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ATI Technologies, ULC

13

14 UNITED STATES DISTRICT COURT

15 NORTHERN DISTRICT OF CALIFORNIA

16 SAN FRANCISCO DIVISION

17

18 SAMSUNG ELECTRONICS CO., LTD.,

Case No. CV-08-0986-SI

19 Counterclaim-Plaintiff,

COUNTERCLAIM-DEFENDANTS' NOTICE OF MOTION AND MOTION FOR SUMMARY JUDGMENT OF NONINFRINGEMENT AS TO U.S. PATENT NO. 5,740,065; MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT THEREOF

20 Counterclaim-Plaintiff,

21 v.

22

23 ADVANCED MICRO DEVICES, INC., et al.,

24 Counterclaim-Defendants.

25 DATE: July 23, 2010
TIME: 9:00 a.m.
26 COURTROOM: 10, 19th Floor
JUDGE: The Honorable Susan Illston

27

28 **PUBLIC/REDACTED VERSION**

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1 **NOTICE OF MOTION AND MOTION FOR SUMMARY JUDGMENT**

2 TO ALL PARTIES AND THEIR COUNSEL OF RECORD:

3 PLEASE TAKE NOTICE that on July 23, 2010, or as soon thereafter as the matter

4 may be heard by the Honorable Judge Illston, United States Court House, San Francisco

5 California, Counterclaim-Defendants ADVANCED MICRO DEVICES, INC. and ATI

6 TECHNOLOGIES, ULC (collectively, "AMD") will move and hereby do move for an

7 order granting summary judgment under Rule 56 of the Federal Rules of Civil Procedure

8 that U.S. Patent No. 5,740,065 is not infringed by AMD either literally or under the

9 doctrine of equivalents. This motion is made on the grounds that the accused AMD

10 processes do not contain or practice all of the elements of the single asserted claim of U.S.

11 Patent No. 5,740,065.

12 This motion is based on this Notice of Motion and Motion for Summary Judgment;

13 the accompanying Memorandum of Points and Authorities in Support Thereof; the

14 accompanying declarations of Bryan J. Mechell and Dr. Thomas F. Edgar; the pleadings

15 and papers on file herein; and such other and further evidence as may subsequently be

16 presented to the Court.

17

18 DATED: June 8, 2010   **ROBINS, KAPLAN, MILLER & CIRESI L.L.P.**

19

20 By: */s/* Cole M. Fauver
     William H. Manning (*pro hac vice*)

21   Cole M. Fauver (*pro hac vice*)
     Bryan J. Mechell (*pro hac vice*)

22

23 **ATTORNEYS FOR PLAINTIFFS AND COUNTERCLAIM-DEFENDANTS ADVANCED MICRO DEVICES, INC. AND**

24 **ATI TECHNOLOGIES, ULC**

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Case No. CV-08-0986-SI   - v -   COUNTERCLAIM-DEFENDANTS'
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MEMORANDUM OF POINTS AND AUTHORITIES

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INTRODUCTION

3   Samsung originally asserted all 12 claims of U.S. Patent No. 5,740,065 ("the '065

4   patent"). Samsung has since dropped all claims except for dependent claim 12, which

5   depends from claim 8. Dkt #438. This remaining claim should be summarily dismissed

6   because Samsung cannot show that the accused AMD processes contain or perform all of

7   the limitations of claim 12. The '065 patent requires that "working conditions" be

8   "accumulatively averaged." The Court construed "working conditions" to be "a group of

9   settable parameter values that control variables in processes used to manufacture

10   semiconductors." Dkt #255 at 36:10-13. According to the Court's construction, a working

11   condition does <u>not</u> encompass variables that machine settings affect, such as the outputs of

12   the process. The undisputed facts show that ████████████████████████

13   ██

14   ████████████████████████████████

15   Samsung also cannot show literally or by equivalents that the accused processes

16   meet the "within a standard deviation" limitation of claim 12. "Within a standard

17   deviation" in the context of the '065 patent means "within one standard deviation" which,

18   in mathematical terms, specifies a particular numeric limitation. Data points within this

19   range are used for subsequent calculations; remaining data points are considered

20   "outliers" and are filtered out. None of the accused processes use a one standard deviation

21   filter for outlier rejection. In the accused AMD processes, ████████████████

22   ██

23   ████████ None are the same as or equivalent to one standard deviation. Summary

24   judgment is therefore appropriate because the accused processes do not specifically

25   average working conditions for which said resultant value is "within a standard deviation"

26   as required by claim 12.

27   Both points are dispositive of the '065 allegations. AMD respectfully requests that

28   this Court grant summary judgment as to noninfringement for the '065 patent.

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BACKGROUND AND STATEMENT OF FACTS

2 **I.   The '065 Patent Claims a Method for Manufacturing a Semiconductor Device.**

3   U.S. Patent No. 5,740,065, entitled "Method for Manufacturing Semiconductor

4 Device," is directed to a method aimed at reducing the amount of sampling necessary in

5 the manufacturing of semiconductor chips from silicon wafers. '065 at 2:15-18 (Ex. 1).[1]

6 Semiconductor manufacturing is generally accomplished in an assembly line format, with

7 wafers of semiconductor material undergoing various fabrication steps in sequence. *Id.* at

8 1:12-18. The '065 patent claims one particular kind of process control that allegedly

9 addressed the need perceived at the time for maintaining wafer properties at or near target

10 for each process step, with reduced sampling. *Id.* at 2:23-26.

11   In the '065 patent, groups of settable parameters, such as exposure time and

12 alignment settings, are referred to as "working conditions." '065 at 3:4-9 (Ex. 1). An

13 "optimal working condition" is calculated by accumulatively averaging working

14 conditions from previous lots. *Id.* at 2:31-40. Working conditions are settings that are

15 entered into machines on a fabrication assembly line. *Id.* at 1:42-45 (". . . process for the

16 whole lot is performed by the <u>set</u> working condition (emphasis added). The claimed

17 invention then "set[s] a current working condition based on said optimal working

18 condition. *Id.* at Cl. 8.

19   In order to calculate the optimal working condition that is entered into a machine

20 on the factory floor, the method of '065 claim 12 takes into account settings only for prior

21 lots that are "within a standard deviation of +- 16(67.5%) from a reference value set in

22 advance. . . ." '065 at Cl. 12; 3:32-33 (Ex. 1).[2] For resultant values outside of one standard

23 deviation, the corresponding "working condition" will not be averaged. Independent claim

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25 [1] Citations to "Ex. __" refer to exhibits attached to the Declaration of Bryan J. Mechell in Support of Counterclaim-Defendants' Memorandum in Support of Their Motion for Summary Judgment, filed with this brief.

26 [2] The "16" in the equation is a drafting error and should be "1σ" or "one sigma." 1σ is the recognized symbol for one standard deviation. The original Korean application shows that the

27 drafters wrote this line as "$+\text{-}1\sigma(67.5\%)$." '065 File History at SAMAMD0000509 (Ex. 2). The equation in the '065 patent should be read as "$+\text{- }1\sigma(67.5\%)$." The stated percentage, 67.5%, is

28 very close to the generally-accepted 68.2% value for one standard deviation.

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1   8 and dependent claim 12 recite the following:

2   8 (a) A method for manufacturing a semiconductor device with

3   manufacturing equipment performing a process having a working

4   condition, said manufacturing equipment being adapted to manufacture said

5   semiconductor device in units of lots, said method comprising the steps of:

6   (b) extracting an optimal working condition <u>by accumulatively</u>

7   <u>averaging working conditions of lots previously processed</u> using said

8   process performed by said manufacturing equipment;

9   (c) <u>setting a current working condition</u> based on said optimal working

10 condition;

11   (d) performing said process for an entire lot according to said current

12 working condition;

13   (e) detecting a resultant value of performing said process according to

14 said current working condition; and

15   (f) <u>resetting said current working condition</u> in accordance with said

16 resultant value.

17 12 (a) A method according to claim 8,

18   (b) wherein said step of extracting said optimal working condition

19 includes <u>accumulatively averaging working conditions set</u> for selected ones

20 of said previously processed lots

21   (c) <u>for which said resultant value is within a standard</u>

22 <u>deviation</u>.

23 *Id.* at Cl. 8, 12 (emphasis added).

24 **II.   The Court Construed "Working Condition" To Be "A Group of Settable**

25 **Parameter Values That Control Variables in Processes Used to Manufacture**

26 **Semiconductors."**

27   The Court issued its Claim Construction Order on September 17, 2009 and

28 construed three terms. Dkt. #255. The Court construed "accumulatively averaging

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working conditions," which appears in independent claim 8 and dependent claim 12, to be "Performing a mathematical averaging operation on a set of working conditions over time to determine a value representative of the set. A working condition is a group of settable parameter values that control variables in processes used to manufacture semiconductors." *Id.* at 36:10-13. The Court specifically rejected Samsung's argument that "working condition" also refers to the variables themselves:

> Samsung does not explain how "working conditions" can refer to both the settings and the variables the settings control. None of the intrinsic evidence Samsung relies on supports this interpretation. For instance, Samsung cites the following language from the specification: "<u>If the working condition is incorrectly set due to measurement error or mistake by an individual worker, the defect is generated in the wafer of the whole lot manufactured by the same serial process.</u>" 1:67-2:5. <u>This language emphasizes that a "working condition" is something that the worker sets, i.e. a machine setting, not the variable itself. Samsung does not support its contention that this term "also encompasses the variables that these machine settings affect."</u>

Id. at 35:8-15 (emphasis added). Under the Court's construction, a "working condition" is therefore something the worker sets, and cannot be the variables affected by those settings. *Id.*

The Court also construed two other claim terms, "extracting a correction condition" and "corresponding to an alignment state." Samsung has since dropped all claims that recite these limitations. Dkt. #438.

III.   The Accused Processes.

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7   To keep a process on target, the accused APC processes

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13   In addition to input and output variables, AMD also calculates

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27   [3] References to the Watts Infring. Rep. refer to the Corrected Expert Report of Dr. Michael Watts
     Re U.S. Patent No. 5,740,065 served by Samsung on AMD on April 12, 2010 and attached to the
28   Mechell Declaration as Exhibit 5.

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6 **ARGUMENT**

7 **I.** **Summary Judgment of Noninfringement is Appropriate Where An Accused**

8 **Process Does Not Embody Each and Every Limitation of an Asserted Claim.**

9 Summary judgment is appropriate "if the pleadings, the discovery and disclosure

10 materials on file, and any affidavits show that there is no genuine issue as to any material

11 fact and that the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c);

12 *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 576 F.3d 1348, 1355 (Fed. Cir. 2009).

13 Although evidence must be viewed in the light most favorable to the nonmoving party, the

14 summary judgment standard provides that "the mere existence of *some* alleged factual

15 dispute between the parties will not defeat an otherwise properly supported motion for

16 summary judgment; the requirement is that there be no genuine issue of *material* fact."

17 *Paragon Podiatry Lab. v. KLM Labs., Inc.*, 984 F.2d 1182, 1184-85 (Fed. Cir. 1993)

18 (quoting *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247-48 (1986) (emphasis in

19 original)). The existence of a material fact must be viewed in light of the legal standard to

20 be applied in the case. *Barmag Barmer Maschinenfabrik AG v. Murata Mach., Ltd.*, 731

21 F.2d 831, 836 (Fed. Cir. 1984). To defeat a properly stated motion for summary judgment,

22 Samsung must first come forward with specific facts that show a genuine issue of material

23 fact, and cannot rely on mere allegations or denials. Fed. R. Civ. P. 56(e)(2).

24 An accused device or process must embody each and every limitation of an

25 asserted claim, either literally or by the doctrine of equivalents, to infringe. *Amgen Inc. v.*

26 *F. Hoffman-LA Roche Ltd*, 580 F.3d 1340, 1374 (Fed. Cir. 2009) (citing *TIP Sys., LLC v.*

27 *Phillip & Brooks/Gladwin, Inc.*, 529 F.3d 1364, 1379 (Fed. Cir. 2008)). Where a relevant

28 claim term has already been construed, infringement is established only when each and

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1 every element of the asserted claim as construed is present in the accused process. *Abbott*

2 *Labs. v. Novopharm Ltd.*, 323 F.3d 1324, 1329 (Fed. Cir. 2003). The Federal Circuit has

3 not hesitated to affirm grants of summary judgment of noninfringement when a fact finder

4 could reach only one conclusion as to infringement. *See, e.g.*, *Techsearch L.L.C. v. Intel*

5 *Corp.*, 286 F.3d 1360, 1369 (Fed. Cir. 2002). Summary judgment of noninfringement "is

6 appropriate where the patent owner's proof is deficient in meeting an essential part of the

7 legal standard for infringement, since such failure will render all other facts immaterial."

8 *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 24 F.3d 1316, 1323 (Fed. Cir. 2001).

9 Samsung cannot survive summary judgment of noninfringement if it does not have

10 evidence of an essential element of its literal infringement claim to carry its ultimate

11 burden of persuasion at trial. *Partsriver, Inc. v. Shopzilla, Inc.*, No. C 09-811 CW, 2009

12 WL 2591355, at *3 (N.D. Cal. Aug. 21, 2009) (citing *Nissan Fire & Marine Ins. Co., Ltd.,*

13 *v. Fritz Cos., Inc.*, 210 F.3d 1099, 1106 (9th Cir. 2000)).

14 **II.   Summary Judgment of Noninfringement Should Be Granted to AMD Because**

15 **the Accused Processes Do Not Contain or Perform the Elements of '065**

16 **Claim 12.**

17 The only claim of the '065 patent that is still asserted by Samsung in this action is

18 claim 12, which depends from independent claim 8. The undisputed facts warrant

19 summary judgment of noninfringement because the accused AMD processes do not

20 calculate the accumulative average of prior "working conditions" (settable parameter

21 values) as required by claim 12. Summary judgment is appropriate on the separate and

22 additional basis that the accused processes do not meet the "within a standard deviation"

23 claim element.

24 **A.   The Accused APC Processes Do Not Meet the "Accumulatively**

25 **Averaging Working Conditions" Limitation of '065 Claim 12 and**

26 **Cannot Literally Infringe.**

27 None of the accused APC processes infringe claim 12 because ▮▮▮▮▮▮

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██████████████████████ Claim 12 recites "wherein said step of extracting said optimal working condition includes accumulatively averaging <u>working conditions set</u> for selected ones of said previously processed lots." '065 at Cl. 12 (Ex. 1) (emphasis added). The Court defined "working conditions" as "a group of settable parameter values that control variables in processes used to manufacture semiconductors." Dkt #255 at 36:12-13. Settable parameter values, such as exposure time, are inputted to a machine. *Id.* at 35:13-15; '065 patent at 1:65-2:4 (Ex. 1) (a "working condition is incorrectly <u>set</u> due to measurement error or mistake by an individual worker . . .") (emphasis added). The Court's claim construction therefore requires averaging on the input side of the control system.

The Court also defined what a working condition is not. ". . . [A] 'working condition' is something that the worker sets, i.e. a machine setting, not the variable itself. Samsung does not support its contention that this term 'also encompasses the variables that these machine settings affect.'" Dkt #255 at 35:13-15. According to the Court's definition, a working condition does not encompass variables that machine settings affect. Because outputs and state variables are affected by machine settings, they cannot be working conditions.

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1.   **None of the Accused Processes Average Inputs or "Working Conditions."**

[REDACTED]

a.   **The Accused AMD [REDACTED] Processes Do Not Average "Settable Parameter Values."**

[REDACTED]

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b. **The Accused AMD ███ Processes Do Not Average "Settable Parameter Values."**

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c. **The Accused AMD ████████████ Processes Do Not Average "Settable Parameter Values."**

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14   **d.   The Accused AMD** ███████ **Processes Do Not Average**

15   **"Settable Parameter Values."**

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COUNTERCLAIM-DEFENDANTS'
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     e.   **The Accused AMD ▮▮▮▮▮ Processes Do Not Average**

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     "Settable Parameter Values."

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B. **Samsung Has Asserted No Basis for Infringement Under the Doctrine**

of Equivalents for the Claim Element "Accumulatively Averaging

Working Conditions."

Samsung has asserted no basis for infringement under the doctrine of equivalents of the claim element "working condition." The Patent Local Rules require that a party's infringement contentions identify "[w]hether each element of each asserted claim is claimed to be literally present or present under the doctrine of equivalents in the Accused Instrumentality." Patent L. R. 3-1(d).

Rambus Inc. v. Hynix Semiconductor Inc., 2008 WL 5411564, at *3 (N.D. Cal. 2008) ("The Patent Local Rules require a limitation-by-limitation analysis, not a boilerplate reservation. [The doctrine of equivalents] is not designed to give a patentee a second shot at proving infringement. . . .").

Aquatex Indus., Inc. v. Techniche Solutions, 479 F.3d 1320, 1328-29 (Fed. Cir. 2007) (To create a genuine issue of material fact as to equivalents, the patentee must "provide particularized testimony and linking argument on a limitation-by-limitation basis.").

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C. **The Accused APC Processes Do Not Average Selected Working Conditions For Which the Resultant Value is "Within A Standard Deviation," and Cannot Infringe Claim 12 Either Literally or Under the Doctrine of Equivalents.**

1. **In Claim 12, "Within A Standard Deviation" Means "Within One Standard Deviation."**

Claim 12(c) recites averaging working conditions for selected lots that are "within a standard deviation." '065 Cl. 12 (Ex. 1). "Within a standard deviation" is a well-established, standard statistical method defining an amount of variance in a set of data from the mean value. Waugh 1952 at AMD003711491-492 (Ex. 11) ("In scientific work the standard deviation is always represented by the small Greek letter sigma (σ), and it is so commonly used that the statistician forms the habit of reading the symbol σ as "standard deviation" rather than as "sigma."). "Within one standard deviation" will include 68.2% of the total distribution of a set of data, within two standard deviations will include 95.45% of the data, and within three standard deviations will include 99.7% of the data. Edgar Dec. at ¶54.

The patent teaches that "within a standard deviation" is "+-1[σ](67.5%) from a reference value." '065 at 3:31-34 (Ex. 1). The value "+-1[σ](67.5%)" indicates to one of ordinary skill in the art at the time of the invention to use "one standard deviation," which is to retain approximately 68% of the total distribution of the data and exclude approximately 32% of the data as outliers. Edgar Dec. at ¶53.

2. **The [redacted] Process Cannot Literally Infringe Claim 12.**

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3. The Accused Filter in Each Accused AMD Process is Not Equivalent to the Claimed "One Standard Deviation" Filter.

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17 ███████████ A finding of infringement under the doctrine of equivalents requires a

18 showing on a limitation-by-limitation basis that the accused process performs

19 substantially the same function in substantially the same way to achieve substantially the

20 same result as each claim limitation. *Amgen Inc. v. F. Hoffman-LA Roche Ltd.*, 580 F.3d

21 1340, 1382 (Fed. Cir. 2009). A claim element's function, way, and result is determined by

22 "an examination of the claim and the explanation of it found in the written description of

23 the patent." *Aquatex Indus., Inc. v. Techniche Solutions*, 479 F.3d 1320, 1326 (Fed. Cir.

24 2007). To create a genuine issue of material fact as to equivalents, the patentee must

25 "provide particularized testimony and linking argument on a limitation-by-limitation

26 basis." *Id.* at 1328-29. No reasonable finder of fact could find that the entirely different

27 kinds of filters used by the accused processes are equivalent to the "within a standard

28 deviation" limitation of claim 12.

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4. **The Accused Processes Are Not Equivalent to the Claimed Filter.**

The '065 claim element at issue is "within a standard deviation." '065 at Cl. 12 (Ex. 1). The function of "within a standard deviation" in '065 claim 12 and in the specification is to determine the "optimal condition of parameter values necessary for exposure. . . ." *Id.* at Cl. 12; 3:30-31. The way the claimed method performs this function is by "adding together the parameters for lots within a standard deviation of +-1[σ](67.5%) from a reference value set in advance after processing previous lots using the previous same process. . . ." *Id.* at Cl. 12; 3:31-34. The result is the outcome of the process, i.e., the outputs or "optimal condition of the current process." *Id.* at Cl. 12; 3:34-35 (Ex. 1).

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Where, as here, the claim expressly recites a numerical range, the point of comparison for equivalence under the doctrine of equivalents is that numerical range – not some generalized effect. *See*, *e.g.*, *Talbert Fuel Sys. Patents Co. v. Unocal Corp.*, 347 F.3d 1355, 1360 (Fed. Cir. 2003) (affirming summary judgment where claims required a true boiling point "endpoint" within the range of 121°F-345°F, stating, "no reasonable trier of fact could find only insubstantial differences between fuels having an endpoint of 345°F and fuels with the endpoints shown for the Unocal fuels," which had true boiling point "endpoints" ranging from 373.8°F to 472.9°F); *Competitive Techs., Inc. v. Fujitsu Ltd., et al.*, 333 F. Supp. 2d. 858, 878-80 (N.D. Cal. 2004) (granting summary judgment of no equivalence where claims required a current to reach "zero," finding, *inter alia*, "the current … is simply too far from zero to allow a jury to reasonably conclude that the zero

COUNTERCLAIM-DEFENDANTS'
MEMORANDUM IN SUPPORT OF THEIR
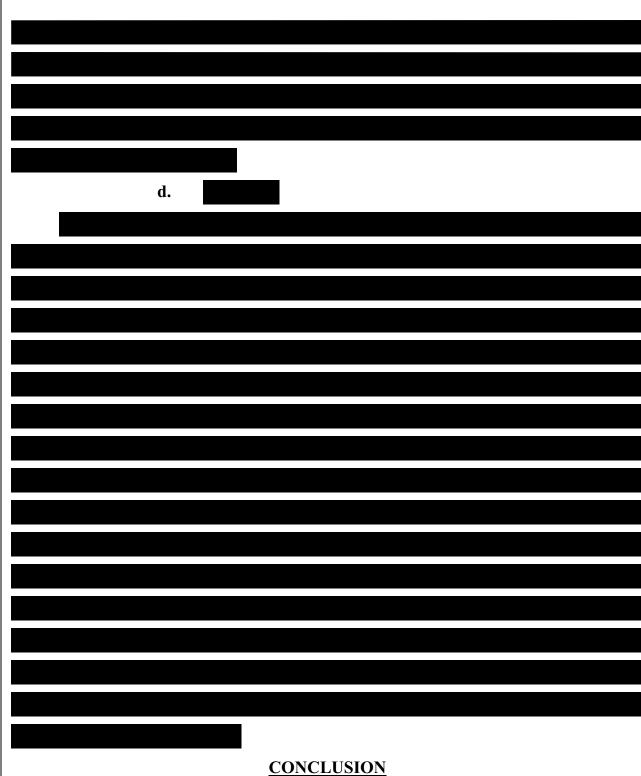MOTION FOR SUMMARY JUDGMENT

1 inductor current limitation in the Remaining Claims has been met under the doctrine of

2 equivalents"). *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1106-07 (Fed.

3 Cir. 2000) (the claimed "majority" cannot cover 47.8% under the doctrine of equivalents);

4 *Elekta Instrument S.A. v. O.U.R. Scientific Intern., Inc.*, 214 F.3d 1302, 1309 (Fed. Cir.

5 2000) (holding that claim for medical device requiring radiation sources to be located

6 "only within a zone extending between latitudes 30°-45°" unambiguously excludes

7 accused device with radiation sources in 14°-43° zone, and noting that a finding of

8 equivalence would "seemingly vitiate the clear limitation").

9   In this case, the limitation that requires a resultant value to be within a standard

10 deviation, 67.5%, is precisely what distinguishes the claim from the broader claim 8,

11 which is not asserted against AMD's processes. To use the doctrine of equivalents to

12 ignore the numerical range here, and specifically the standard deviation, would vitiate a

13 meaningful limitation on the claim, which is not permitted. *Searfoss v. Pioneer Consol.*

14 *Corp.*, 374 F.3d 1142, 1151 (Fed. Cir. 2004) (upholding summary judgment where

15 patentee's theory of equivalents would entirely vitiate a particular claim element).

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COUNTERCLAIM-DEFENDANTS'
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COUNTERCLAIM-DEFENDANTS'
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24   **CONCLUSION**

25   For the foregoing reasons, counterclaim-defendant AMD respectfully requests that

26   the Court grant summary judgment of noninfringement based on the undisputed facts, and

27   that the '065 patent be dismissed from this case.

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MEMORANDUM IN SUPPORT OF THEIR
MOTION FOR SUMMARY JUDGMENT

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2   DATED: June 8, 2010   **ROBINS, KAPLAN, MILLER & CIRESI**
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4   By: _/s/_ Cole M. Fauver
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7   **ATTORNEYS FOR PLAINTIFFS AND**
                                        COUNTERCLAIM-DEFENDANTS
8   **ADVANCED MICRO DEVICES, INC. AND**
                                        ATI TECHNOLOGIES, ULC
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