

United States District Court,
E.D. Texas, Sherman Division.

STMICROELECTRONICS, INC,
Plaintiff.

v.

SANDISK CORPORATION,
Defendant.

No. 4:05cv44

Oct. 20, 2005.

Bruce S. Sostek, Frank Finn, Jane Politz Brandt, Thompson & Knight, James Patrick Bradley, Kelley Anne Conaty, Thomas N. Tarnay, Sidley Austin, Dallas, TX, Clyde Moody Siebman, Lawrence Augustine Phillips, Siebman Reynolds Burg & Phillips LLP, Sherman, TX, for Plaintiff.

Carl R. Roth, The Roth Law Firm, P.C., Michael Charles Smith, Siebman Reynolds Burg Phillips & Smith, LLP, Marshall, TX, James C. Yoon, Julie M. Holloway, Lance G. Kavanaugh, Michael A. Ladra, S. Michael Song, Wilson Sonsini Goodrich & Rosati, Palo Alto, CA, Mark Nolan Reiter, Steven Mark Geiszler, Gibson Dunn & Crutcher, Dallas, TX, Sheila D. Gray, Wilson Sonsini Goodrich & Rosati, Austin, TX, Steven S. Baik, Orrick Herrington & Sutcliffe, Menlo Park, CA, for Defendant.

CLAIMS CONSTRUCTION REPORT

GAYNELL C. METHVIN, Special Master.

I. INTRODUCTION

This patent infringement case is now before the Court for a determination of the meaning of various disputed terms of U.S. Patent 4,592,802 ('802), which STMicroelectronics, Inc. ("STM") has asserted against SanDisk Corporation ("SDC").

Pursuant to this Court's Order, the undersigned was appointed special master under Rule 53, F.R.C.P., to make recommendations to the Court as to the meaning of the disputed terms. Based on a review of the parties briefings and supporting appendices, the evidence and arguments presented at the hearing held on August 24, 2005, post-hearing letter briefs and exhibits and application of controlling legal authorities, this report provides the definitions that the special master recommends be adopted by the Court.

II. LEGAL STANDARDS GOVERNING CLAIMS CONSTRUCTION

The parties have provided the Court with an accurate summary of the controlling legal standards as found in cases from the United States Court of Appeals for the Federal Circuit (the "Federal Circuit"). *See*, STM's Opening Brief, pages 1-3; SDC's Responsive Brief, pages 1,7-9; and, STM's Reply Brief, pages 8 and 9).

Since these briefs are available to the Court, these legal standards will not be restated. The post *Markman* hearing letter briefs are attached as Exhibit A.

As the Court is aware, in August 2004, some of the terms of the '802 patent now in dispute, were construed by the undersigned, acting as special master, in *Motorola v. STM*, Civ. Action 1:03-CV-407 (E.D. Tex. (Beaumont Div)). Since the date of that claim construction report, the Federal Circuit's decision in *Phillips v. AWH Corporation*, Nos. 03-1269, 03-1286, 2005 WL 1620331, (Fed.Cir. July 12, 2005), restated the primacy of intrinsic evidence in interpreting patent claims. Further, the decision criticized some earlier Federal Circuit decisions for placing too much emphasis and reliance on extrinsic evidence, such as dictionaries, treatises and encyclopedias:

The main problem with elevating the dictionary to such prominence is that it focuses the inquiry on the abstract meaning of words rather than the meaning of claim terms within the context of the patent. Properly viewed, the "ordinary meaning" of a claim terms is its meaning to the ordinary artisan after reading the entire patent.

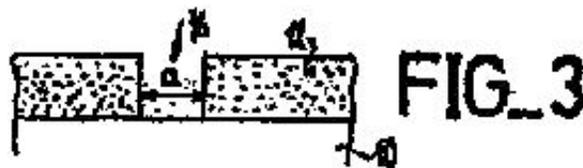
The claim constructions recommended in this report represent the special master's application of the principles of law stated in *Phillips* and other relevant cases, to the facts in this case.

III. CLAIMS CONSTRUCTION OF THE '802 PATENT IN SUIT

A. The Technology of the '802 Patent

The '802 patent describes a method of forming a metal interconnection layer in an integrated circuit. An interconnection layer, which is used to connect different elements of an integrated circuit to each other, may rest on top of a relatively thick insulating layer which, in turn, is located above integrated circuit elements. As the thickness of the insulating layer increases, it becomes difficult to obtain contacts having very small surface areas and located at very small intervals between the interconnecting layer and the integrated circuit elements. According to the '802 patent, such narrow contact openings have sharp edges that may cause the interconnection metal to fracture as it is being deposited. The '802 patent describes a method that allegedly reduces the risk of fracture of the interconnection metal as it is being deposited.

The method of the invention of the '802 patent, as described in the specification (column 3, lines 18-64), begins by depositing a relatively thick insulating layer (12) on the surface of a substrate (10) that incorporates integrated circuit elements already formed. Next, narrow contact openings (16) are etched, preferably by vertical anisotropic etching, in the insulating layer (12) as shown in Fig. 3.

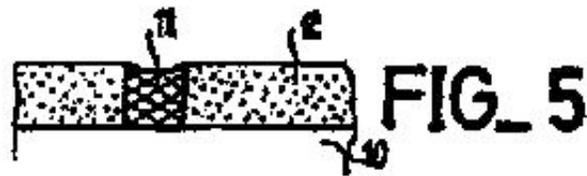


After contact openings have been made, a conductive material (18) having a high covering power both on vertical and horizontal surfaces is deposited by chemical vapor deposition over the insulating layer (12) and contact opening (16). The deposition is performed to a sufficient depth to ensure that the entire volume of

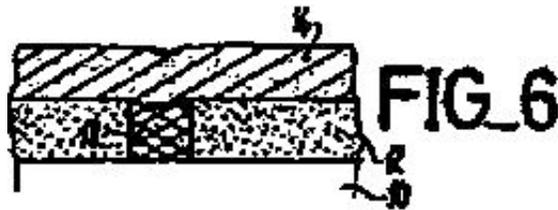
the narrow contact opening (16) is filled with conductive material (18) and to ensure that the thickness of the conductive material opposite to the contact opening is considerably greater than the thickness above the insulating layer as shown in Fig. 4.



After the conductive material (18) has been deposited, it is etched by vertical anisotropic etching to remove conductive material outside the contact opening (16) while removing only a small proportion of conductive material within the contact opening as shown in Fig. 5.



Next, an interconnection metal (14) is deposited over the insulating layer and contact opening as shown in Fig. 6;



In the Abstract, Summary of the Invention (column 2, lines 7-10) and claim 1 (column 4, lines 38-39), the interconnection metal is said to be deposited by "vacuum evaporation". In the preferred embodiment of the invention (column 3, lines 18-62), this deposition is by "conventional sputtering" (column 3, lines 58-60). As discussed below, this difference in

1. "depositing by vacuum evaporation ... an interconnection metal"; "deposition by evaporation of the interconnection metal"

For the disputed phrases, STM proposes the following definition:

"applying a metal to a surface in a vacuum by vaporizing the metal and letting it condense on the surface"

SDC urges the following definition:

"A method of manufacturing an interconnection metal by thermally vaporizing the metal in a vacuum and letting it accumulate or condense on a surface"

The obvious difference between these two definitions is found in SDC's proposed definition. SDC seeks to limit the method of deposition to one in which the metal is "thermally" vaporized. It is undisputed that such a construction would exclude any physical vaporization process, such as "sputtering". "Sputtering" would, however, be included in the definition proposed by STM.

As directed by the *Phillips* case, the first task in determining the correct definition for the phrase in dispute, is to review the "entire" '802 patent, the primary source of intrinsic evidence, to see what guidance, if any, the patentees provide on the issue. As noted above, the claim describes this step in two ways: "depositing by vacuum evaporation ... an interconnection metal" and, similarly "deposition by evaporation of the interconnection metal". The Abstract (cover page of the patent) and the Summary of Invention, use the claim term, "vacuum evaporation", in describing the method for depositing of the interconnecting layer (col.2, ll.7-10). FN1 These references are found in the portions of specification that provide an overview of the invention. In language to describe the process for depositing the interconnection metal is the subject of a key claim construction issue.

FN1. SDC asserts that the "Detailed Description of the Invention" section of the specification (column 2, lines 38 to 56) also uses similar language. However, as STM correctly notes, this portion of the specification refers to the prior art, not the invention in question.

In addition, the patent also notes that the interconnection metal (14) "can be etched", as shown in Fig. 7, to define an interconnection pattern:

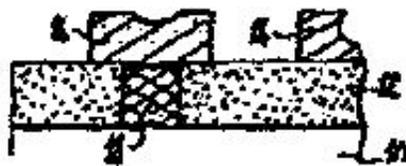


FIG. 7

B. Interpretation of Terms/ Phrases in Dispute

STM accuses SDC of infringing claim 1 of the '802 patent. This claim is set out below, with the disputed terms in italics:

Claim 1.

A method of fabrication of an interconnection layer in an integrated circuit, comprising the steps of which consist in depositing a relatively thick insulating layer on a substrate which incorporates integrated circuit elements already formed, *etching* a narrow contact opening in said layer, *depositing by vacuum evaporation*

and *etching an interconnection metal*, wherein said method comprises, after etching of the narrow contact openings and prior to *deposition by evaporation of the interconnection metal*:
deposition by chemical decomposition in gas phase of a *conductive material* having a high covering power both on *vertical substrate surfaces* and on horizontal substrate surfaces, the deposition being performed to a sufficient depth to ensure that the entire volume of the narrow contact opening is filled with *conductive material* and to ensure that the thickness of said material opposite to said opening is distinctly greater than the thickness above the insulating layer;

etching of said material by *vertical anisotropic etching* to a uniform depth corresponding substantially to the thickness deposited over the entire surface of the insulating layer so as to remove the conductive material outside the opening while removing only a small proportion of said material within said opening.

the Detailed Description of the Invention section of the specification, however, the inventors (as the title of the section makes clear) provide details for all steps of the invention. This section of the '802 patent is called: "The method in accordance with the present invention" (column 3, lines 18-65). As the Court can readily see, (1) this section of the patent is the one place in the disclosure where, for the first time, process details are provided; and, (2) the inventors clearly state their preferences for various aspects of the claimed method of the invention, commonly known as the preferred embodiments.

In describing the preferred embodiment for the deposition of the interconnection layer, the patent no longer uses the term "vacuum evaporation". Instead, this step is described as follows:

"The interconnection layer 14 proper (in particular of aluminum or aluminum alloy) is then **deposited by conventional sputtering**. As shown in FIG. 6, the results thereby achieved is that there is no longer exists any abrupt step transition." (column 3, lines 58-62, emphasis added).

As noted earlier, the stated purpose of the invention is to avoid the prior art problems caused by an abrupt step transition. The ordinary artisan would readily see that the goal of the invention is satisfied by employing "sputtering" as the preferred method for deposition of the interconnection layer. "Sputtering" is a physical vapor deposition which takes place in a vacuum, without the addition of heat.

SDC's proposed definition, which requires that the interconnection metal be "thermally" vaporized, is intended to, and if adopted by the Court would, exclude claim coverage of the preferred embodiment. As such, SDC's proposed definition runs counter to the Federal Circuit rule that "a claim interpretation that excludes the preferred embodiment is rarely, if ever, correct." See *Int'l Rectifier Corp. v. IXYS, Corp.*, 361 F.3d 1363, 1371 (Fed.Cir.2004). Further, the Federal Circuit has made it clear that the burden is on to SDC to present "highly persuasive evidentiary support" for a definition which excludes the preferred embodiment (*See, e.g., Vitronics* case (90 F.3d at 1583)). SDC's evidence and arguments in support of its proposed definition will now be considered to determine if SDC has met this burden.

SDC first argues that a reading of the "entire patent" (per *Phillips*), dictates a conclusion that the inventors have described two separate and completely different embodiments for deposition of the interconnection metal: "vacuum evaporation" and "sputtering". However, SDC does not support its position with an analysis of the intrinsic evidence, but instead relies extensively on extrinsic evidence. According to this extrinsic evidence, as of 1985, the date of the invention, there were several known methods of metal deposition by "vacuum evaporation" and by "sputtering". Thus, SDC argues, the ordinary artisan would necessarily conclude that the claim covers only the various "vacuum evaporation" processes and not any of the known "sputtering" methods.

STM also argues that its definition follows from application of the law of the *Phillips* decision. According to STM, as used in the patent specification, the term "vacuum evaporation" does not describe any specific embodiment of the invention. Rather, the term is used as a general description of the process for the incidental step of depositing the interconnection metal. The one embodiment, the only embodiment and, most importantly, the "preferred embodiment" is "sputtering". It follows that the inventors' use of the term "vacuum evaporation" in the claims, like its use in the specification, was meant to be general and inclusive of any suitable metal deposition process, including "sputtering".

Although SDC does not provide a dictionary definition in support of its position, STM offers the following dictionary definition for "vacuum evaporation": "A method of manufacturing thin-film circuits by vaporizing a substance, and letting it accumulate or condense on a base." *Illustrated Dictionary of Electronics* at 527 (3rd Ed., 1985). This definition does not include a requirement for heat and is broad enough to include "sputtering". Thus, both parties find some support for their position in the extrinsic evidence.

Both STM's and SDC's arguments have merit. However, SDC's arguments, which rely much more extensively on extrinsic evidence, rather than an analysis of the "entire patent", are not more persuasive than the arguments offered by STM. Indeed, the general structure of the '802 disclosures, which proceeds from the more general description, where "vacuum evaporation" is mentioned, to the preferred embodiment where "sputtering" is specifically called out, favors STM's approach. Also, STM provides a more logical approach as to how an ordinary artisan would view the "entire patent". For example, had the inventors intended "vacuum evaporation" to be the one and only class of methods to be used to deposit the interconnection metal, the artisan would logically expect the inventors to specify one of several well known vacuum evaporation metal deposition procedures as the preferred embodiment. They did not. Next, and most importantly, the artisan would logically conclude that the inventors' intended to use claim language that would include, not clearly exclude, their preferred embodiment,

SDC's response to the foregoing analysis is quite straightforward: the inventors and their patent attorneys simply made a mistake. They failed to use the proper language to cover sputtering so "tough luck". The competition is allowed to use the preferred embodiment free of charge. In its post hearing letter brief, SDC provides citations to several Federal Circuit cases which it contends support its position and show that the Federal Circuit can and will construe claims in a way that may result in the preferred embodiment not being covered by the claim. Indeed, as these cases point out, under some circumstances, a proper claim construction may even lead to an even more harsh result: invalidation of the patent.

First, it must be noted that all of these cases were decided prior to the *Phillips* decision. Thus, for the most part, the decisions start the construction analysis with a review of dictionary definitions, and then turn to an analysis of the "entire patent". Whether these cases would be decided in the same way under the *Phillips* decision is unknown. Next, these cases make clear that it is only when the claim limitation is "susceptible to only one construction", that the Court will not rewrite the claim, even to save the preferred embodiment or the validity of the claim. Finally, the cases relied on by SDC, do not in any way relax the burden on SDC to present "highly persuasive evidence" in support of a definition that excludes the preferred embodiment. FN2 Put another way, SDC must provide "highly persuasive evidence" that "vacuum evaporation" is "susceptible to only one construction".

FN2. For a more complete analysis of these cases by both parties, the Court is referred to the letter briefs

attached as Exhibit A to this report.

Although SDC has presented a good argument, it has not met its burden. In the present case, there is nothing in the intrinsic or extrinsic evidence that would lead the ordinary artisan to conclude that the term "vacuum evaporation", as used in the '802 patent, is "susceptible to only one construction". The term is susceptible to at least two constructions and it is recommended that the Court adopt the definition that best fits within a fair reading of the entire '802 patent and is broad enough to encompass the preferred embodiment.

In summary, both the intrinsic and extrinsic evidence support the broader definition proposed by STM. It is recommended that the Court adopt the following definition:

applying a metal to a surface in a vacuum by vaporizing the metal and letting it condense on the surface

2. "etching"; "etching ... by vertical anisotropic etching"

(a) "etching"

For these disputed term "etching", STM offers the following definition:

"removing material"

SDC proposes a more technically specific definition:

"A subtractive process consisting of dissolving a solid in liquid chemicals (wet etching) or converting a solid into gaseous compounds (dry etching).

In claim 1 of the '802 patent, there is a step to etch a "narrow contact opening"; an "interconnection metal" and a "[conductive] material by vertical anisotropic etching to ... remove the conductive material outside the opening while removing a only a small portion of said material within said opening." (column 4, lines 38, 39 and 53-59). There is nothing in the claim language that suggests that any particular method of etching is to be used.

Next, under *Phillips*, the Court must also review the specification to see if the inventors provide any additional insights into the meaning of the claim language. As stated earlier, the final claim reference to "etching", makes it clear that the etching is done to "remove the conductive material". This step of etching to remove material is described in similar language in the specification (column 1, line 68 to column 2, line 7). As to the etching step to make the "narrow contact opening", the preferred embodiment describes this step as follows: "A contact opening 16 having a width 'a' corresponding to the desired contact width has been cut in the insulating layer, preferably by vertical anisotropic etching." (column 3, line 26-28).FN3 The patent does not refer to a particular method for achieving this "cut in the insulating layer". But, the result of this step is to once again remove material, but with precision.

FN3. As will be discussed below, the parties agree that "vertical anisotropic etching", is etching that goes significantly faster in the vertical direction than in the horizontal direction.

The final etching limitation referenced above, relates to etching of the interconnection layer. The preferred embodiment for this step states, "This layer can be etched (as shown in Fig. 7) so as to define the desired interconnection pattern" (column 3, lines 63,64). The inventors invite the ordinary artisan to compare Fig. 6 to Fig 7 to see the results of this step. This comparison shows that material has once again been "cut" away, or removed, to obtain the profile shown in Fig. 7.

The foregoing brief, but complete analysis of the "entire patent", leads to the conclusion that, as used in the '802 patent; etching is done to remove material. There is no intrinsic evidence to suggest that in order to fully understand the scope of the coverage of this invention, it is necessary to limit the claim to a specific method of etching. A person of ordinary skill in this art would know to use only methods appropriate for the removal of material in this environment. Certainly no one would even consider, as SDC suggest, using a "sanding block or chisel and hammer".

As STM points out, SDC approach to defining "etch", like its approach to defining "vacuum evaporation", is almost completely based in extrinsic evidence. It is not necessary, however, to abandon the clear teaching of the intrinsic evidence and rely on extrinsic evidence to understand what the inventors had in mind in using the term "etch" or "etching". There is no basis in fact or law for pulling specific techniques for etching from the extrinsic evidence into a definition for a term that the patent has clearly and plainly described. Accordingly, it is recommended that the Court adopt the definition proposed by STM and give the term the following definition:

"removing material"

(b) "etching ... by vertical anisotropic etching"

While there is disagreement as to the meaning of "etching", there is no real dispute as to the meaning of "vertical anisotropic etching". Accordingly, it is recommended that the Court adopt the following definition for the terms:

"etching which removes material significantly faster in the vertical direction than in the horizontal direction"

The next step in the claimed method that requires construction relates to the material which fills the narrow contact opening made in the insulating layer. As to this important step (which is obviously the improvement in the art), claim 1 contains several distinctive limitations. The parties cannot agree on the meaning to be attributed to three of these limitations. Namely, they cannot agree on the meaning of "conductive material", the meaning of "vertical substrate surfaces" found in the phrase "high covering power both on vertical substrate surfaces and on horizontal substrate surfaces", and finally, they cannot agree on the meaning of "deposition by chemical decomposition in gas phase" (column 4, lines 43-46). Each claim term will be addressed in the order stated.

3. "conductive material"

First, STM contends that the term "conductive material" requires no construction. While a person skilled in the art may well understand the meaning of the term in the context of the '802 patent, it is recommended that the Court adopt a definition of the term for the benefit of the jury. STM recognizes this possibility and, in the alternative, proposes the following construction:

"A material that is suitable for carrying electric current"

SDC offers the following definition:

"A material having the quality or power of carrying electric current"

As can be seen, the parties agree that to qualify as a "conductive material" it must be a material that is capable of "carrying an electric current". This is obvious from even the most causal reading of the '802 patent. Beyond this straightforward meaning, however, the intrinsic evidence is not that much help. Nevertheless, the parties are not satisfied with a definition that merely states that it is a material that is capable of "carrying electric current." STM urges a definition that requires the material to be "suitable" of carrying an electric current. Of course if the material were not suitable for the purpose plainly called for by the patent, no artisan would even think of using it. Thus, the qualification suggested by STM makes good sense. Indeed, the only substantive argument by SDC against adding the "suitable" qualifier is that such a definition would exclude semiconductors. Even assuming this is argument is correct, however, SDC makes no effective argument against the inclusion of "suitable" as part of the definition.

Instead, SDC proposes the disputed term "conductive material" be defined as one "having the quality or power of carrying electric current". Although STM quarrels a bit with the use of the word "quality", its argument against this qualifier is weak at best. Furthermore, STM fails to effectively demonstrate how requiring the material to have the "quality of carrying electric current" is inconsistent with its proposed qualifier-"suitable". STM does make a good point, however, in its objection to the inclusion of the word "power" in any definition of "conductive material". The inclusion of "power" in the context of this patent, would only add confusion and require further definition. Thus, it is recommended that "power of carrying electric current" not be included in any definition adopted by the Court.

Based on the foregoing analysis, it is recommended that the Court adopt the following definition for "conductive material", which incorporates both of the sensible qualifiers offered by the parties:

"A material that is suitable for and/or has the quality of carrying electric current."

4. "vertical substrate surfaces"

This phrase in claim 1 of the '802 patent also relates to the conductive material. According to the claim, the deposited conductive material must have "a high covering power both on vertical substrate surfaces and on horizontal substrate surfaces.."

STM once again takes the position that no definition is required, but should the Court decide to construe the terms, SDC proposes the following meaning:

"A material having a good ability to cover both vertical and horizontal exposed surfaces"

SDC does not propose a definition, but instead argues that the term "vertical substrate surface" is indefinite and cannot be construed. In support of this position, SDC points out that since there are no "vertical substrate surfaces" relating to the invention described in the patent, the term cannot have any meaning in the claims. SDC is partially correct. There are no such surfaces shown in the patent, but this fact does not mean the person of ordinary skill in the art, upon review of the "entire patent", could not understand the meaning

of the term. Furthermore, due to the dire consequences that flow from a finding that a claim term is indefinite, SDC must demonstrate that the facts of this case fit within the requirements of the relevant Federal Circuit law. SDC cites no such law and, thus, makes no argument based on the law. However, in the following passages, STM provides the correct statement of the rules and the correct analysis of how the facts here fit within these rules (See STM Reply Brief, page 27).

"The basic principles were recently summarized by the Federal Circuit as follows:

The definiteness requirement, however, does not require absolute clarity. Only claims "not amenable to construction" or 'insolubly ambiguous' are indefinite ... Thus, the definiteness of claim terms depends on whether those terms can be given any reasonable meaning ... 'By finding claims indefinite only if reasonable efforts at claim construction prove futile, we accord respect to the statutory presumption of validity and we protect the inventive contribution of patentees, even when the drafting of their patents has been less than ideal. (*Datamize, LLC v. Plumtree Software, Inc.*, 2005 U.S.App. LEXIS 16176, at *11-12 (Fed.Cir. Aug. 5, 2005)

"Here, notwithstanding SanDisk's attempt to obscure the issue, the term 'vertical substrate surfaces' is not 'insolubly ambiguous' and thus *cannot* be indefinite. (emphasis in the original) A proper analysis of this claim term, considered in the context of the claims and the specification as a whole, reveals that the term 'vertical substrate surfaces' refers to the ability of the material being deposited to cover exposed vertical surfaces.

"The context in which 'vertical substrate surfaces' is used in claim 1 is within the step of depositing 'a ... material having high covering power both on vertical substrate surfaces and on horizontal substrate surfaces.' FN4 Since the claim context relates to the covering power of the deposited material, it is reasonable to consider the disclosure of the specification and figures relating to covering power:

FN4. *Datamize*, 2005 U.S.App. LEXIS 16176, at (ST.App.193) ("[Appellant] is right to point out that the phrase ... should be considered in the context of claim 1. Claim construction involves reviewing the intrinsic evidence of record, including the claim language itself").

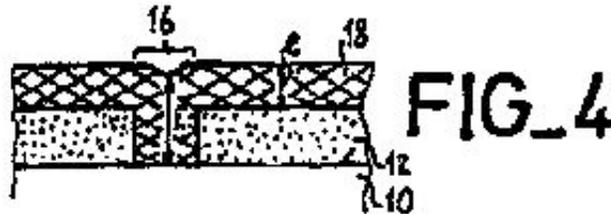
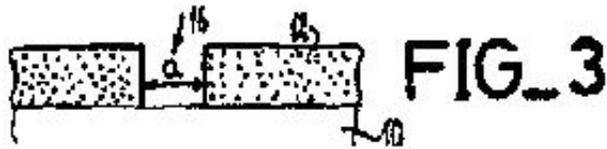
-> First, the Detailed Description of the Invention explains that one problem with prior methods is that: "If the thickness of the insulating layer 12 is substantial The aluminum deposited by evaporation does not pass readily over the abrupt steps (*low covering power on the vertical edges.*) FN5 The reference to low covering power clearly refers to the vertical edges of the insulating layer 12.

FN5. '802 Patent, Col. 2, ll. 48-56 (emphasis added) (ST.App.3).

-> Second, the Detailed Description of the Invention later explains that the method of the present invention addresses this problem: "A conductive layer 18 having *high covering power on both vertical and horizontal surfaces* is deposited by chemical deposition in gas phase." FN6

FN6. '802 Patent, Col. 3, ll. 33-35 (emphasis added) (ST.App.4).

-> Finally, Figures 3 and 4 of the '802 Patent further demonstrate that the term "vertical substrate surfaces" relates to the covering power on vertical surfaces, including the exposed surfaces of insulating layer 12:



"ST's proposed construction is thus entirely consistent with the specification and figures.

"As noted in the Federal Circuit's *Datamize* opinion, a claim term is not indefinite if its term can be given a reasonable meaning, even where reasonable persons may disagree over that meaning.FN7 Here, the context claim 1 as well as the specifications as a whole provides clear guidance regarding the proper meaning of 'vertical substrate surfaces'-the covering power of material on exposed vertical surfaces. Construing the term in this manner is both reasonable and in accord with the statutory presumption of validity." [end of quotes from STM's Reply Brief]

FN7. *Datamize*, 2005 U.S.App. LEXIS 16176, at (ST.App.130).

Based on the foregoing analysis, it is recommended that the Court adopt STM's proposed definition for "vertical substrate surfaces", as used within the phrase of claim 1 which states: "a conductive material having a high covering power both on vertical substrate surfaces and on horizontal substrate surfaces":

"A material having a good ability to cover both vertical and horizontal exposed surfaces"

5. "deposition by chemical decomposition in a gas phase"

This is the final disputed claim term relating to the conductive material.

STM proposes that the term be defined as:

"Deposition [of a material] by the reaction of chemical(s) that are in a vapor state"

SDC's definition:

"Deposition [of a material] by the reaction of chemical(s) (as opposed to a physical reaction) that are in a vapor state"

SDC request the additional qualifier "(as opposed to a physical reaction)" so that it is "crystal clear that

deposition by vacuum evaporation is not the same thing as deposition by chemical decomposition." SDC does not cite any portion of the intrinsic evidence in support of its position.

STM points to several references in the specification relating to the subject. Some references repeat the claim language (column 3, lines 34-35). Other references shorten the description to "deposited by chemical deposition" without reference to the "gas phase" (column 3, lines 42-43). One reference refers to "depositing by chemical vapor deposition" (column 1, lines 59-60). None of these references in the patent provide a definition. However, the following undisputed definitions of "chemical vapor deposition" are found in textbooks cited by both parties:

"Chemical vapor deposition (CVD) is defined as the formation of a non-volatile solid film on a substrate by the reaction of vapor phase chemicals (reactants) that contain the required constituents." (STM App. 78)

"Chemicals containing the atoms required by the final film are mixed and reacted in a deposition chamber. The reaction forms the proper film elements or molecules in a vapor state. The elements or molecules deposit on the wafer surface and build up to form a film." (STM App. 70)

In light of these definitions of the process called out by the '802 patent specification and claim 1, it is clear that the ordinary artisan would understand the meaning of the disputed term as defined by STM. Further, there appears to be no reasonable justification or need for the additional qualifier suggested by SDC. Accordingly, it is recommended that the Court adopt the following definition for the term "deposition by chemical decomposition in gas phase":

"Deposition [of a material] by the reaction of chemical(s) that are in a vapor state"

The foregoing represents the special master's complete report and recommendations for definitions of the disputed terms of the '802 patent.

EXHIBIT A

September 15, 2005

BY FEDEX

Gaynell C. Methvin, Esq.

5063 William Head Road

Victoria, B.C. V 9C 3Z1

Re: *STMicroelectronics, Inc. v. SanDisk Corporation*; Civil Action No. 4:05-CV-44

Dear Gaynell:

Thank you very much for your courtesy in accommodating my schedule (including an unexpected trip at the beginning of the week) and allowing ST until today to respond to SanDisk's letter brief. In its September 6, 2005 letter, SanDisk incorrectly suggests that the Federal Circuit, in *International Rectifier* and other cases, has "refused to adhere to the principle recited in *Vitronics* ... that a claim interpretation that excludes the

preferred embodiment is 'rarely, if ever, correct.' " FN1 Significantly, without adding an ellipsis, SanDisk omits the end of the quoted passage from *Vitronics*- "... and would require highly persuasive evidentiary support." FN2 SanDisk has no such support in this case.

FN1. Mark N. Reiter's Letter of 9/6/2005 to Special Master Gaynell C. Methvin at 1 ("SanDisk's Letter") (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed.Cir.1996)).

FN2. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed.Cir.1996).

While a few Federal Circuit cases have construed a claim to exclude a preferred embodiment, they have done so under extremely limited exceptions and then, only with the requisite "highly persuasive evidentiary support." In attempting to show that such an exception applies to the claim term "depositing by vacuum evaporation ... an interconnection metal," SanDisk cites cases in three categories:

(1) the *IR* case, in which the court's construction ***did not*** exclude the preferred embodiment, as recognized in your email message;

(2) several cases that fall within a prosecution-disclaimer exception, which says that any matter disclaimed during patent prosecution to get a claim allowed cannot later be reclaimed-an exception that cannot apply here since the '802 patent was allowed on its first action with no prosecution history or implication that any change was made to avoid prior art; and

(3) two cases in which the unambiguous meaning of a claim term made it susceptible to only one construction, even if it rendered the claim invalid or the process unusable-cases that do not apply because the meaning of "vacuum evaporation" is far from unambiguous, even among experts, and its meaning in the '802 patent FN3 becomes clear only by reference to the intrinsic evidence.

FN3. US. Patent No. 4,592,802 ("the '802 patent").

Contrary to SanDisk's implication, the Federal Circuit in all the cases cited by SanDisk follows the principle that "a claim interpretation that excludes the preferred embodiment is rarely, if ever, correct." FN4

FN4. *T.F.H. Publ'ns, Inc. v. Hartz Mountain Corp.*, 67 F. App'x 599, 603 (Fed.Cir.2003) (unpublished) (copy through Westlaw) ("[C]onstruing a claim to exclude a preferred embodiment is rarely, if ever, correct and would require highly persuasive evidentiary support."); *Elekta Instruments v. O.U.R. Scientific Int'l, Inc.*, 214 F.3d 1302, 1308 (Fed.Cir.2000) ("Elekta argues that OSI's proposed claim construction should not be adopted because it would exclude the preferred and only embodiment disclosed in the specification. We have previously stated that 'such an interpretation is rarely, if ever, correct and would require highly persuasive evidentiary support.'"); *North Am. Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335, 1345 (Fed.Cir.2005) (acknowledging general principle but finding that "high standard required to show a prosecution disclaimer" had been met); *Rheox, Inc. v. Entact, Inc.*, 276 F.3d 1319, 1327 (Fed.Cir.2002) (recognizing that a construction excluding a preferred embodiment "is rarely, if ever, correct and would require highly persuasive evidentiary support"); *Slip Track Sys. v. Metal Lite, Inc.*, 113 F. App'x 930, 938 (Fed.Cir.2004) (unpublished) (copy through Westlaw) (recognizing "the general rule disfavoring a claim

construction that excludes a preferred embodiment").

Indeed, in a July 2005 case, SanDisk, itself, acknowledged this principle of construction, arguing that a claim construction was wrong because "it excludes at least two preferred embodiments" FN5 The Federal Circuit agreed, explaining: "A court must always read the claims in view of the full specification. *See Vitronics*, 90 F.3d at 1582. A claim construction that excludes a preferred embodiment, moreover, 'is rarely, if ever, correct. *Vitronics*, 90 F.3d at 1583; *see also* *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 865 (Fed.Cir.2004)." FN6

FN5. *SanDisk Corp. v. Memorex Prods.*, 415 F.3d 1278, 1285 (Fed.Cir.2005) (on the brief for SanDisk were Michael Ladra and James Yoon, of Wilson Sonsini, who are counsel in this case).

FN6. *Id.*; *see Vitronics*, 90 F.3d at 1582.

SanDisk now deviates from this principle when it argues that "thermal"-a word used nowhere in the '802 patent to describe or limit the claim term "depositing by vacuum evaporation"-should be read into the claim as a limitation. Presumably, SanDisk urges this as a noninfringement position to avoid the preferred, and only, embodiment in the detailed description of the invention.FN7 The paragraphs below demonstrate that the general principle of *Vitronics* applies to the claim term "depositing by vacuum evaporation"-as both the Special Master and the Magistrate Judge concluded in *Motorola v. STMicro-electronics*-and that none of the exceptions urged by SanDisk apply.

FN7. *See id.* "Detailed Description of the Invention," col. 3, lines 58-60.

Claim Constructions That Do Not Exclude the Preferred Embodiment

1. *International Rectifier Corp. v. IXYS Corp.*, 361 F.3d 1363 (Fed.Cir.2004)

As your August 27, 2005 e-mail correctly indicates, the only two relevant claim constructions in *International Rectifier* did not exclude the preferred embodiments.

The first claim term, "polygonal," was used in the claims to describe a semiconductor base region.FN8 Both parties agreed that a "polygon" meant "a closed straight figure bounded by straight lines." FN9 The Federal Circuit, having not yet decided *Phillips v. AWH Corp.*,FN10 looked first to the dictionary definitions of "polygon," which comported with the parties' agreed definition.FN11 The court next looked to "the written description for context and guidance as to the meanings attributed by those of ordinary skill in the art to the term 'polygonal' and to see whether the patentee acted as his own lexicographer" FN12

FN8. *International Rectifier Corp. v. IXYS Corp.*, 361 F.3d 1363, 1370 (Fed.Cir.2004).

FN9. *Id.*

FN10. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed.Cir.2005).

FN11. *International Rectifier*, 361 F.3d at 1370-71.

FN12. *Id.* at 1371.

As the court explained: "The square base regions depicted in Figure 7 of the '699 patent and the hexagonal base regions depicted in Figure 3 of the '725 and '767 patent are recognizably 'closed plain figure[s] bounded by straight lines.' The depictions and descriptions of the patent are consistent with the ordinary dictionary definition of the word 'polygon' cited by the district court" FN13

FN13. *Id.*

IR argued, however, that those skilled in the art would understand "polygonal" to encompass shapes with *curved corners* because the diffusion of dopants into a silicon substrate necessarily creates some blurring of the corners and sides of the polygonal region.FN14 IR argued that this characteristic should be incorporated into the definition of "polygonal." FN15

FN14. *Id.*

FN15. *Id.*

The Federal Circuit refused to accept the district court's unusual definition of the term polygonal as "generally but not perfectly polygonal" so that a "polygon" would be "a closed figure with generally (but not necessarily perfectly) straight lines ." FN16 As the Federal Circuit explained: "The correct construction of the term 'polygonal,' *consistent with the written description*, is simply 'a closed plane figure bounded by straight lines.' " FN17

FN16. *Id.* at 1370.

FN17. *Id.* at 1371-72 (emphasis added).

Thus, contrary to SanDisk's view, the preferred embodiment found in the figures and in the written description was not excluded. Instead, the Federal Circuit refused to stretch the meaning of the term "polygon" in the claims to cover something other than what was disclosed in the preferred embodiment of the invention. As noted above, the court specifically concluded that the "depictions and descriptions of the patent are consistent with the ordinary dictionary definition of the word 'polygon' cited by the district court " FN18

FN18. *Id.* at 1371.

In construing the second claim term-"adjoining"-the Federal Circuit again gave the term its ordinary and customary meaning as "touching or bounding at a point or a line." FN19 IR argued that adopting this construction would "exclude the preferred embodiment," a result that the court agreed "is rarely, if ever, correct." FN20 In rejecting IR's argument, the court explained that IR had overlooked the fact that the two regions in question did touch, at least in part. As the court noted: "The broad definition of the term 'adjoining' is entirely consistent with the written description and does not exclude the preferred embodiment." FN21

FN19. *Id.* at 1375.

FN20. *Id.* at 1374 (citing *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1477 (Fed.Cir.1998)).

FN21. *Id.*

In discussing *International Rectifier*, SanDisk devotes substantial space to arguments already made in its *Markman* briefing and at the hearing-arguments that STMicroelectronics will not re-address here. SanDisk fails, however, to demonstrate that the Federal Circuit in *International Rectifier* construed any claim term to exclude the preferred embodiment. Thus, contrary to SanDisk's position, *International Rectifier* does not stand for the exceptional construction urged by SanDisk.

Claim Constructions Based on Disclaimers During Patent Prosecution

The second category of cases cited by SanDisk stand for the principle that a claim may be narrowed if a patentee has expressly disclaimed certain interpretations during patent prosecution to obtain claim allowance.FN22 As the Federal Circuit has explained: "Explicit arguments made during prosecution to overcome prior art can lead to narrow claim interpretations because 'the public has a right to rely on such definite statements made during prosecution.'" FN23 Such narrowed claim interpretations may exclude one or more of the specific embodiments in the patent. But such cases constitute those "rare cases" in which a claim construction might properly exclude a preferred embodiment.FN24

FN22. *Southwall Techs., Inc. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed.Cir.1995).

FN23. *Digital Biometrics, Inc. v. Identix, Inc.*, 149 F.3d 1335, 1347 (Fed.Cir.1998).

FN24. *Ekka Instrument S.A. v. O.U.R. Science Int'l, Inc.*, 214 F.3d 1302, 1308 (Fed.Cir.2000).

Significantly, in the case at bar, no such disclaimers were made for the ' 802 patent. Moreover, SanDisk has not argued that any prosecution disclaimer supports SanDisk's "thermal" limitation. Thus, none of the four

cases cited by SanDisk for this principle apply in this case.

1. North America Container, Inc. v. Plastipak Packaging, Inc. , 415 F.3d 1335, 1346 (Fed.Cir.2005)

The applicant, during prosecution, disclaimed inner walls of a plastic bottle having any concavity. As a result, the claim construction excluded some (but not all) of the preferred embodiments. As the court observed: "We have previously explained that limitations may be construed to exclude a preferred embodiment if the prosecution history compels such a result."

2. Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1320 (Fed.Cir.2002)

During prosecution history, to achieve patentability, the applicant disclaimed and disavowed monocalcium orthophosphate and TSP. In construing the claim narrowly, to exclude those substances, the court explained: "[W]here the prosecution history requires a claim construction that excludes some but not all of the preferred embodiments, such a construction is permissible and meets the standards of " 'highly persuasive evidentiary support.' "

3. Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc., 214 F.3d 1302, 1307-08 (Fed.Cir.2000)

Even though the specification disclosed a range of 0 to 30 degrees, the patentee was barred from arguing that a medical device included radiation sources in the range of 0 to 30 degrees because this range had been surrendered in response to an obviousness rejection. Moreover, the Federal Circuit's claim construction in this case was mandated because the court found the claim language in question ("only" and "extending between") to be unambiguous.

4. Slip Track System, Inc. v. Metal Lite, Inc., 113 F. App'x 930, 938 (Fed.Cir.2004) (unpublished**)**

While prosecuting a patent for a slotted-track wall assembly, the applicant-to overcome a rejection for obviousness and indefiniteness-limited the claim to a stud with a preexisting hole. Although the court's claim construction excluded one of two preferred methods of assembly, the court explained: "[W]hile recognizing the general rule disfavoring a claim construction that precludes a preferred embodiment, the prosecution disclaimer in this case provides 'highly persuasive evidentiary support' for our construction."

Claim Constructions Based on Unambiguous Claim Language

Finally, two of SanDisk's cited cases are proffered for the principle that a plain, unambiguous claim term, which is susceptible to only one reasonable dictionary meaning, must be construed according to its plain meaning. As shown below, however, neither case supports SanDisk's position in the case at bar.

1. Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371 (Fed.Cir.2004)

Here, a claim called for "heating batter-coated dough *to* a temperature in the range of about 400 degrees F. to 830 degrees F-a limitation which was added to the claim during prosecution" FN25 The sole question was whether the word "to" could be construed to mean "at." The problem for the patentee was that if batter-coated dough is heated *to* a temperature of 400 degrees to 850 degrees F ., as the claim requires, it would be burned to a crisp, instead of becoming dough suitable for freezing and later reheating to a light, crispy texture. Although the construction made the claim inoperable, the Federal Circuit refused to rewrite the claim by substituting the word "at" for the plain, unambiguous word "to," which it found to be "susceptible

to only one reasonable interpretation." FN26

FN25. *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1372 (Fed.Cir.2004) (emphasis added).

FN26. *Id.* at 1374.

Although two examples in the specification described heating dough in an "oven at a temperature" in a specified range, the court held that the meaning of "to" was clear because the claims unambiguously referred "to the temperature of the dough, not the oven setting." FN27

FN27. *Id.* at 1373 ("As noted, the claim requires 'heating the resulting batter-coated dough to a temperature in the range of about 400 F. to 850 F.' These are ordinary, simple English words whose meaning is clear and unquestionable. There is no indication that their use in this particular conjunction changes their meaning. They mean exactly what they say. The dough is to be heated to the specified temperature. Nothing even remotely suggests that what is to be heated is not the dough but the air inside the oven in which the heating takes place. Indeed, the claim does not even refer to an oven.").

This case is inapposite here because no undisputed, unambiguous definition of the term "vacuum evaporation" is before the Court. Rather, SanDisk extrapolates the narrow construction that it proposes from a series of examples of specific deposition techniques derived from treatises, some of which are inconsistent with each other. For example, the Van Zant reference, cited by SanDisk, describes sputtering as "physical vapor deposition" and explains that an ion beam is used to "knock off" the "target" material to form a vapor FN28-which is, of course, the hallmark of an evaporation process. One technical dictionary defines "vacuum evaporation" as "a method of manufacturing thin-film circuits by vaporizing a substance, and letting it accumulate or condense on a base." FN29 The approach in *Chef America*-construing a nontechnical term according to its plain, unambiguous meaning-does not apply here.

FN28. Peter Van Zant, *Microchip Fabrication: A Practical Guide to Semiconductor Processing* 345 (2d ed.1990).

FN29. *Illustrated Dictionary of Electronics* 527 (3d ed.1985).

2. *T.F.H. Publications, Inc. v. Hartz Mountain Corp.*, 67 F. App'x 599, 603 (Fed.Cir.2003) (**unpublished**)FN30

FN30. This case is inappropriately cited by SanDisk because the Federal Circuit designated it as an "Unpublished or Nonprecedential" decision that "may not be cited as precedent."

In *T.F.H. Publications*, the claim's plain language rendered it invalid because, in the simple terms used by the court, if A reacted with B, it did not yield C, as the claim required. Instead, A would have to react with an intermediate substance, which would have to react with another substance before C would result. Although the specification described the intermediate reactions, the court held that these steps could not be

read into the claim, even if its construction rendered the claim invalid. Since the words of the claim were "unambiguous" and "susceptible to only one construction," the court declined to "rewrite" the claims to preserve their validity.

Again, this case does not support SanDisk's position. ST is not-as was tried in *T.F.H. Publications*-attempting to read steps into or rewrite the claim. Instead, it is SanDisk that is improperly trying to read in the extraneous "thermal" limitation to reduce the scope of the claim and exclude the preferred embodiment. As noted, "thermal" is not derived from any part of the intrinsic evidence, and its relevance to the construction of the term "vacuum evacuation" is disputed in the extrinsic evidence.

Conclusion

As the Federal Circuit emphasized in *Phillips v. AWH Corp.*, patent claims "do not stand alone." FN31
Instead,

FN31. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed.Cir.2005).

they are part of "a fully integrated written instrument," consisting principally of a specification, of which they are a part. As we stated in *Vitronics*, the specification "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." FN32

FN32. *Id.*

In *Phillips*, the court backed away from some of its earlier cases, such as *Texas Digital Systems, Inc. v. Telegenix, Inc.*, FN33 in which the court had given greater emphasis to extrinsic evidence and had "assigned a less prominent role to the specification and the prosecution history." FN34 As the Federal Circuit observed: "Assigning such a limited role to the specification, and in particular requiring that any definition of claim language in the specification be express, is inconsistent with our rulings that the specification is 'the single best guide to the meaning of a disputed term,' and that the specification 'acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication.'" FN35

FN33. 308 F.3d 1193 (Fed.Cir.2002)

FN34. *Phillips*, 415 F.3d at 1319.

FN35. *Id.* at 1320-21.

In *Motorola*, the Special Master correctly looked to the relevant intrinsic evidence in construing this same term. As the claim construction report explains:

[F]irst, it is clear that the inventors were aware of the 'sputtering' process as it is cited in the preferred embodiment as the process to be used: "The interconnection layer 14 proper (in particular of aluminum or

aluminum alloy) is then deposited by conventional sputtering." (col.3, ll.58-62). In the Summary of Invention, however, the patent uses the claim terms "vacuum evaporation" in describing how the interconnecting layer is formed (col.2, ll.7-10). Accordingly, in the contents of the '802 patent, the inventors made it clear that sputtering should be considered as a "vacuum evaporation" process. It follows that a person of ordinary skill in the art, with knowledge of the patent's teachings and all possible technical definitions, would understand that the patentees intended that the broader definition found in the dictionary offered by STM should control and that "vacuum evaporations" includes "sputtering."

Furthermore, as STM points out, Motorola's definition excludes the preferred embodiment and, therefore, runs counter to the Federal Circuit rule that "a claim interpretation that excludes the preferred embodiment is rarely, if ever, correct." Also, according to the *Vitronics* case, the burden is on Motorola to present "highly persuasive evidentiary support" for its definition, which would exclude the sputtering process of the preferred embodiment. Motorola has not met this burden.

Like Motorola, SanDisk has not met its burden of presenting "highly persuasive evidentiary support" for a construction that would exclude the sputtering process of the sole preferred embodiment. Indeed, the evidence strongly contradicts that construction. And the caselaw cited by SanDisk provides no applicable exception to the Federal Circuit principle against construing a claim to exclude the preferred embodiment.

Sincerely,

Bruce S. Sostek

September 6, 2005

VTA EMAIL & U.S. MAIL

Gaynell C. Methvin

300 Crescent Court, Suite 1500

Dallas, TX 75201

Re: *STMicroelectronics, Inc. v. SanDisk Corp.*, Case No. 4:05cv44

Dear Special Master Methvin:

This letter responds to your e-mail of August 27, 2005, inquiring about *International Rectifier* and other cases where the Federal Circuit has defined a term in such a way as to exclude the preferred embodiment. As discussed below, in *Int'l Rectifier Corp. v. IXYS Corp.*, 361 F.3d 1363, 1370-71 (Fed.Cir.2004), as well as other cases, the Federal Circuit refused to adhere to the principle recited in *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed.Cir.1996) that a claim interpretation that excludes the preferred embodiment is "rarely, if ever, correct." Instead, the court in *International Rectifier* and the other cases explained:

-> claim terms are to be given their ordinary meaning to those of skill in the art;

-> an inventor's choice of words may not be ignored; and

-> a district court is not free to attribute new meaning to a claim term or to excuse the patentee from the consequences of its own word choice, *even if to do so results in a construction that excludes the preferred embodiment and results in an invalid claim.*

The Federal Circuit Excluded The Preferred Embodiment In International Rectifier

The holding in *International Rectifier* is consistent with the most fundamental tenet of the patent laws: the invention is defined by the claims, not by the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 2005 WL 1620331, at (Fed.Cir. July 12, 2005) (*en banc*); *Johnson & Johnston Associates, Inc., v. R.E. Service Co., Inc.*, 285 F.3d 1046, 1052 (Fed.Cir.2002) (*en banc*) ("Consistent with its scope definition and notice functions, the claim requirement presupposes that a patent applicant defines his invention in the claims, not in the specification."). The right to exclude under a patent does not cover all that is disclosed in the specification, but only what is recited in the claims. In other words, the scope of the claim can never be expanded by the disclosure in the specification. *McClain v. Ortmyer*, 141 U.S. 419, 424, 12 S.Ct. 76, 35 L.Ed. 800 (1891) ("The claim is the measure of his right to relief, and while the specification may be referred to limit the claim, it can never be made available to expand it."). Relying on this principle, the Federal Circuit in *International Rectifier* held that the district court erred by expanding the ordinary meaning of the claim term "polygonal" to read on the preferred embodiment that disclosed rounded corners and blurred sides for the semiconductor base region. *Int'l Rectifier*, 361 F.3d at 1371. In short, *International Rectifier* reiterates the axiom that, "[a]bsent an express intent to impart a novel meaning, claim terms take on their ordinary meaning." *Elekta Instruments S.A. v. O.U.R. Scientific Int'l, Inc.*, 214 F.3d 1302, 1307 (Fed.Cir.2000). The Federal Circuit, therefore, directs courts to construe claim terms according to their ordinary meaning and not attribute new meaning to a term or exclude a patentee from the consequences of its own word choice. *Int'l Rectifier*, 361 F.3d at 1371-72; *Elekta*, 214 F.3d at 1308 ("[T]he unambiguous language of the amended claim controls over any contradictory language in the written description.").

In *International Rectifier*, the court found the ordinary meaning of "polygonal" to be "a closed plane figure bounded by straight lines." *Int'l Rectifier*, 361 F.3d at 1370. The district court's construction, however, relaxed the ordinary-meaning requirement to allow round corners and not straight edges. *Id.* at 1371. The Federal Circuit found that to be erroneous. *Id.*

In deciding the issue, the Federal Circuit reviewed Figure 7 in one patent and Figure 3 in two other patents at issue. *Id.* It characterized those figures as arguably or "recognizably" providing support for the ordinary meaning of "polygonal." *Id.* The Federal Circuit did not end its analysis with those figures; rather, it considered and acknowledged the patents' written description, which informed those skilled in the art that the "polygonal" "base regions" shown in the figures are "formed by the diffusion of dopants into the silicon substrate, **a process which necessarily blurs the outline of the regions**" *Id.* (emphasis added). The court also acknowledged the patentee's position that "the square base depicted in Figure 7 of the '699 patent has slightly rounded corners." *Id.* In view of the patents' disclosure, the court concluded that "one of ordinary skill in the art would understand from the written description that the diffusion region resulting from the doping process will naturally cause some blurring of the corners and sides of the polygonal regions." *Id.* Based on the patents' disclosure, the patentee in *International Rectifier*, like ST here, argued that the district court's relaxed construction of polygonal was correct because " 'a claim interpretation that excludes the preferred embodiment is rarely, if ever, correct.' " *Id.* In other words, Figure 7 and its description-the preferred and only embodiment-would **not** be covered by the ordinary definition, which requires "a closed

plane figure bounded by straight lines." *Id.*

As noted, however, even after accepting the patentee's explanation of the figures (rounded corners) and written description (blurred sides) for the preferred embodiment, the Federal Circuit rejected the district court's relaxed construction, and explained:

The patentee being fully aware of the effects of the doping process, could have claimed the regions more broadly, but chose to use the word "polygonal" without modification or qualification. The district court was not free to attribute new meaning to the term or to excuse the patentee from the consequences of its own word choice.

Id. at 1372. Such is the case with the '802 patent. If one accepts the premise that only one embodiment appears in the patent—a clearly erroneous premise given the repeated references to vacuum deposition in addition to the disclosed "conventional sputtering"—the '802 inventors were fully aware of both vacuum evaporation and "conventional sputtering." They could have claimed the deposition process more broadly, *i.e.*, "depositing" or "plasma vapor deposition," just as the prior art of record, *e.g.*, Aoyama and Jeuch, worded their claims. Indeed, the '802 inventors did recognize that they could generically claim "depositing." *See* '802 Patent, col. 4, ll. 35-36 (" **depositing** a relatively thick insulating layer on a substrate"). In contrast, they chose to specifically claim that the "interconnection metal" be deposited by "vacuum evaporation," which they identified without modification or qualification. The definition of vacuum evaporation proposed by SanDisk is consistent with the written description, and it does not attribute a new meaning to the term or excuse the inventors from the consequences of their own word choice. Such a definition is the correct definition, even if it excludes the preferred embodiment, as the Federal Circuit demonstrates in *International Rectifier*.

The Federal Circuit Will Exclude The Preferred Embodiment If Required By The Proper Claim Construction

International Rectifier does not stand alone; other Federal Circuit decisions refuse to expand the ordinary meaning of a claim term to cover what the patentee failed to claim or to construe a term to cover that which was disclaimed during prosecution, even where the "ordinary meaning" would exclude the preferred embodiment, as well as render the claim invalid. For example, in *T.F.H. Publications*, the Federal Circuit affirmed a claim construction that the patentee asserted (1) excluded the preferred embodiment and (2) rendered the claim invalid. *T.F.H. Publications, Inc. v. Hartz Mountain Corp.*, 2003 U.S.App. LEXIS 10829, at *8-9 (Fed.Cir. May 30, 2003) (unpublished). Despite the obvious peril to the claim, including exclusion of the preferred embodiment, the Federal Circuit explained:

[T]he ordinary meaning of the terms used, together with the intrinsic record, render the claim limitation susceptible to only one construction.... [W]e are unwilling to adopt T.F.H.'s reading of the claim limitation simply to save it from its injudicious word choices. To do so, we would have to rewrite the claim limitation We may not rewrite claims to preserve validity in this manner.

Id. at *9-10. The Federal Circuit in *T.F.H. Publications* could not be clearer—the claims say what they say; courts cannot redraft claims for any reason, even to preserve validity.

Similarly, in *Chef America*, the Federal Circuit construed the disputed claim language to exclude not only the preferred embodiment, but in a manner such that the patented process "cannot [even] perform its

intended function." *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1375 (Fed.Cir.2004). The court explained that "courts may not redraft claims, whether to make them operable or to sustain their validity." *Id.* at 1374. The Federal Circuit further stressed that it is settled practice to interpret a claim as written rather than as the inventor wished he had written it, and that it "cannot rewrite the claim." *Id.* at 1374-75.

In *Elekta Instrument*, the Federal Circuit refused to extend the scope of the claim limitation "only within a zone extending between latitudes 30 degrees-45 degrees" to read on the preferred embodiment that showed radiation sources beginning from 0 degrees to 45 degrees, despite the patentee's arguments that such a finding would not only fail to cover the preferred embodiment but also render the claim invalid. *Elekta Instrument*, 214 F.3d at 1307. The court explained that "the unambiguous language of the amended claim controls over any contradictory language in the written description." *Id.* at 1308. The court also expressly acknowledged the general rule that disfavors constructions that exclude the preferred embodiment, but concluded that "in light of the prosecution history and the ***unambiguous language of the amended claim***, we conclude that this is the rare case in which such an interpretation is compelled." *Id.* (emphasis added).

In *North American Container*, the Federal Circuit, relying on statements made during prosecution and its *Elekta* decision, refused to adopt a construction for the claim term "generally convex" that would read on the preferred embodiments shown in the drawing figures that had concave inner walls because the inventor had disclaimed any concavity for inner walls. The court's construction, thus, excluded the preferred embodiment. *North American Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335, 1346 (Fed.Cir.2005). Likewise, in *Rheox, Inc.*, the Federal Circuit refused to construe the claim term "calcium orthophosphate" to cover the preferred embodiments of monocalcium orthophosphate and triple superphosphate that the patentee disclaimed in order to obtain patentability. *Rheox, Inc. v. Entact, Inc.*, 276 F.3d 1319, 1327 (Fed.Cir.2002) (note how different materials constitute different preferred embodiments, not mere "design choices," such that the '802 patent's disclosed choices for its claim "conductive material" means the '802 patent has many preferred embodiments). And in *Slip Track*, the Federal Circuit similarly excluded the preferred embodiment due to the intrinsic evidence that showed the patentee disclaimed the preferred embodiment during prosecution. *Slip Track Systems, Inc. v. Metal Lite, Inc.*, 2004 U.S.App. LEXIS 24734, at (Fed.Cir. Dec. 1, 2004) (unpublished).

These Federal Circuit decisions demonstrate that it is error to expand the unambiguous meaning of a claim term to read on the preferred embodiment. The patentee is bound by its choice of words, whether in the claim, the specification, or the prosecution history. It is those words that put the public on notice of what is or is not captured by the patent. Here, the inventors chose to claim "deposition by vacuum evaporation," and they did so with an understanding that other deposition processes exist, other deposition processes might also be used, and that the deposition step could be generically claimed. The '802 inventors did not, moreover, coin a new term or redefine vacuum evaporation to mean something other than its ordinary, well-understood meaning. *See Elekta Instrument*, 214 F.3d at 1307 (for a patentee to act as his own lexicographer, the description must "clearly redefine a claim term 'so as to put a reasonable competitor or one reasonably skilled in the art on notice that the patentee intended to so define that claim term.' "). Indeed, the inventors' reference to "conventional sputtering" absolutely demonstrates that they did not intend to redefine deposition by "vacuum evaporation" or have it include sputtering. To expand the unambiguous meaning of "deposition by vacuum evaporation" to cover "conventional sputtering" would render the claim language superfluous; such a result contradicts established law. *Id.* (construing the claim phrase "between latitudes 30 degrees-45 degrees" to mean 0 degrees to 30 degrees based on the preferred embodiment would render "the reference to 30 degrees superfluous").

Finally, the uncontradicted evidence establishes that "vacuum evaporation" and "conventional sputtering" constitute distinct processes. The patentees disclosed both in their patent but chose only to claim "vacuum evaporation." The Court cannot construe the claim so broadly as to encompass both embodiments. Such a construction would violate the ordinary-meaning rule explained above, as well as the disclosure-dedication rule: "[W]hen a patent drafter discloses but declines to claim subject matter, as in this case, this action dedicates that unclaimed subject matter to the public." Johnson & Johnston, 285 F.3d at 1054. Whether the Special Master concludes that the '802 patent discloses multiple preferred embodiments-a conclusion that avoids the preferred embodiment principle-or concludes that the '802 patent discloses only one embodiment, the '802 patent does not equate "conventional sputtering" with "deposition by vacuum evaporation." The '802 patent uses "deposition by vacuum deposition" according to its ordinary meaning and it must be construed as such, even if it excludes the preferred embodiment.

I hope that the above discussion is of help. Please let me know if you have any other questions.

Sincerely,

Mark N. Reiter

E.D.Tex.,2005.

STMicroelectronics, Inc. v. SanDisk Corp.

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