Copper Interconnect Applications.” '977 Patent, at [54] (filed September 26, 2001). As shown in Figure 3C below, the invention discloses a first step of depositing barrier material 325 to provide coverage, then a second step of depositing additional barrier material and simultaneously etching a portion of the barrier material deposited in the first step as seen in Figure 3D.



'977 Patent Fig. 3C, 3D. The summary of the invention states that the result of the steps is a metal diffusion barrier formed in part by “net etching” in the bottom of the vias and “net deposition” on the side walls. The specification describes “net etching” as having an “etch to deposition ratio” or “E/D” that is greater than 1. The purpose of this “net etching” is to reduce the resistance of subsequently formed metal interconnects.

The Chiang Application relates to “a method of sputtering a sculptured coating over the walls of a high aspect ratio semiconductor feature in a manner which avoids or significantly reduces the possibility of damage to or contamination of underlying surfaces.” Joint Appendix (“J.A.”) 1180. The Chiang Application generally describes applying a first portion of a sculptured layer using traditional sputtering or ion deposition sputtering with a low substrate bias such that a surface onto which said sculptured layer is applied is not eroded away. J.A. 1188. It then describes applying a subsequent portion of the sculptured layer using ion deposition sputtering with sufficiently high substrate bias to sculpture a shape from said first portion while depositing additional layer material. J.A. 1188. Chiang explains that, “[a]fter deposition

of a first portion of barrier layer material, the bias voltage is increased during the deposition of additional barrier layer material over the feature surface. The application of increased bias voltage results in the resputtering (sculpturing) of the first portion of barrier layer or wetting layer material (deposited at the lower substrate bias voltage) while enabling a more anisotropic deposition of newly depositing material.” J.A. 1190. “Availability of the material which was deposited at the lower bias voltage on the surface of a trench or via protects the substrate surface under the barrier or wetting layer material during the sputtering deposition at higher bias voltage. This avoids breakthrough into the substrate by impacting ionized material which could destroy device functionality.” J.A. 1190.

Chiang provides three examples in his application, which correspond to the Chiang Application Figures 3 to 5. The key example is Example 3, describing Figure 5.

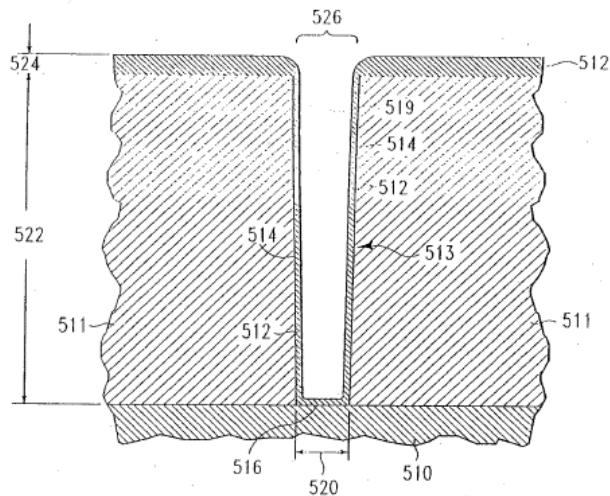


FIG. 5

This figure discloses an embodiment involving an initial deposition where a barrier material is applied for 15 seconds without the application of substrate biasing power, then applying a substrate biasing power of -60V (250W) while depositing barrier material through ion deposition plasma for about 45 seconds. J.A. 1200–01. During this second deposition period, barrier material from the first deposition period is resputtered, with excess barrier material being removed and reshaped. J.A. 1201.

On May 25, 2012, the PTAB declared Interference No. 105,898 between claims 1–73 of the Rozbicki Patent and claims 31–90 of the Chiang Application. As Chiang copied its claim language from the Rozbicki Patent, the interference included a single count: claim 1 of the '977 Patent which is the same as claim 31 of the Chiang Application. These identical claims state:

A method for depositing a diffusion barrier and a metal conductive layer for metal interconnects on a wafer substrate, the method comprising:

- (a) depositing a first portion of the diffusion barrier over the surface of the wafer substrate;
- (b) *etching* the first portion of the diffusion barrier at the bottom of a plurality of vias without fully etching through such that an amount of barrier material remains at the bottom of the plurality of vias, while depositing a second portion of the diffusion barrier elsewhere on the wafer substrate; and
- (c) depositing the metal conductive layer over the surface of the wafer substrate such that the metal conductive layer contacts the barrier material remaining at the bottom of the plurality of vias; wherein at least part of (a) and all of (b) are performed in the same processing chamber.

J.A. 155–166, 178–187 (emphasis added); *see also* '977 Patent col. 14 ll. 24–41. For the lone count, the PTAB accorded Rozbicki benefit back to March 13, 2001, and Chiang back to November 26, 1997. Accordingly, the PTAB deemed Rozbicki the junior party and Chiang the senior party.

Rozbicki filed a first motion for judgment asserting that the Chiang Application failed to satisfy the written description requirement. Rozbicki further filed a second motion for judgment that Chiang is not entitled to the benefit of the filing date of any earlier application because those applications also fail to satisfy the written description requirement. Chiang filed a motion to exclude certain evidence.¹ On June 26, 2013, the PTAB: (1) granted-in-part Rozbicki's motion for failure to meet written description for Chiang claims 40–45, 48, 50,² 52, 54, 56, 58, 62, 65, 72–75, 86, and 89,³ but denied-in-part for Chiang claims 31–39, 46, 47, 49, 51, 53, 55, 57, 59–61, 63, 64, 66–71, 76–85, 87, 88, and 90; (2) denied Rozbicki's second motion on accorded benefit; and (3) granted-in-part and denied-in-part Chiang's motion to exclude certain evidence.

¹ Chiang moved to exclude certain statements from Rozbicki's patent and priority application that are repeated in the Rozbicki expert's testimony as hearsay. The PTAB denied this motion on the grounds that the documents were admissible as proof of what they say. Accordingly, Rozbicki's expert was allowed to reasonably rely on these documents. This ruling is not at issue on appeal.

² While the PTAB granted Rozbicki's motion as to claim 50, that claim was not included in the PTAB's summary of dismissed claims. *Compare* J.A. 19, *with* J.A. 20.

³ Chiang is not appealing the PTAB's finding for these dependent claims.

Addressing the construction of “etching,” the PTAB construed the term as requiring “the removal of material to create a pattern.” J.A. 7. The PTAB then found that the Chiang Application disclosed sputtering/resputtering as one way to etch and deposit simultaneously, and pointed to Example 3 for disclosing the necessary etching. The PTAB further found that Chiang taught “net etching” based on Example 3. J.A. 15. As essentially the same reasons regarding written description, the PTAB found priority for Chiang.

Rozbicki subsequently filed a motion for rehearing. On July 16, 2013, the PTAB entered its Decision on Request for Rehearing. While the PTAB reconsidered the decision, it denied the requested relief. The PTAB stated that there was nothing that compelled a narrower claim interpretation. The PTAB stated that the claims only require “etching,” not “net etching” as described in the Rozbicki Patent’s written description. Turning to Chiang’s disclosure, the PTAB stated that Chiang’s Example 3 made sense only if etching occurred in the second step. The PTAB also stated that it found Rozbicki’s expert less credible than Chiang’s expert. It then explained that the independent claims did not require reducing thickness of the barrier layer and that, even if they did, Chiang’s second step appears to reduce the thickness while redistributing the material.

On July 30, 2013, the PTAB entered Judgment finding that Rozbicki did not have priority, and, consequently, cancelled claims 1–73 of the ’977 Patent. Rozbicki timely appealed. This court has jurisdiction pursuant to 28 U.S.C. § 1295.

DISCUSSION

A. Claim Construction

This court reviews claim construction de novo. *Lighting Ballast Control LLC v. Philips Elecs. N. Am.*, 744 F.3d

1272, 1276–77 (Fed. Cir. 2014) (en banc). “[W]hen a party challenges written description support for an interference count or the copied claim in an interference, the originating disclosure provides the meaning of the pertinent claim language.” *Agilent Techs., Inc. v. Affymetrix, Inc.*, 567 F.3d 1366, 1375 (Fed. Cir. 2009); *see also In re Spina*, 975 F.2d 854, 856 (Fed. Cir. 1992) (“When interpretation is required of a claim that is copied for interference purposes, the copied claim is viewed in the context of the patent from which it was copied.” (citing *DeGeorge v. Bernier*, 768 F.2d 1318, 1322 (Fed. Cir. 1985))). Consequently, we review the Chiang claims copied from the Rozbicki Patent in light of the Rozbicki Patent specification. *See Agilent*, 567 F.3d at 1375.

The PTAB construed the term “etching” as the removal of barrier material. Looking at the claim language itself, the PTAB stated that the claim “simply requires ‘etching’.” J.A. 6. It emphasized that Rozbicki defines “net etching” in its written description, but only references “etching” in the independent claims. The PTAB pointed out that this supports an inference that the claims are broader than the preferred embodiment. Turning to the expert testimony presented by both parties, the PTAB found the testimony of Chiang’s expert, Dr. Cuomo, more credible than that of Rozbicki’s expert, Dr. Ruzic, with respect to what the term “etching” requires. Specifically, the PTAB found Dr. Ruzic’s testimony less credible because the term “net etching” is not an art-recognized term and introduces imprecision. J.A. 6.

Rozbicki argues that the PTAB erred in ruling that “etching” does not require “net etching”—which occurs when there is more etching than deposition—in all the claims. He further argues that the PTAB should have construed etching to require thinning of the barrier layer at the bottom of the via. Rozbicki also asserts that the PTAB defined etching without considering the Rozbicki specification. He points out that the specification “re-

peatedly, consistently, and exclusively” teaches reducing the thickness of the barrier layer previously deposited at the bottom of the via. Chiang responds that the PTAB correctly construed the term etching as simply the removal of barrier material. He agrees with the PTAB that the claim language in the independent claims only requires “etching,” and not any particular level of etching. Chiang further states that the specification describes net deposition where the etch to deposition ratio is less than one, which refutes the requirement that etching requires “net etching” or “net removal.” ’977 Patent col. 13 ll. 13–19 (“The magnitude of E/D on the side walls is < 1 The side walls receive a net deposition.”).

We agree with Chiang that the PTAB properly defined etching to require the removal of material, and not “net etching” or thinning at the bottom of the via. The claim language states “(b) etching the first portion of the diffusion barrier at the bottom of a plurality of vias without fully etching through such that an amount of barrier material remains at the bottom of the plurality of vias.” ’977 Patent col. 14 ll. 30–33. The claim language itself does not include any requirement of “net etching” or thinning at the bottom of the via.

Rozbicki improperly attempts to read limitations into the claims based on the embodiments described in his written description, limitations which are absent from the claim language. The Rozbicki Patent’s written description, however, explicitly describes “net etching” as having an etch to deposition ratio of greater than 1. Accordingly, even Rozbicki recognizes that this “net etching” is distinguishable from the term “etching.” For example, Rozbicki claim 27, which corresponds to Chiang claim 47, states: “wherein (b) comprises a PVD etch/deposition process in which an RF frequency is applied to the wafer substrate such that the *etch to deposition ratio is greater than 1* in the bottom of the plurality of vias and less than 1 on the field.” ’977 Patent col. 15 ll. 44–48 (emphasis added).

First, this claim language uses the term “etch” as part of its description of “net etching” for the bottom of the plurality of vias. Second, this very same claim requires an etch to deposition ratio less than 1 on the field. If the term “etching” required “net etching,” then an etch to deposition ratio less than 1 would not make any sense, or at least be redundant. Accordingly, this claim language supports the PTAB’s broader construction of the term “etching.” Furthermore, despite the ability to include the term “net etching” or an etch to deposition ratio greater than 1 in the text of its claims, Rozbicki chose to include only the term “etching” in its independent claims. Chiang then copied this broad language into his own claims. Rozbicki, while attempting to obtain the broadest claim language possible during prosecution, cannot now improperly narrow its language by importing limitations not supported by the claim language or written description. For the reasons above, we affirm the PTAB’s claim construction of “etching.”

B. Written Description Requirement

1. Etching

Rozbicki disputes whether the Chiang Application provides written description support for the claims-at-issue. The written description requirement is found in 35 U.S.C. § 112 (2012), which states:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

To satisfy the written description requirement, the specification must “convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the [claimed] invention.” *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991). The properly construed claim must be supported by the originating specification. *Agilent*, 567 F.3d at 1378–79. Satisfying the written description requirement is a question of fact that we review for substantial evidence. *Harari v. Lee*, 656 F.3d 1331, 1341 (Fed. Cir. 2011) (citing *Chen v. Bouchard*, 347 F.3d 1299, 1304 (Fed. Cir. 2003)).

In light of its claim construction of “etching,” the PTAB concluded that the Chiang Application sufficiently described this limitation, which is recited in Chiang independent claims 31 and 66. Specifically, the PTAB found the Chiang Application’s discussion of the sputtering/resputtering process, which removes barrier material at the bottom of the via, satisfied the written description requirement for “etching.” In support, it looked to Example 3 in light of Examples 1 and 2 from the Chiang Application. The PTAB explained that the three examples “are sufficient to indicate to one of ordinary skill that, more likely than not, the third example achieves its purported result by offsetting the results of method steps similar to example 2 with the results of method steps similar to example 1.” J.A. 11. The PTAB also relied on the testimony of Chiang’s expert, Dr. Cuomo, who explained that etching results from the biasing substrate, which creates an electrical field, causing ions to impact on the silicon substrate and silicon dioxide sidewall, resulting in simultaneous sputtering of the surfaces such as through the second step of Example 3.

Rozbicki argues that the Chiang Application does not satisfy the written description requirement. According to Rozbicki, the written description does not make clear that etching occurs at the bottom of the via, and Example 3

does not necessarily show etching. Chiang responds that substantial evidence exists based on Example 3 and Dr. Cuomo's expert testimony, which the PTAB found more credible than that of Rozbicki's expert. Since we agree with the PTAB's claim construction, we look to see if the PTAB's finding that the Chiang Application sufficiently described the "etching" limitation is supported by substantial evidence. We find that it is, and do not find Rozbicki's arguments persuasive.

The Chiang Application generally discloses the removal of material through sputtering/resputtering. It then provides a step for "applying a subsequent portion of said sculptured layer using ion deposition sputtering, with sufficiently high substrate bias to sculpture a shape from said first portion, while depositing additional layer material." J.A. 1188. During this step, "[t]he application of increased bias voltage results in the resputtering (sculpturing) of the first portion of barrier layer." J.A. 1190; *see also* J.A. 1201. Consequently, the barrier layer from the first deposition period, which includes the barrier layer at the bottom of the via, is resputtered. This resputtering meets the "etching" requirement.

Chiang's expert, Dr. Cuomo, testified that the sputtering/resputtering removes sections of the initially deposited barrier layer from the bottom of the via. In particular, he pointed to Example 3 as reproduced from Figure 5 of the Chiang Application.

Chiang Example 1	Chiang Example 2	Chiang Example 3				
similarities						
DC power: 2 kW RF power: 1.5 kW at 2 MHz pressure: 40 mT	DC power: 2 kW RF power: 1.5 kW at 2 MHz pressure: 40 mT	DC power: 2 kW RF power: 1.5 kW at 2 MHz pressure: 40 mT				
differences						
temperature: 75 °C substrate bias: -70 V, ~200 W time: ? seconds problem: break-through 328	temperature: 75 °C substrate bias: none time: 60 seconds problem: thin barrier corners 415	<table border="1" style="width: 100%;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">First</td> <td>temperature: 25 °C substrate bias: none time: 15 seconds</td> </tr> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Second</td> <td>temperature: 25 °C substrate bias: -60 V, ~250 W time: 45 seconds</td> </tr> </table>	First	temperature: 25 °C substrate bias: none time: 15 seconds	Second	temperature: 25 °C substrate bias: -60 V, ~250 W time: 45 seconds
First	temperature: 25 °C substrate bias: none time: 15 seconds					
Second	temperature: 25 °C substrate bias: -60 V, ~250 W time: 45 seconds					

Dr. Cuomo testified that Example 3 discloses the claimed invention, and essentially performs the steps of Example 2 and then Example 1 consecutively, in that order. J.A. 2635–40. Example 1 discloses etching as seen by the breakthrough in the barrier level when sputtering with a substrate bias. Example 2 discloses sputtering with no substrate bias, resulting in the deposit of a large quantity of barrier material at the bottom of the via with no breakthrough. By performing a first step similar to Example 2 prior to the step of Example 1, Chiang’s expert testified that Example 3 prevents breakthrough into the lower level when etching occurs during the second step similar to Example 1. J.A. 2639. Furthermore, the Chiang Application explains that the first deposit layer “protects the substrate surface . . . during the sputtering deposition at higher bias voltage” and “avoids breakthrough.” J.A. 1190. This concern exists only if the second step causes etching. Based on the specification of the Chiang Application and the expert testimony, there is

substantial evidence to support the conclusion that the Chiang Application discloses etching.

Rozbicki also argues that the Chiang Application only employs two sequential deposition steps, not an etching step of the layer at the bottom of the via. In support, he points to language in the Chiang Application stating that the steps listed are described as depositing steps for a barrier layer substance.⁴ Chiang disagrees, stating that the second step in its application inherently includes etching within the depositing step. As explained by the PTAB and Chiang's expert, although the Chiang Application lists its steps as depositing steps, this does not change the fact that the second step in the Chiang Application also performs etching.

Rozbicki contends that the PTAB erred because the disclosure of sputtering/resputtering does not provide support for the *full scope* of the term "etching" in Chiang's claims. In Rozbicki's first motion, he requested "judgment that Chiang's involved claims are unpatentable to Chiang under 35 U.S.C. § 112, first paragraph, as lacking adequate written description." J.A. 412. The PTAB found that Rozbicki did not advance a scope argument, instead arguing only that the Chiang Application failed to describe a particular embodiment. J.A. 22. The PTAB addressed this point again in its decision on request for rehearing. It stated that, "[w]hile the statute encompasses a scope argument, it does not follow that Rozbicki necessarily made a scope argument. As the decision noted, case law distinguishes scope as a distinct type of

⁴ The specific claim language for the second step states: "applying a subsequent portion of said sculptured layer using ion deposition sputtering, with sufficiently high substrate bias to sculpture a shape from said first portion, while depositing additional layer material." J.A. 1188.

written description problem.” J.A. 40. It further stated that, “[a]s a matter of due process, Chiang need not address every theory that Rozbicki could have argued, but only the argument Rozbicki actually made.” J.A. 40 (footnote omitted). We agree with the PTAB that Rozbicki did not properly raise a scope argument before the PTAB, and thus, we find that the PTAB did not err in failing to address this argument.

Because substantial evidence supports the PTAB’s finding that the Chiang Application adequately describes the “etching” limitation, we affirm the PTAB’s finding that Chiang claims 31 and 66 meet the written description requirement. Additionally, since Rozbicki only argues that Chiang dependent claims 32–39, 46, 59–61, 63, 64, 67–71, 83, and 84 do not meet the written description requirement because the Chiang Application fails to disclose the “etching” limitation—the same argument we just rejected—we also affirm the PTAB’s findings as to these claims. Furthermore, because Rozbicki’s arguments that Chiang is not entitled to the benefit of each of its earlier-filed priority application hinges on the written description challenge, we affirm the PTAB’s finding that Chiang is entitled to the benefit of each of its earlier-filed applications for Chiang claims 31–39, 46, 59–61, 63, 64, 66–71, 83, and 84.

2. Net Etching

We do not find, however, that the PTAB adequately addressed the extent to which the Chiang Application discloses “an etch to deposition ratio greater than 1 in the bottom of the plurality of vias,” a limitation which appears in the remaining claims at issue.

First, the PTAB did not consider Rozbicki’s expert testimony regarding “net etching.” The only explanation the PTAB provided as to why it rejected the testimony of Rozbicki’s expert on this issue was that it did not agree with his definition of the term “etching.” *See* J.A. 15 (“Dr.

Ruzic's testimony is entitled to little weight because it is based on an untenable interpretation of the contested claim language." As such, the PTAB simply ignored Dr. Ruzic's testimony regarding what "net etching" is, and the existence of "etch to deposition ratio greater than 1 in the bottom of the plurality of vias" solely based on his "untenable interpretation" of "etching." Although the PTAB stated in its decision on rehearing that it did not overlook Rozbicki's expert testimony, which showed that Chiang's examples could not result in "an etch to deposition rates greater than 1," solely based on its disagreement with his claim construction position, that is, in fact, what the PTAB did in its initial decision. J.A. 15, 39. And it did not cure this problem in its order on reconsideration.

Second, in addressing the "net etching" limitation, the PTAB failed to adequately explain how Chiang disclosed this limitation. The PTAB conceded that "Chiang's disclosure does not describe an . . . etch-to-deposition (E/D) ratio." J.A. 18. But it concluded that Chiang discloses the E/D ratio limitation, because the claim language is, in the PTAB's opinion, so broad that Chiang's general discussion of "etching at the via bottom while material is deposited elsewhere, including the field," sufficiently describes the contested limitation. J.A. 18. This bare assertion alone, however, does not suffice as adequate support. Without any analysis as to how a brief discussion about "etching," which can occur without an "etch to deposition ratio greater than 1 in the bottom of the plurality of vias," also discloses this limitation, the PTAB's conclusion is unfounded. Therefore, the PTAB's explanation does not adequately support the finding that the Chiang Application meets the written description requirement for the limitation of an "etch to deposition ratio greater than 1 in the bottom of the plurality of vias."

Therefore, we vacate the PTAB's decision regarding Chiang claims 47, 49, 51, 53, 55, 57, 76–82, 85, 87, 88, and 90 and remand for the PTAB to provide a more detailed

explanation of how the Chiang Application's written description supports an "etch to deposition ratio greater than 1 in the bottom of the plurality of via," including a discussion of the expert testimony from both parties.

CONCLUSION

For the reasons above, and because we find that Rozbicki's remaining arguments are without merit, we affirm the PTAB's claim construction, and consequently, affirm its finding of written description support and priority for Chiang claims 31–39, 46, 59–61, 63, 64, 66–71, 83, and 84 as it is supported by substantial evidence. We vacate and remand the PTAB's decision for Chiang claims 47, 49, 51, 53, 55, 57, 76–82, 85, 87, 88, and 90 for further proceedings consistent with this opinion.

**AFFIRMED-IN-PART, VACATED-IN-PART, AND
REMANDED**