

Confidential business information relating to the manufacturing process of  
caused products has been deleted from page 21 of the Commission's  
confidential brief. See 19 U.S.C. § 1337(n); 19 C.F.R. § 210.5.

## TABLE OF CONTENTS

	<u>Page</u>
TABLE OF AUTHORITIES .....	ii
STATEMENT OF RELATED CASES .....	1
STATEMENT OF ISSUES.....	2
STATEMENT OF THE CASE.....	2
STATEMENT OF FACTS.....	3
A.    Introduction.....	3
B.    The '899 Patent.....	4
1.    The Asserted Claims .....	5
2.    The Written Description.....	7
3.    The Prosecution History.....	13
C.    Relevant Commission Findings.....	16
SUMMARY OF ARGUMENT .....	18
ARGUMENT .....	20
I.    The Ordinary Meaning of "Removing the Exposed Portion" of Insulation Is Not "Removing Some of the Exposed Portion" of Insulation.....	20
II.   The Specification Supports the Ordinary Meaning of the Claim Terms .....	25
III.  The Prosecution History Supports the Ordinary Meaning of the Claim Terms.....	29
CONCLUSION .....	33

## TABLE OF AUTHORITIES

Page(s)

### Cases

<i>American Bus. Ass'n v. Slater</i> , 231 F.3d 1 (D.C. Cir. 2000) .....	23
<i>Axiom Resource Mgmt., Inc. v. United States</i> , 564 F.3d 1374, 1379-80 (Fed. Cir. 2009) .....	17
<i>Bicon, Inc. v. Straumann Co.</i> , 441 F.3d 945 (Fed. Cir. 2006) .....	22
<i>Central Admixture Pharm. Servs., Inc. v. Advanced Cardiac Solutions, P.C.</i> , 482 F.3d 1347 (Fed. Cir. 2007) .....	20
<i>Florida Power &amp; Light Co. v. Lorion</i> , 470 U.S. 729 (1985) .....	17
* <i>Helmsderfer v. Bobrick Washroom Equip., Inc.</i> , 527 F.3d 1379 (Fed. Cir. 2008) .....	28, 29
<i>In re Gabapentin Patent Litig.</i> , 503 F.3d 1254 (Fed. Cir. 2007) .....	29
<i>Microprocessor Enhancement Corp. v. Texas Instruments Inc.</i> , 520 F.3d 1367 (Fed. Cir. 2008) .....	22
<i>NTP, Inc. v. Research in Motion, Ltd.</i> , 418 F.3d 1282 (Fed. Cir. 2005) .....	22
* <i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005) (en banc) ....	<i>passim</i>
<i>Schoenhaus v. Genesco, Inc.</i> , 440 F.3d 1354 (Fed. Cir. 2006) .....	29
<i>Tuna Processors, Inc. v. Hawaii Int'l Seafood, Inc.</i> , 327 Fed. Appx. 204 (Fed. Cir. 2009) .....	22
<i>University of Pittsburgh v. Hedrick</i> , 573 F.3d 1290 (Fed. Cir. 2009) .....	25
<i>VLT Corp. v. Artesyn Techs., Inc.</i> , 103 Fed. Appx. 356 (Fed. Cir. 2004) .....	23

**TABLE OF AUTHORITIES  
(CONTINUED)**

\* *VLT Corp. v. Lambda Elecs., Inc.*, 238 F. Supp. 2d 347  
(D. Mass. 2003).....23

*Warner-Lambert Co. v. Apotex Corp.*, 316 F.3d 1348 (Fed. Cir. 2003).....23

**Statutes**

19 U.S.C. § 1337 .....2, 3, 4, 17

35 U.S.C. § 102 .....14, 15

**Rules**

Fed. R. App. P. 16(a).....17

**Other Authorities**

Brief for Plaintiffs-Appellants, *VLT, Inc. v. Artesyn Techs., Inc.*,  
Nos. 03-1505 *et seq.*, 2003 WL 24,305,455 (Fed. Cir. Oct. 16, 2003) .....23

Authorities upon which we chiefly rely are marked with asterisks.

## STATEMENT OF ISSUES

Whether the claim term “removing *the* exposed portion of the insulating material” requires, consonant with its ordinary meaning and the intrinsic record, that “*the* exposed portion of the insulating material” be removed, and not merely that “*some of the* exposed portion of the insulating material” be removed.

## STATEMENT OF THE CASE

In order to present an accurate description of the proceedings below, the Commission provides its own statement of the case.

On November 20, 2008, appellant Qimonda AG (“Qimonda”) filed a complaint with the Commission alleging a violation of 19 U.S.C. § 1337 based on alleged infringement of 101 patent claims spanning seven patents. A2900-01; A1062-63. The complaint named seven respondents, five of whom are intervenors in this appeal.<sup>1</sup>

At the evidentiary hearing (*i.e.*, the Commission’s trial), Qimonda only introduced evidence as to four patents, resulting in the termination of the case on the three tacitly withdrawn patents. A21-22. The presiding

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<sup>1</sup> The intervenors are LSI Corporation (“LSI”); Seagate Technology, Seagate Technology (US) Holdings, Inc., Seagate Technology LLC, and Seagate (US) LLC (collectively “Seagate”). Two other Seagate corporate entities were named in the complaint. One was a respondent in the proceedings below, but has since merged into one of the Seagate intervenors, and is not an intervenor on appeal. Another Seagate entity named in the complaint turned out not to exist and was removed from the investigation.

Administrative Law Judge (“ALJ”) ruled against Qimonda on the four remaining patents. A633-34. More specifically, the ALJ found each claim still under investigation to be invalid and/or not infringed and that Qimonda did not demonstrate that it practices claims of the asserted patents as required by 19 U.S.C. § 1337(a)(3). A633-34. The ALJ therefore found no violation of 19 U.S.C. § 1337. Qimonda petitioned the Commission for review of the ALJ’s findings on three of the four patents, A2949-50, but the Commission determined not to review the ALJ’s findings (except as to one issue for a patent that Qimonda has since withdrawn) and terminated the investigation.<sup>2</sup> A2; A1064.

On appeal, Qimonda has surrendered all but U.S. Patent No. 5,851,899 (“the ’899 patent”), and as to that patent, Qimonda challenges only the construction of the term “removing the” exposed portion of insulation, as found in claim 1, and the analogous language of claim 22.

## **STATEMENT OF FACTS**

### **A. Introduction**

The ’899 patent discloses and claims a method for manufacturing semiconductor chips. As will be discussed more fully below, some semiconductor chips have trenches that are used to isolate “active regions” of the chip from one another; these trenches are filled with insulation to

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<sup>2</sup> The Commission reviewed but took no position on the ALJ’s finding that then-asserted U.S. Patent No. 6,495,918 was invalid in view of a certain prior art reference. A2; A1064.

further isolate the active regions of the chip. A679 col. 1 lines 19-23. A step of the claimed method calls for “removing the exposed portion of the insulating material over the active regions.” A683 col. 9 lines 18-19.

Qimonda argued to the Commission, and argues again to the Court, that this language is satisfied by removing *some of* the exposed portion of the insulation. Qimonda Br. 25-26; A3003; A10005. The ALJ, informed by the claim language and the patent disclosure, found instead that “removing the exposed portion” of insulation means what it says, namely that *the* exposed portion – all of it – is removed. A150-55.

The ALJ’s construction in this case was dispositive, as Qimonda conceded that neither the intervenors’ nor Qimonda’s products are manufactured in conformity with this claim language. *See* A2970. The ALJ, in findings adopted by the Commission, therefore terminated the investigation for Qimonda’s failure to demonstrate infringement or the existence of a domestic industry exploiting the ’899 patent under 19 U.S.C. § 1337(a)(3). A1064.

#### **B. The ’899 Patent**

The specification of the ’899 patent explains that it is a goal of chip manufacturing that the finished top surface of a chip be flat and smooth. A679 col. 1 lines 36-37 (“uniform planar topography”). The invention of the ’899 patent attempts to achieve this objective with less “chemical mechanical processing” than the prior art. A679 col. 1 lines 9-10.

## 1. The Asserted Claims

Qimonda continues to assert claims 1, 2, 7, 22 and 23 of the '899 patent in this appeal.<sup>3</sup> Claims 1 and 22 are the only independent claims asserted. The sole issue in dispute on appeal is what is meant by "removing the exposed portion of the insulating material over the active regions" in claim 1, and the corresponding term "removing the silicon oxide in the exposed regions" of claim 22. A683-84. Qimonda concedes, and there is no dispute, that the terms of these two claims, "which differ slightly in the[ir] language" should be treated as "identical."<sup>4</sup> Qimonda Br. 27 n.3.

Claims 1 and 22 are reprinted side-by-side, with the disputed terms italicized:

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<sup>3</sup> Qimonda originally asserted claims 1-23 of the '899 patent, A2900-01, but has since withdrawn most of these claims, Qimonda Br. 16.

<sup>4</sup> Accordingly, the term "exposed regions," found in claim 22 but not used elsewhere in the claims or specification, means the exposed portion of the active region, as recited in claim 1. Silicon oxide, which is recited in claim 22, is a type of insulating material. A681 col. 5 lines 11-14.

1. A method for fabricating devices including the step of forming isolation between device structures fabricated on a substrate comprising:

defining active and non-active regions on a surface of the substrate;

forming isolation trenches of varying widths the active regions comprising active regions of varying width in the non-active regions;

forming a layer of HDP-CVD insulating material of silicon oxide, wherein the HDP-CVD silicon oxide layer is non-planar and protrudes angularly above isolation trench edges forming sloping edges that slope away from the trench on the substrate by high density plasma-enhanced chemical vapor deposition (HDP-CVD), the HDP-CVD layer substantially filling the trenches and covering the active regions;

removing at least a portion of the insulating material covering the active regions; and

planarizing the surface of said substrate to expose the active regions, the removal of at least a portion of insulating material from the active regions providing a planar topography; wherein removing of at least a portion of the insulating material from the active regions includes:

depositing a mask layer over the insulating material;

patterning the mask layer to expose at least a portion of the insulating material over the active regions; and

*removing the exposed portion of the insulating material over the active regions, leaving unexposed portions of the insulating materials; and wherein the mask layer is deposited using an inverse active area mask that is biased so that the mask layer after patterning covers the non-active regions and at least a portion of the active regions.*

22. A method of planarizing shallow isolation trenches in a substrate comprising:

depositing a silicon oxide layer formed in an inductively coupled high density plasma chamber by chemical vapor deposition so as to fill said trenches and cover the surface of the substrate, thereby forming a non-planar layer over the surface that angles away from the edges of the trenches;

(Blank space is included in this column so that the corresponding terms of claims 1 and 22 may be presented alongside one another, below.)

depositing a photoresist layer on the oxide layer and patterning the photoresist layer with an inverse active area mask while biasing the layer so that the photoresist overlies at least a portion of the angled oxide layer;

*removing the silicon oxide in the exposed regions;*

removing the photoresist; and

planarizing the surface of the substrate.

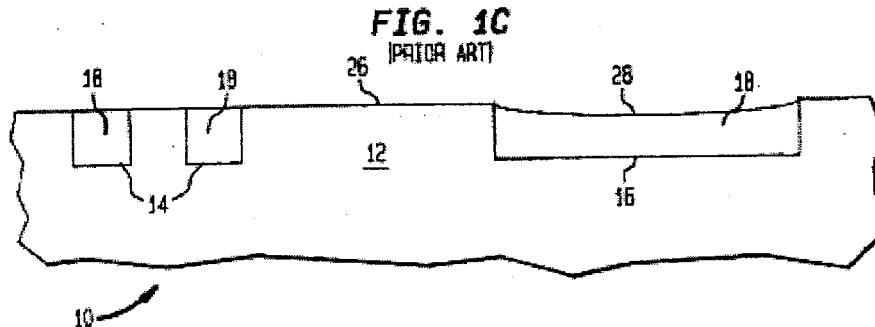
A682-84.

## 2. The Written Description

Key to understanding the '899 patent is recognizing that the chip fabrication process involves the step-by-step deposit or removal of layers of different materials. The '899 patent discloses prior art methods before reciting its claimed improvement. A679-80 col. 1 line 13 – col. 3 line 44.

### a. The Background of the Invention

In order to isolate certain components of a chip (so-called “active regions” or “active areas,” *e.g.*, A679 col. 1 line 26) from one another, sometimes trenches are created between active regions, and the trenches are filled with an insulating material. A679 col. 1 lines 19-23. Filling those trenches with that insulating material can be problematic. *Id.* col. 1 lines 30-34. Figure 1C discloses the result of one prior art process:



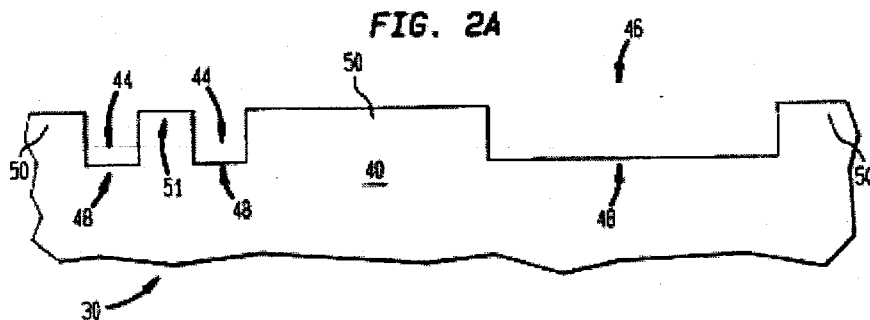
A674. In that figure, semiconductor substrate **12** is “preferably a silicon wafer that may have a plurality of active and non-active components (not shown) deposited thereon.” A679 col. 2 lines 10-12. The active areas are the areas without trenches, such as the region in the center above the number **12** or on the left between the numbers **18**. The trenches in this figure, which isolate portions of substrate **12** from one another, are shown by regions **14**

and 16, and they are filled with insulating oxide layer 18. However, as can be seen in the figure, the manufacturing process (which is shown in Figures 1A and 1B, not reprinted herein), has caused a concavity on top of region 16. This concavity is undesirable, and a goal of the patent is to mitigate such concavities in a cost-effective manner. A679 col. 2 lines 53-65; A680 col. 3 lines 36-47.

### b. The Disclosed Invention

The steps of the disclosed improvement are shown in Figures 2A-2B and 4A-D of the '899 patent. Each step will be discussed in order.

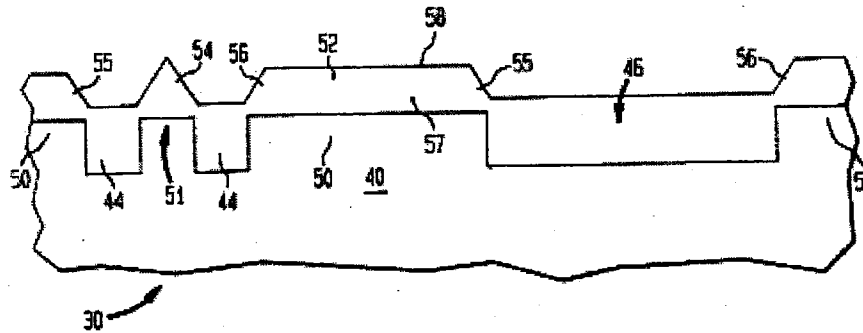
Figure 2A discloses the semiconductor substrate (now numbered 40) with trenches 44 and 46:



A675; *see also* A680 col. 4 lines 37-49.

In Figure 2B, oxide layer 52 has been deposited over the semiconductor substrate:

FIG. 2B

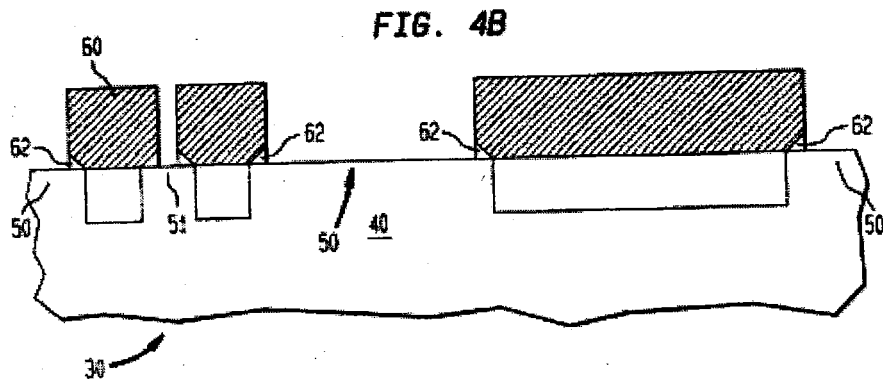


A675; see also A681 col. 5 lines 15-18. Just as snow blankets uneven surfaces unevenly, so does the oxide layer blanket the substrate here, creating the triangular and trapezoidal peaks 55, 54, and 56. A681 col. 5 lines 56-57 (“The unique triangular shapes 54 and 57 are due to the in-situ sputtering that occurs during the HDP-CVD [high-density-plasma-source chemical-vapor-deposition] process.”). Photographs of these peaks are shown in Figures 3A and 3B of the patent. A676; A681 col. 6 lines 8-19.

The goal at this point is to eliminate the surface irregularity, *i.e.*, to obtain a “uniform planar topography.” A681 col. 6 lines 24-25. In Figure 1C, representing the prior art and discussed earlier, that step was performed by physically buffing (*i.e.*, polishing off) these peaks using a “chemical mechanical polishing” or “CMP” procedure. A679 col. 2 lines 44-47. As noted earlier, the result of the buffing is that large trenches may be over-excavated, resulting in the undesired concavity of Figure 1C. See A679 col. 2 lines 51-58. Much of column 6 of the patent is spent discussing the problem of having too much insulation to remove, and the need to shorten



act as “etch stops”; the etching stops when those surfaces are exposed. A682 col. 7 lines 47-52. Thus, when the chip undergoes this etching, all of the “exposed” portions – *i.e.*, those portions not covered by the photoresist – are etched away. A682 col. 7 lines 49-52. For example, the trapezoid in the center of Figure 4A, above, is exposed except for its bottom left and right corners. The specification expressly recites that the etching “expos[es] the semiconductor substrate surface above those areas not covered by the photoresist layer 60,” A682 col. 7 lines 50-52, and is illustrated in Figure 4B:



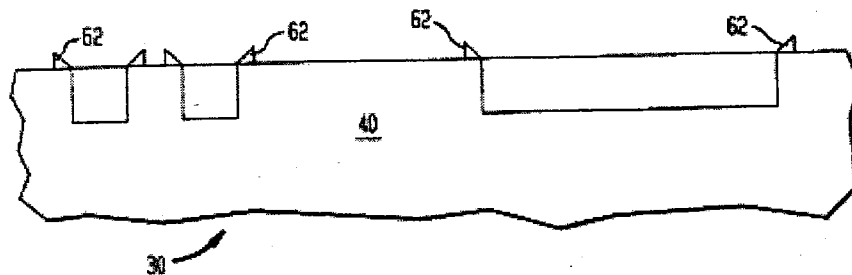
A677.

As can be seen in Figure 4B, “wedge-shaped portions 62 of the . . . oxide layer 52 are left on the surfaces of the edges of the active areas after the RIE etching step. These wedge-shaped portions are removed in a subsequent CMP step.” A682 col. 7 lines 55-59. Notably, there is no remaining oxide shown in Figure 4B other than the wedge-shaped portions 62. Qimonda’s appeal to this Court turns on this point, as Qimonda argues that the claim can be satisfied even with some remaining oxide over the

semiconductor substrate, for example, above the arrows 50 and 51 in Figure 4B. See Qimonda Br. 20, 22, 24-25.

The patent then teaches that an "ashing" or similar technique is used to remove only the photoresist layer, "leaving the wedge-shaped 62 . . . oxide portions on the surface of the semiconductor substrate 40." A682 col. 7 lines 60-67. The result of this step is shown in Figure 4C:

**FIG. 4C**



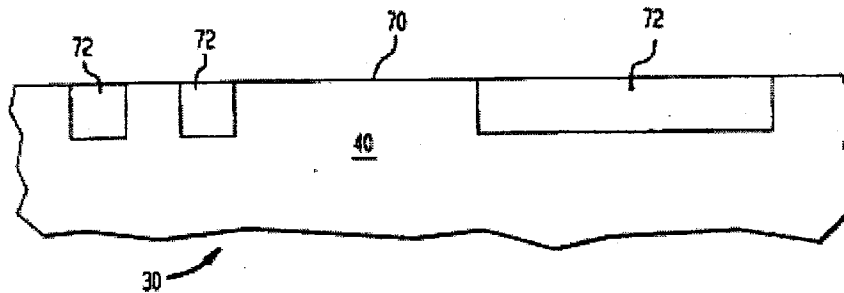
A678.

The patent explains that the next, and final, step is the chemical-mechanical polishing step (CMP):

The resulting structure is then exposed to a final CMP step which removes all of the remaining HDP-CVD oxide structures 62, leaving a highly planarized topography to the semiconductor substrate 40. Because of the steps taken in the above described technique regarding the small size of the . . . oxide structures, this particular CMP step can be kept short, thus minimizing the oxide erosion in the . . . trenches, particularly in the wide . . . trenches [that became concave using the prior art method].

A682 col. 7 line 67 – col. 8 line 8. The result of the CMP step is shown in Figure 4D, namely a chip in which the trenches are filled in, and in which the surface is “substantially planar,” A682 col. 8 line 13:

**FIG. 4D**



A678.

### 3. The Prosecution History

The application that led to the '899 patent at first contained a single broad claim. A704. It was a method that covered the steps of:

- (1) “defining the active and non-active regions on a surface of the substrate” (as shown in Fig. 2A);
- (2) “forming isolation trenches in the non-active regions” (Fig. 2A);
- (3) “forming a layer of insulating material on the surface by” vapor deposition (Fig. 2B); and
- (4) “planarizing the surface of said substrate to expose the active regions while effectively reducing erosion of the insulating material in the isolation trenches to provide a substantially uniform topography” (Fig. 4D).

A704. This patent claim differs in important respects from issued claims 1 and 22 (which were application claims 39 and 37, respectively). Application

claim 1 jumped from Figure 2B (the deposition of insulation), straight to Figure 4D (the finished uniform surface) without description or limitation on how the claim's "reducing erosion of the insulating material" was to be accomplished. No "removal" of insulation – partial or complete – was called for at all.

In response to the examiner's rejection of application claim 1 under 35 U.S.C. § 102(a), A778-79, the applicant amended application claim 1, and introduced application claims 2 through 38, A801-08. The amendment to application claim 1 added a step of "removing at least a portion of the insulating material covering the active regions" before the step of planarization. A800. Thus, the amended claim merely introduced the concept that removing some insulation prior to planarization would be beneficial, without any limitation on that step; the claim still essentially jumped from the step shown in Figure 2B to the result shown in Figure 4D. Application claim 1 was accompanied by a number of dependent claims, which will be discussed in connection with the next office action. A801-03 (application claims 2-13).

Application claim 37 (which issued without amendment as claim 22 of the '899 patent) was more specific, and included the steps of "depositing a photoresist layer," "patterning the photoresist layer,"<sup>6</sup> and "*removing the*

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<sup>6</sup> In claim 22, the language of the "patterning" step is found within the "depositing" paragraph. The other independent claims contain that

[Footnote continued on next page]

*silicon dioxide* in the exposed regions.” A808 (emphasis added). As noted above, these steps are illustrated in Figures 4A (depositing and patterning) and 4B (removing) of the ’899 patent.

In the subsequent and final office action, the examiner allowed only application claims 37 and 38. A815. All other claims stood rejected under 35 U.S.C. § 102(e), or were dependent on rejected claims. A816. For purposes of this appeal, the unallowed claims of interest are application claims 1-6, as those became claim 1 of the ’899 patent. Application claim 6 depended on claim 5 and claim 5 on claim 4, and so forth until claim 1. The examiner rejected under section 102(e) claims 1-5, but merely objected to claim 6. A816. The examiner noted that claim 6 would be “allowable if rewritten in an independent form including all the limitations of the base claim and any intervening claims.” *Id.*

In response to the final office action, the applicant filed a Continued Prosecution Application (CPA) whose preliminary amendment cancelled or replaced the unallowed claims. A872, A874. The applicant followed the examiner’s guidance by rewriting dependent application claim 6 as independent CPA claim 39. A874-75, A877. Thus, CPA claim 39 replaced application claim 6 and includes all of the limitations of application claims 1-6. *Compare* A874-75 (CPA claim 39) *with* A802-04 (application claims

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[Footnote continued from previous page]

patterning step in a typographically discrete paragraph. *Compare* A684 claim 22 *with* A683 claims 1, 8 & 15.

1-6). That application claim 6 was a dependent claim helps explain the unusual structure of the “wherein” clauses of claim 1 of the ’899 patent. The wherein clauses enabled dependent limitation of the independent claim. Accordingly, application claim 5 added to application claim 4 the limitation “wherein the removing of at least a portion of the insulating material from the active regions includes . . . removing the exposed portion of the insulating material over the active regions.”<sup>7</sup> A801.

The applicant surrendered the breadth of application claims 1-5, for which there were no counterparts in the CPA. After a minor examiner’s amendment, CPA claim 39 issued as claim 1 of the ’899 patent. A879-80.

### **C. Relevant Commission Findings**

Qimonda argued to the Commission, and argues to the Court, that “removing the exposed portion of the insulating material over the active regions” means “removal of a sufficient amount of the insulating material over the active regions, for the purpose of shortening the subsequent chemical-mechanical polishing (CMP) step.” A10005; Qimonda Br. 17, 19, 40. The intervenors (*i.e.*, the respondents below) have argued that “removing *the* exposed portion” (claim 1) and “removing *the* silicon oxide in the exposed regions” implicitly requires – as a result of the “*the*” – that the

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<sup>7</sup> The other “wherein” clause, which is not at issue in this litigation, was originally found in dependent application claim 6. A802.

entirety of the “exposed portion” or “silicon oxide” be removed. *See* A133-34. The ALJ agreed with the respondents. A151-55.

Next, the ALJ found that LSI and Seagate (whose products contain accused LSI components) did not infringe the '899 patent. A634. The ALJ further found that Qimonda did not demonstrate that it practices the patent, and consequently that it failed to show the existence of a domestic industry exploiting the '899 patent, as required for relief under 19 U.S.C. § 1337(a)(3).<sup>8</sup> A633. The Commission determined not to review the ALJ's findings and they became the findings of the Commission for the purposes of this appeal.<sup>9</sup> A1064. Qimonda does not dispute that if the Commission's claim construction is correct, respondents' products do not infringe, and Qimonda's own products do not exploit, the '899 patent. Qimonda Br. 15-19, 37-40.

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<sup>8</sup> The Commission did not reach the question whether claims 1 and 22 read either on respondents' accused products or on Qimonda's domestic products based on any alternative claim construction, such as that advanced by Qimonda.

<sup>9</sup> The intervenors may raise in their brief recent facts about Qimonda's current financial position in further support of the Commission's finding of no domestic industry. The Commission notes that an appellate court's review is generally limited to the agency record and that such new facts are beyond the scope of the Commission's record. *See Florida Power & Light Co. v. Lorion*, 470 U.S. 729, 743-44 (1985); *Axiom Resource Mgmt., Inc. v. United States*, 564 F.3d 1374, 1379-80 (Fed. Cir. 2009); *see also* Fed. R. App. P. 16(a).

## SUMMARY OF ARGUMENT

Qimonda argues that the plain and ordinary meaning of “removing the exposed portion” of insulation is to remove only some of it. Qimonda Br. 27-30. But the verb “remove” is a common English word with a generally understood meaning. The meaning of the verb “remove” is that its object is “removed.” Therefore, “removing the exposed portion” of insulation does not mean to remove merely some of the exposed portion. Qimonda asserts that its proposed construction supports the ordinary meaning of “removing the,” *id.* at 28-29, but Qimonda offers no support for its contention.

Instead, Qimonda purports to rely on the intrinsic record to support its construction. *Id.* at 30-37. The specification and file history repudiate Qimonda’s characterization of them. In particular, Qimonda focuses on a completely different claim limitation (“removing at least a portion” of the insulation) from the one in suit (“removing the exposed portion” of insulation). The “at least a portion” language does not appear in claim 22, putting a quick end to Qimonda’s arguments as to that claim.

As to claim 1, the examiner allowed only certain dependent application claims that qualified the “removing of at least a portion” with an additional “wherein” clause. That clause provides:

wherein removing of at least a portion of the insulating material from the active regions includes . . . removing the exposed portion of the insulating material over the active regions.

A683 claim 1. The effect of this wherein clause is to qualify the “removing at least a portion” limitation: at least a portion of the insulation must be removed, but that portion includes (all of, and not merely some of) the exposed portion of the insulation over the active areas of the chip. This claim structure, while somewhat ungainly, was not accidental. After two rejections by the examiner, the applicant – at the examiner’s suggestion – retreated to the preferred embodiment disclosed in the patent specification, and included what had formerly been dependent claim limitations (including the “wherein” clause) into a new independent claim that issued as claim 1. A816, A875.

Qimonda does not, and cannot, argue that the patentee acted as his own lexicographer in the patent specification or prosecution history. Rather, and relying on its expert’s testimony, Qimonda contends that the wherein clause does not mean what it says, because the claim language, as construed by the Commission, results in an “unreliable” method. Qimonda Br. 30. What Qimonda hesitates to note is that the method claimed is actually the inventor’s preferred embodiment, recited in detail in the text and figures of the ’899 patent. In any event, Qimonda cites no support for the use of its own expert’s testimony to upset the ordinary meaning of a claim term where that meaning is buttressed by the patent specification and prosecution history.

## ARGUMENT

### I. THE ORDINARY MEANING OF “REMOVING THE EXPOSED PORTION” OF INSULATION IS NOT “REMOVING SOME OF THE EXPOSED PORTION” OF INSULATION

“Claims mean precisely what they say.” *Central Admixture Pharm. Servs., Inc. v. Advanced Cardiac Solutions, P.C.*, 482 F.3d 1347, 1355 (Fed. Cir. 2007). It is a “bedrock principle” that “the claims of a patent define the invention to which the patentee is entitled the right to exclude,” and the claim terms are “generally given their ordinary and customary meaning.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quotation omitted). As this Court has observed, in “some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Id.* at 1314. This is such a case, as the meaning of “removing the” should be as readily apparent to lay persons as it is to persons of ordinary skill.

Claims 1 and 22 call for “removing the” insulation over the exposed active areas of the semiconductor. The natural reading of such phrases is to remove all of “the exposed portion of the insulating material” (claim 1) or all of “the silicon oxide in the exposed regions” (claim 22). This is no different from any reasonable use of the term “remove” with a singular noun. For example, if a table is set with eight placesettings, and one is asked to remove

*the* silverware from the table, it would not be acceptable to remove six spoons and seven forks. Likewise, if, after a two-foot snowfall, one pays a service to remove *the* snow from a driveway, the service cannot choose to leave behind the bottom six inches (and expect to be paid). Yet, that is exactly how Qimonda believes the claim terms in suit should be construed.

*See, e.g.*, Qimonda Br. 39 [REDACTED]

[REDACTED] Qimonda has argued that the ordinary meaning of “removing the” is “removal of a sufficient amount of the insulating material over the active regions, for the purpose of shortening the subsequent chemical-mechanical polishing (CMP) step.” *Id.* at 40; *see also id.* at 17, 19, 28-29; A10005.

Qimonda’s proposed construction contravenes the plain and ordinary meaning of “removing the.” It is difficult to conceive of usages of “removing the” that do not require removal of *all* of the verb’s object.<sup>10</sup>

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<sup>10</sup> Perhaps it could be argued – although Qimonda has not done so, either below or on appeal – that “removing the snow” should mean “removing substantially all of the snow” in light of the difficulty of removing the bottom eighth-of-an-inch. Put differently, perhaps “removal of the” has an impossibility limitation as a matter of common English usage. Qimonda has not argued for such a construction because it would not be able to prevail under it. For example, as noted in the text, [REDACTED]

While Qimonda would fault the Commission for allegedly inserting the word “all” into the claim construction (Qimonda Br. 21, 26-28), Qimonda ignores that it itself has changed the claim’s literal meaning by inserting the words “some of.” As between “all” and “some of,” the former plainly comports with ordinary usage of the term in question, while the latter does not.<sup>11</sup>

Beyond the ordinarily understood meaning in common usage, “the” is well understood to be limiting as a matter of law. Within a patent claim, the word “the” is construed to refer to antecedent reference to the same component earlier in the claim. *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1306 (Fed. Cir. 2005); *accord Tuna Processors, Inc. v. Hawaii Int’l Seafood, Inc.*, 327 Fed. Appx. 204, 207 (Fed. Cir. 2009); *Microprocessor Enhancement Corp. v. Texas Instruments Inc.*, 520 F.3d 1367, 1379 & n.8 (Fed. Cir. 2008). Accordingly, “the exposed portion” of insulation is just that, and not merely some of it.

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<sup>11</sup> There are a number of ways that Qimonda could have claimed what it seeks here other than by adding “some of.” “Removing the exposed portion” could also be replaced with “removing an exposed portion,” or “removing any exposed portion.” Rather than adding language to the claim, Qimonda could have subtracted language as well, as by deleting from the claim the words “the exposed portion of the,” as such: “removing ~~the exposed portion of the~~ insulating material over the active regions.” Rendering this struck-out claim language superfluous violates this Court’s canons of claim construction. *See, e.g., Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) (“claims are interpreted with an eye toward giving effect to all terms in the claim”).

Even beyond the scope of patents – as in statutory interpretation – “the” is understood to be limiting. *American Bus. Ass’n v. Slater*, 231 F.3d 1, 4-5 (D.C. Cir. 2000) (“[I]t is a rule of law well established that the definite article ‘the’ particularizes the subject which it precedes. *It is a word of limitation* as opposed to the indefinite or generalizing force of ‘a’ or ‘an.’”) (emphasis added); accord *Warner-Lambert Co. v. Apotex Corp.*, 316 F.3d 1348, 1356 (Fed. Cir. 2003) (quoting with approval the D.C. Circuit’s *Slater* decision). Qimonda’s proposed construction contravenes this authority.

The district court in *VLT Corp. v. Lambda Electronics, Inc.* recognized the limiting effect of “the” when it was asked to construe the meaning of the term “recycling the magnetic energy.” 238 F. Supp. 2d 347, 351 (D. Mass. 2003), *aff’d sub nom. VLT, Inc. v. Artesyn Techs., Inc.*, 103 Fed. Appx. 356 (Fed. Cir. 2004). The court rejected the plaintiff’s argument, which Qimonda echoes here, and instead held that if “only some of the transformer’s energy needed to be recycled, the word ‘the’ would not have been used. . . . This claim thus describes an invention that recycles *all of the magnetizing energy . . .*”<sup>12</sup> *Id.* (emphasis added). Likewise,

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<sup>12</sup> In *VLT*, the plaintiff reframed the issue on appeal to focus on the location of “recycling” rather than the word “the,” see Brief for Plaintiffs-Appellants, *VLT, Inc. v. Artesyn Techs., Inc.*, Nos. 03-1505 *et seq.*, 2003 WL 24,305,455, at 28-29 (Fed. Cir. Oct. 16, 2003), and this Court affirmed on that slightly different ground. See *VLT*, 103 Fed. Appx. at 360 (“[W]e affirm the district court’s construction of the phrase . . . as requiring that *all of the magnetizing energy removed from the transformer’s core be returned to the transformer to reset it.* As such, claim 1 does not read on reset

[Footnote continued on next page]

Qimonda's efforts to change the meaning of "removing the exposed portion" of insulation to "removing some of the exposed portion" of insulation is unavailing.

Qimonda attempts to push aside the "removing the" language of claims 1 and 22 by focusing instead on the "removing of at least a portion" language of claim 1. *See, e.g.*, Qimonda Br. 1-2, 20-22, 24-29. The focus on the "removing of at least a portion" language is flawed for two reasons.

First, focus on "at least a portion" makes no sense in connection with claim 22. Qimonda admits that claims 1 and 22 are to be construed the same, Qimonda Br. 27 n.3, but claim 22 has none of the "at least a portion" language. Rather, claim 22 straightforwardly directs "removing the silicon oxide in the exposed regions." Qimonda is correct that there is parity of claim scope between claims 1 and 22, but the claim language requires that "the" exposed portion of insulation be removed for both claims, and under Qimonda's proposed construction, it is not.

Second, Qimonda argues as to claim 1 that "removing the exposed portion" cannot mean what it says because the language conflicts with the "at least a portion" language preceding it. Qimonda Br. 26. There is no conflict. While all of the "exposed portion" is removed, some of the unexposed portion of insulation is not, as illustrated by the wedges 62 in

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[Footnote continued from previous page]

mechanisms that transfer *some* of the transformer's magnetizing energy to the load.") (emphasis added).

Figure 4B of the patent. A677. Therefore, only some of the overall insulation is removed, even as all of the “exposed portion” of insulation is removed. A154. We discuss this issue further, *infra*, in connection with the ’899 patent’s specification. Moreover, while the claim is arguably unusually structured, with a “wherein” clause that modifies the “removing at least a portion” clause, that structure makes perfect sense in the context of the prosecution history. As will be discussed, *infra*, upon turning to the file history, claim 1 was originally a dependent claim in the application; the independent claim contained the “at least a portion” language, and the dependent application claim added the clause “wherein removing at least a portion” includes “removing the exposed portion.” The “wherein” limitation was a purposeful limitation on the broader “at least a portion” language and not some accidental surplusage.

## **II. THE SPECIFICATION SUPPORTS THE ORDINARY MEANING OF THE CLAIM TERMS**

Although claim terms are afforded their plain and ordinary meaning when possible, this Court has repeatedly cautioned that the determination of that meaning should be made in the context of the patent disclosure.

*Phillips*, 415 F.3d at 1315. Nonetheless, the “specification may impart a definition that differs from a term’s ordinary meaning only when it demonstrates an intent to deviate from that meaning.” *University of Pittsburgh v. Hedrick*, 573 F.3d 1290, 1296 (Fed. Cir. 2009) (quotation omitted). There is no such intention here.

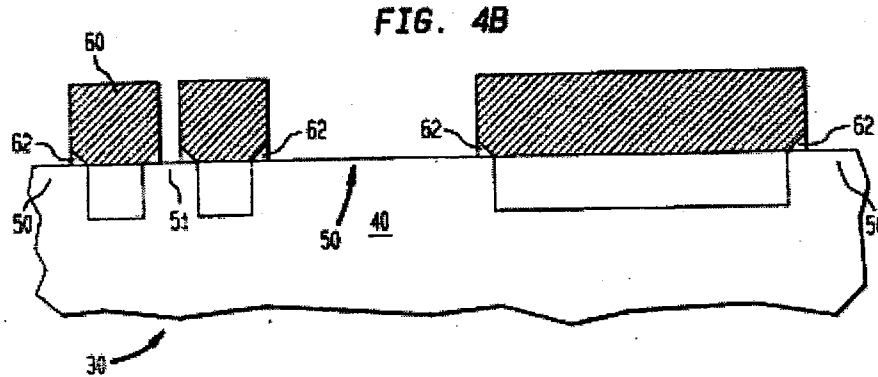
To contravene the ordinary meaning of “removing the,” Qimonda points to statements in the specification that only “portions” of the oxide layer are removed or that the planarization step is necessary to “expose the active areas.” Qimonda Br. 31. Although Qimonda questions the “reliability” of the claimed process as construed by the Commission,<sup>13</sup> *id.* at 30, it acknowledges that the Commission’s construction captures the only preferred embodiment disclosed in the ’899 patent, *id.* at 33-35. In that embodiment, all of the exposed insulation is removed. *Id.* at 35 (“It is this preferred embodiment that uses a RIE etching step, a particular oxide selective etching method which exposes the semiconductor substrate not covered by the etching mask.”); *accord id.* at 21.

Either a layperson or a person of ordinary skill reading the patent disclosure would conclude that it supports the unambiguous plain meaning of the nontechnical term in dispute. Figure 4B of the patent illustrates

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<sup>13</sup> Qimonda’s reliability arguments are based on extrinsic evidence, namely the testimony of its expert. *See* Qimonda Br. 30. The Commission correctly declined to rely on extrinsic evidence. A155; *see Phillips*, 415 F.3d at 1318 (“a court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history”) (quotation omitted). If the Court chooses to consider extrinsic evidence, the Commission notes that the intervenors’ expert, Dr. Bravman, testified at trial that a person of ordinary skill would interpret the patent claims in a manner consistent with the Commission’s construction. *See* A10016-19 (Q&A 33-43). (That written document served as Dr. Bravman’s direct testimony. *See* A10030, A31617-20.)

removal of the insulation – all of it – over the exposed active regions of the chip:



A677. No insulation remains over exposed active areas 50 and 51.

That is precisely what is claimed. And Figure 4B is not a drafter's mistake. The patent specification explains:

By employing an oxide selective RIE, the silicon substrate and resist act as etch stops. Thus, the RIE removes only the HDP-CVD oxide layer 52, exposing the semiconductor substrate surface above those areas not covered by the photoresist layer 60.

As shown in FIG. 4B, the RIE etching process results in the removal of portions of the HDP-CVD oxide layer 52 overlying the active regions. It can also be seen that wedge-shaped portions 62 of the HDP-CVD oxide layer 52 are left on the surfaces of the edges of the active areas after the RIE etching step. These wedge-shaped portions 62 are removed in a subsequent CMP step.

A682 col. 7 lines 48-59. This passage describes claims 1 and 22 exactly as they are written. In particular, the passage explains that the etching step “expos[es] the semiconductor substrate surface” in the exposed portion of the active area of the chip. Removal of more underneath is *not* saved for a

later planarization step as in the passages cited in Qimonda's opening brief. Moreover, the passage actually ties this step to the language of claim 1 regarding "a portion of the insulating material": the specification recognizes that removal of all of the exposed insulation constitutes "removal of portions of the [insulation] layer 52 overlying the active regions."<sup>14</sup> A682 col. 7 lines 54-55.

Qimonda does not and cannot argue that the patentee acted as its own lexicographer in the specification or that the specification reveals a "special definition" of the term "removing the." See *Phillips*, 415 F.3d at 1316. This case is much like *Helmsderfer v. Bobrick Washroom Equipment, Inc.*, in which the patentee made an argument similar to Qimonda's. 527 F.3d 1379 (Fed. Cir. 2008). There, the patentee urged the construction that "partially" should include "totally." *Id.* at 1383. The Court rejected that argument:

In this case there is only one ordinary meaning attributable to the word "partially" and this meaning does not include "totally." As [the patentee] did not act as its own lexicographer and alter the ordinary meaning of the term "partially," we cannot construe these particular claims to encompass the preferred embodiment or other illustrated embodiments. Courts cannot rewrite claim language.

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<sup>14</sup> The reason why this statement is true is because the wedges 62 of insulation remain after etching, as shown in Figure 4B of the '899 patent. A677. Although the exposed insulation (which accounts for most of the insulation in the figure) is removed, the unexposed insulation remains over the edges of the active area (covered by photoresist). *Id.*

*Id.* The instant case is, of course, an easier one than *Helmsderfer*, because the preferred embodiment of the '899 patent falls within the plain meaning of the claim language and not outside it.

In sum, Qimonda argues that the claims, which were amended and narrowed in response to successive section 102 rejections, should nonetheless be afforded a breadth commensurate with the patent disclosure and in spite of the ordinary meaning of the claims. Neither the caselaw nor common sense supports such a method of construction. *See, e.g., Schoenhaus v. Genesco, Inc.*, 440 F.3d 1354, 1359 (Fed. Cir. 2006) (“The patentee, of course, is only entitled to protection of the claims as issued, not as filed. . . . [W]here a patent specification includes a description lacking a feature, but the claim recites that feature, the language of the claim controls.”). Here a person of ordinary skill – or frankly any reader – parsing the claim language would believe it to be drawn to the embodiment discussed in the specification. Under these circumstances, the plain language of the claims controls.

### **III. THE PROSECUTION HISTORY SUPPORTS THE ORDINARY MEANING OF THE CLAIM TERMS**

For the reasons explained above, the claim language, supported by the specification, conclusively requires the application of the plain and ordinary meaning of “removing the.” *See In re Gabapentin Patent Litig.*, 503 F.3d 1254, 1264 (Fed. Cir. 2007) (“We are not persuaded by appellees’ extensive reliance on the prosecution history in support of their construction,

particularly in this case where the claim language provides a clear definition of the claim term, supported by the specification.”); *Phillips*, 415 F.3d at 1317 (prosecution histories are “often . . . less useful for claim construction purposes”). Nonetheless, the file history here lends additional support to the Commission’s construction.

As discussed in the statement of facts, the original patent claim lacked a “removing” step altogether. A704. In response to the examiner’s section 102 rejection, the applicant added a number of new claims that focused on the pre-planarization steps of the claimed method. Many of these claims required a mere removal of “at least a portion of the insulating material.” A800-01, A803-06 (application claims 1-4, 13-16, 25-28). The applicant therefore knew how to use this language when he chose to do so, but no such claims issued. Notably, the claim limitations of such claims echo the disclosure in column 6 of the patent specification, a column that forms the basis for substantially all of Qimonda’s arguments about the specification. *See* Qimonda Br. 31-34. As will be recalled, lines 19-67 of column 6 (A681) describe generally the benefits of removing some insulation prior to the CMP step without explaining how and to what extent that is accomplished. *See supra* pages 9-10.

Application claims 5 and 37 (forerunners of claims 1 and 22) were narrower and included the limitations “depositing,” “patterning,” and “removing the” insulation. Stepping back and looking at all the claims added in response to the first office action reveals an unmistakable intention

by the applicant to frame many claims (including application claims 5 and 37) to capture the preferred embodiment disclosed in column 7 of the patent. Such claims, including dependent application claims 4 through 12 (*see* A801-03) discuss, among other things, the inclusion of “an inverse active area mask,” col. 7 line 7, and the degree of bias of that mask, col. 7 lines 12-39. While the patent claims (including claims 1 and 22 of the '899 patent) are replete with such terminology, the patent only discusses these concepts in connection with the preferred embodiment. *See* A682 col. 7 line 7 (first mention in the patent of an “inverse” mask); col. 7 line 9 (first mention of “bias”). In the context of the amendments as a whole, the purpose of application claims 5 and 37 – which contain the claim language in dispute – is to claim in detail the technique disclosed at column 7 lines 43-59, wherein the exposed oxide **52** – all of it – is removed through etching.

Qimonda's reliance on the prosecution history, by contrast, is misguided. Qimonda includes in its brief a block quotation of the applicant's comments about application claim 1. Qimonda Br. 36-37 (quoting A811). But application claim 1, while containing the “removing at least a portion” language, lacked the limitation in dispute here. Instead, the limitation in dispute was part of dependent application claim 5, as discussed above. The applicant's statements accompanying its amendments never discuss claim 5 (or the counterpart limitations in other claims) and therefore have no bearing on the disputed term.

In the proceedings below, and in its statement of facts on appeal, Qimonda argued the pertinence of the examiner's notice of allowability. *See* Qimonda Br. 13. That notice includes one terse sentence: "Prior art of record does not teach or suggest the claimed invention in which an inverse active area mask is used to remove at least a portion of the insulating layer from the active regions as claimed." A880. That sentence does not allow other claim limitations to be read away. The examiner had previously requested that all issued claims contain an inverse active area mask limitation (as in application claim 6).<sup>15</sup> A816. If the applicant sought broad claim scope, it was incumbent on him to try to amend dependent claim 6 to refer back to application claim 1 instead of also including all the limitations of application claims 2-5, A874-75. The applicant did not do so, and instead, all of the issued claims were narrowly drafted, among other things, to include the "depositing," "patterning," and "removing the" limitations originally found in application claim 5. A874-77. Those limitations mean what they say and preclude Qimonda's proposed construction here.

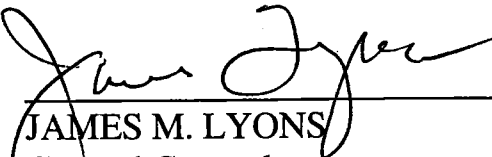
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<sup>15</sup> The prosecution history provides no guidance whether the examiner believed that any or all of the limitations of dependent application claims 2-5 were necessary for patentability, A816; all of the applicant's inverse active area mask claims were very narrow and included "removing the," among other limitations, A802-08 (application claims 6, 18, 30, 37).

## CONCLUSION


For the reasons set forth above, Qimonda's claim construction arguments are unavailing. Given that Qimonda concedes that claims 1 and 22 as construed by the Commission read neither on respondents' accused products nor on Qimonda's domestic products, Qimonda Br. 15, 19, the Court should affirm the Commission's determination.

Respectfully submitted,



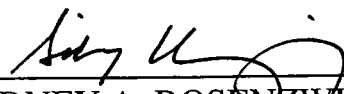
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