UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

VOLTERRA SEMICONDUCTOR CORPORATION,

Plaintiff,

v.

PRIMARION, INC., ET AL.,

Defendants.
_____/

Case No. C-08-05129 JCS

ORDER RE SUMMARY JUDGMENT MOTIONS [Docket Nos. 906-914, 916, 924-925]

REDACTED VERSION

I. INTRODUCTION

On November 12, 2008, Plaintiff Volterra Semiconductor Corporation ("Volterra") filed a complaint alleging infringement and contributory infringement by Defendants ("Primarion") of the following patents: 1) U.S. Patent No. 6,278,264 (the "'264 patent"); 2) U.S. Patent No. 6,462,522 (the "'522 patent"); 3) U.S. Patent No. 6,713,823 (the "'823 patent"); 4) U.S. Patent No. 6,020,729 (the "'729 patent"); and 5) U.S. Patent No. 6,225,795 (the "'795 patent"). Twelve summary judgment motions ("the Motions") are presently before the Court, which address the following issues relating to the '264 and '522 patents ("the Burstein Patents"):

1) whether the accused products infringe claims 26 and 34 of the '264 patent and claims 22 and 24 of the '522 patent;[1]

2) whether claims 26 and 34 of the '264 patent and claims 22 and 24 of the '522 patent are anticipated by U.S. Patent No. 5,945,730 ("Sicard" or "the Sicard Patent"), or rendered obvious by Sicard, either by itself or in combination with other prior art;[2]

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[1] *See* Plaintiff's Motion for Partial Summary Judgment of Infringement as to Claims 26 and 34 of U.S. Patent No. 6,278,264 and Claims 22 and 24 of U.S. Patent No. 6,462,522 (MSJ No. 1) (Docket No. 907) ("Plaintiff's Infringement SJ Motion").

[2] *See* Defendants' Motion For Summary Judgment Of Anticipation, Obviousness, And Noninfringement of Claims 26 and 34 Of U.S. Patent No. 6,278,264 and Claims 22 and 24 of U.S. Patent No. 6,462,522 (Docket No. 906) ("Defendants' Sicard SJ Motion"); Plaintiff's Motion for Partial Summary Judgment of No Anticipation Pursuant to 35 U.S.C. § 102 (MSJ No. 4) (Docket No. 925) ("Plaintiff's Anticipation SJ Motion"); Plaintiff's Motion for Partial Summary Judgment of

3) whether claims 9, 11 and 16-19 of the '522 patent are anticipated by a 1994 article by Anthony Stratakos entitled "A Low-Voltage CMOS DC-DC Converter for a Portable Battery-Operated System" ("Stratakos 1994 Article"), or rendered obvious by the Stratakos 1994 Article, either by itself or in combination with other prior art;"[3]

4) whether certain references cited by Defendants in connection with their anticipation and obviousness defenses qualify as prior art;[4]

5) whether Defendants should be precluded from relying on certain prior art references and on-sale bar theories that Volterra alleges were not timely disclosed;[5]

6) whether claims 26 and 34 of the '264 patent and claims 9, 11, 16-19 and 22 and 24 of the '522 patent are invalid for lack of a written description or lack of enablement because the Burstein Patents do not adequately disclose: a) voltage regulators in which the output voltage can be adjusted while in operation; b) voltage regulators that use LDMOS transistors; and c) certain electrical connections that are not illustrated in the specification; [6]

7) whether the asserted claims are invalid because the claim term "power switch" is indefinite;[7]

8) whether Plaintiff engaged in inequitable conduct in connection with prosecution of the '264 or '522 patents or during the reexamination proceedings;[8]

Nonobviousness (MSJ No. 5) (Docket. No. 910) ("Plaintiff's Obviousness SJ Motion").

[3]*See* Defendants' Motion for Partial Summary Judgment that Claims 9, 11 and 16-19 of U.S. Patent No. 6,462,522 are Invalid Under 35 U.S.C. § 102(b) and § 103(a) (Docket No. 913) ("Defendants' Stratakos SJ Motion"); Plaintiff's Anticipation SJ Motion; Plaintiff's Obviousness SJ Motion.

[4]*See* Plaintiff's Motion for Partial Summary Judgment that Certain References Relied Upon by Defendants do not Qualify as Prior Art (MSJ No. 2) (Docket No. 914) ("Plaintiff's Prior Art SJ Motion").

[5]*See* Plaintiff's Motion for Partial Summary Judgment of No Invalidity Based on Prior Art References and On-Sale Bar Allegations Not Disclosed in Defendants' First Amended Invalidity Contentions or, in the Alternative, to Preclude Defendants from Relying Upon Undisclosed Prior Art and On-Sale Bar Allegations (MSJ No. 3)(Docket No. 908) ("Plaintiff's Undisclosed References SJ Motion").

[6]*See* Defendants' Motion for Summary Judgment that the Asserted Claims of U.S. Patent Nos. 6,278,264 and 6,462,522 are Invalid for Lack of Written Description and for Lack of Enablement (Docket No. 909) ("Defendants' Enablement SJ Motion"); Plaintiff's Motion for Partial Summary Judgment of No Invalidity Based on Lack of Written Description, Non-Enablement, or Indefiniteness Under 35 U.S.C. § 112 (MSJ No. 6) (Docket No. 911) ("Plaintiff's Enablement SJ Motion").

[7]*See* Plaintiff's Enablement SJ Motion.

[8]*See* Plaintiff's Motion for Partial Summary Judgment of No Inequitable Conduct (MSJ No. 7) (Docket No. 912) ("Plaintiff's Inequitable Conduct SJ Motion").

9) whether any of the asserted claims of the '264 or '522 patents are invalid due to public use of the claimed invention more than a year before filing for the Burstein Patents, in violation of the on-sale bar under 35 U.S.C. § 102(b);[9]

10) whether Volterra has standing to assert infringement of the Burstein Patents.[10]

The parties have consented to the jurisdiction of the undersigned United States magistrate judge pursuant to 28 U.S.C. § 636(c). Hearings on the Motions were held on December 10, 2010 and January 21, 2011.

II. SUMMARY JUDGMENT STANDARD

Summary judgment is appropriate "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c). Summary judgment must be supported by "facts as would be admissible in evidence." Fed. R. Civ. P. 56(e). In order to prevail, a party moving for summary judgment must show the absence of a genuine issue of material fact with respect to an essential element of the non-moving party's claim, or to a defense on which the non-moving party will bear the burden of persuasion at trial. *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986). Further, "*Celotex* requires that for issues on which the movant would bear the burden of proof at trial, that party must show affirmatively the absence of a genuine issue of material fact," that is, "that, on all the essential elements of its case on which it bears the burden of proof at trial, no reasonable jury could find for the non-moving party." *Fitzpatrick v. City of Atlanta*, 2 F.3d 1112, 1116 (11th Cir. 1993). Once the movant has made this showing, the burden then shifts to the party opposing summary judgment to designate "specific facts showing there is a genuine issue for trial." *Celotex*, 477 U.S. at 323. On summary judgment, the court draws all reasonable factual inferences in favor of the non-movant. *Anderson v. Liberty Lobby Inc.*, 477 U.S. 242, 255 (1986).

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[9] *See* Plaintiff's Motion for Partial Summary Judgment of No Invalidity Based on Alleged Prior Public Use or On-Sale Bar Pursuant to 35 U.S.C. § 102(b) (MSJ No. 8) (Docket No. 924) ("Plaintiff's On-Sale Bar SJ Motion").

[10] *See* Plaintiff's Motion for Partial Summary Judgment Regarding Standing to Assert Infringement (MSJ No. 9) (Docket No. 916) ("Plaintiff's Standing SJ Motion"). Defendants do not oppose Plaintiff's Standing SJ Motion. *See* Docket No. 1036. Accordingly, that Motion is GRANTED.

III. EVIDENTIARY OBJECTIONS

As the Court may consider only admissible evidence in ruling on the summary judgment motions, it turns first to the parties' evidentiary objections.

Defendants have filed objections to evidence cited by Plaintiff in support of: 1) Plaintiff's summary judgment motions (Docket No. 1085); and 2) Plaintiff's briefs in Opposition to Defendants' summary judgment motions (Docket No. 1124).[11] Plaintiff, in turn, has filed objections to evidence cited by Defendants in support of: 1) Defendants' summary judgment motions (Docket No. 1181); 2) Defendants' briefs in Opposition to Plaintiff's summary judgment motions (Docket No. 1154); and 3) Defendants' Reply briefs (Docket No. 1177).

The Court rules on these objections below.

A. Defendants' Objections

1. Objections to Evidence Offered in Support of Plaintiff's Summary Judgment Motions (Docket No. 1085)

Defendants object to Volterra's reliance on dictionary definitions of the words "layer" and "bump" in Dr. Szepesi's July 14, 2010 invalidity report, arguing that this extrinsic evidence was not timely disclosed under Patent Local Rule 4-3. *See* Defendants' Objections to Certain Information Offered in Support of Volterra's Motions for Summary Judgment (Docket No. 1085) ("Defendants' Objections (Volterra SJ Motions)") at 1-2 (citing Rebuttal Expert Report of Dr. Thomas Szepesi Regarding Validity of U.S. Patent Nos. 6,278,264 and 6,462,522 ("Szepesi 7/14/10 Rebuttal Report on Invalidity"), ¶¶ 94-95). In addition, Defendants object to Volterra's reliance on expert reports by Dr. Szepesi that they assert were not properly sworn. *Id*. at 2-3.

Volterra responds that the reliance of its expert on dictionary definitions that were not included in its Rule 4-3 disclosures does not violate that rule, which governs evidence cited to support a party's claim construction position, because the definitions are offered by Dr. Szepesi to support an argument relating to validity. *See* Volterra Semiconductor Corporation's Opposition to

[11] On October 22, 2010, almost a month after Volterra filed its reply briefs, Defendants requested leave to file objections to evidence cited by Volterra in support of its reply briefs. The Court denied Defendants' request as untimely. *See* Civil Local Rule 7-3(d)(1).

Defendants' Objections to Certain Information Offered in Support of Volterra's Motion for Summary Judgment (Docket No. 1178) ("Volterra's Response to Defendants' Objections (Volterra SJ Motions)") at 1. As to Defendants' objection that Dr. Szepesi's reports were not properly sworn, Volterra argues that all of Dr. Szepesi's reports were properly sworn and that in any event, the argument is moot because Volterra has filed a supplemental declaration by Dr. Szepesi that is sworn under penalty of perjury and has all of his expert reports attached. *Id.* at 1-3.

The Court overrules both objections.

a. Dictionary Definitions of "Layer" and "Bump"

Under Patent Local Rule 4-3, parties are required to disclose any dictionary definitions upon which they intend to rely in support of their proposed claim constructions not later than 60 days after service of the Invalidity Contentions. As Dr. Szepesi relies on the dictionary definitions to which Defendants object in support of his opinions on invalidity, rather than claim construction, this evidence is outside the ambit of Patent Local Rule 4-3. Further, as discussed below, to the extent that Dr. Szepesi's opinions concerning the meaning of the word "layer" as applied to Sicard may have implications as to infringement, the Court does not find that the dictionary definitions offered by Dr. Szepesi on this question constitute an improper attempt to amend the Court's claim construction. Rather, the Court concludes that Dr. Szepesi is merely addressing what the Court's claim construction *means* as to the word "layer" – a term that, prior to summary judgment, did not appear to be a subject of controversy. The Court overrules Defendants' objection.

b. Szepesi Reports

Defendants assert that the Court should not consider the expert reports of Dr. Szepesi because they are not admissible evidence, citing the rule that "[u]nsworn expert reports prepared in compliance with Rule 26(a)(2) do not qualify as affidavits or otherwise admissible evidence for purpose of Rule 56, and may be disregarded by the court when ruling on a motion for summary judgment." Defendants' Objections (Volterra SJ Motions) at 3 (quoting *Smith v. City of Oakland*, 2007 U.S. Dist. Lexis 59941, at * 9-10 (N.D. Cal. Aug. 9, 2007)). Defendants also cite *King Tuna, Inc. v. Anova Food, Inc.*, 2009 U.S. Dist. LEXIS 22901, at *3-4 (C.D. Cal. Mar. 10, 2009) for the same rule. *Id*. Defendants' objection fails for two reasons.

First, both *Smith* and *King Tuna* are distinguishable from the facts here in that the reports in those cases were not, in fact, sworn. Here, in contrast, all of the challenged reports end with the statement, "I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct." Nor does either of these cases require that expert reports must be sworn in a *separate* declaration by the expert, as Defendants appear to suggest.

Second, even assuming Defendants were correct, Volterra has now remedied any deficiency by providing a sworn declaration by Dr. Szepesi with all of the challenged reports attached. *See Maytag Corp. v. Electrolux Home Products, Inc.*, 448 F.Supp.2d 1034, 1064 (N.D.Iowa, 2006) (holding that "subsequent verification or reaffirmation of an unsworn expert's report, either by affidavit or deposition, allows the court to consider the unsworn expert's report on a motion for summary judgment").

The Court overrules Defendants' objection.

2. Objections to Evidence Offered in Support of Plaintiff's Opposition Briefs (Docket No. 1124)

Defendants object to portions of declarations by Drs. Szepesi and Lidsky filed by Volterra in support of its Opposition briefs, as well as to exhibits attached to Dr. Szepesi's declaration. Defendants' Objections to Evidence in Support of Volterra Semiconductor Corporation's [Opposition to Defendants'] Motions for Summary Judgment (Docket No. 1124) ("Defendants' Objections (Volterra Oppositions)"). First, Defendants assert that the opinions expressed in paragraphs 36-45 and 64 of Dr. Szepesi's opposition declaration are new opinions that were not timely disclosed and that the documents attached as Exhibits A through C were not timely disclosed or produced. *Id*. (citing Rebuttal Expert Declaration of Dr. Thomas Szepesi in Support of Volterra's Opposition to Defendants' Motion for Summary Judgment (Docket No. 1075) ("Szepesi 9/10/10 Opposition Decl.")). Second, Defendants object to paragraph 12 of the Declaration of David Lidsky in Support of Volterra Semiconductor Corporation's Opposition to Defendants' Motions for Summary Judgment of Invalidity (Docket No. 971) ("Lidsky 9/10/10 Opposition Decl."), in which Dr. Lidsky states that Volterra's products practice the inventions of the Burstein Patents and contain all of the elements of the claims that are currently at issue. Defendants argue that Dr. Lidsky's

opinion lacks foundation because Volterra has not provided technical documents about its products to back up Dr. Lidsky's statement.

Volterra responds that the documents attached to Dr. Szepesi's declaration as Exhibits A through C are admissible because: 1) the document in Exhibit A, an excerpt from the Area Array Interconnection Handbook, was disclosed by Defendants during discovery; and 2) the documents in Exhibits B and C were offered to rebut specific opinions expressed by Drs. Garrou and Fair and are permissible under Rule 26(a)(2)(C)(ii) of the Federal Rules of Civil Procedure and Civil Local Rule 7-3(a). *See* Plaintiff Volterra Semiconductor Corporation's Opposition to Defendants' Objections to Evidence in Support of Volterra's Motions for Summary Judgment (Docket No. 1172) ("Volterra's Response to Defendants' Objections (Volterra Oppositions)").

Volterra also rejects Defendants' objections to what they argue are new opinions in paragraphs 36-45 and paragraph 64 of Dr. Szepesi's declaration. *Id*. According to Volterra, the opinions to which Defendants object in paragraphs 36-45, namely, that the Stratakos 1994 Article does not disclose a flip-chip integrated circuit chip and does not teach away from flip chip, are not new. In support of this assertion, Volterra points to paragraphs 128, 140 and 142 of the Szepesi 7/14/10 Rebuttal Report on Invalidity, which Volterra asserts contain arguments that are essentially the same, if less detailed. Similarly, Volterra argues that the opinion expressed by Dr. Szepesi in paragraph 64 is not new. That paragraph describes Figure 1 of the Burstein Patents as a "simplified illustration" to explain why it does not show communication lines to the controller that would provide the command to adjust the output voltage. According to Volterra, this opinion is consistent with Dr. Szepesi's earlier opinions regarding infringement, expressed in paragraph 30 of the June 28, 2010 Opening Expert Report on Infringement of Plaintiff Volterra Semiconductor Corporations' Expert: Dr. Thomas Szepesi ("Szepesi Opening Report on Infringement").

As to Defendants' assertion that Dr. Lidsky's testimony in paragraph 12 of his declaration lacks foundation, Volterra disagrees. Volterra argues that Dr. Lidsky's statement is supported by detailed interrogatory responses (attached as an exhibit to the Lidsky declaration) – which Dr. Lidsky helped prepare based on his review of Volterra technical materials – and therefore, is based on personal knowledge.

Defendants' objections are overruled.

a. Szepesi 9/10/10 Opposition Declaration

Under Civil Local Rule 7-3(a), parties are permitted to file declarations in support of opposition briefs. Further, Rule 26(a)(2)(C)(ii) requires that where expert testimony is offered "solely to contradict or rebut evidence on the same subject matter identified by another party," that testimony must be disclosed within 30 days of the other party's disclosure. Having reviewed the opinions and evidence to which Defendants' object in connection with the Szepesi 9/10/10 Opposition Declaration, the Court concludes that they are admissible on the grounds that: 1) they are not new opinions (paragraphs 36-45 and 64); 2) they are submitted to rebut specific opinions expressed by Defendants' experts in support of their summary judgment motions (Exhibits B and C); or 3) they were already disclosed by Defendants (Exhibit A). The Court notes that in determining whether an opinion is "new," it does not require that an expert's more recent statement must rigidly adhere to his or her original formulation. Rather, the Court compares the more recently articulated opinions to the opinions that were originally expressed to determine whether the opposing party has been given fair notice, while appreciating that in the course of litigation, the positions of the parties and their experts necessarily evolve somewhat as each attempts to respond to the arguments of the other.

b. Lidsky 9/10/10 Opposition Declaration

As discussed further below, an expert's testimony must be supported by an adequate foundation to be admissible. *See* Fed.R. Evid. 702; *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 590 (1993). Here, Volterra has offered expert testimony that is supported by extensive personal knowledge on the part of one of Volterra's founders and original engineers, who states that he helped draft Volterra's detailed interrogatory responses (provided as an exhibit to his declaration) addressing the question on which he offers testimony and that he reviewed a variety of technical documents in doing so. Defendants cite to no authority indicating that under these circumstances, an expert's opinion lacks foundation merely because the underlying technical documents have not been provided. Nor does the Court find authority that supports such a result. The objection is overruled.

B. Plaintiff's Objections

1. Objections to Evidence Offered in Support of Defendants' Summary Judgment Motions (Docket No. 1181)

Volterra objects on three grounds to the evidence offered by Defendants in support of their summary judgment motions. *See* Plaintiff Volterra Semiconductor Corporation's Objections to Evidence Submitted in Support of Defendants' Motions for Summary Judgment Filed August 20, 2010 (Docket No. 1181) ("Volterra's Objections (Primarion SJ Motions)"). First, Volterra objects to numerous paragraphs of declarations by Drs. Fair and Garrou on the basis that they contain new opinions that were not timely disclosed. *Id.*[12] Second, Volterra objects to Defendants' reliance on orders and initial office actions by the Patent and Trademark Office ("PTO") relating to reexamination requests for the Burstein Patents, arguing that they have no probative value as to the question of invalidity because they are the product of incomplete patent reexamination proceedings *Id.*[13] Finally, Volterra objects to Defendants' reliance in their summary judgment motions on prior art by Stager, Hallberg and Honn on the basis that this prior art was not listed in Defendants' invalidity contentions, as required under Patent Local Rule 3-3.[14]

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[12]In particular, Volterra objects to: 1) Declaration of Richard B. Fair, Ph.D., in Support of Defendants' Motion for Partial Summary Judgment that Claims 9, 11 and 16-19 of U.S. Patent No. 6,462,522 are Invalid Under 35 U.S.C. § 102(b) and 103(a) (" Fair Decl. in Support of Defendants' Stratakos SJ Motion"), ¶¶ 31, 46, 57, 63, 89, 90 and statements in Appendices 1 and 2 thereto; 2) Declaration of Philip Garrou, Ph.D., in Support of Defendants' Motion for Partial Summary Judgment that Claims 9, 11, and 16-19 of U.S. Patent No. 6,462,522 are Invalid Under 35 U.S.C. § 103(a) ("Garrou Decl. in Support of Defendants' Stratakos SJ Motion"), ¶¶ 68, 73; 3) Declaration of Richard B. Fair, Ph.D. in Support of Defendants' Motion for Summary Judgment of Anticipation, Obviousness, and Non-Infringement of Claims 26 and 34 of U.S. patent No. 6,278,264 and Claims 22 and 24 of U.S. Patent No. 6,462,522 ("Fair Decl. in Support of Defendants' Sicard SJ Motion"), ¶¶ 38, 41-45, 54, 65, 74-75, 85, 100, 111, 125-126, 132, and Claim Chart 4 as it pertains to 35 U.S.C. § 103.

[13]In particular, Volterra objects to Declaration of Jeffrey R. Gargano in Support of Defendants' Motions for Summary Judgment ("Gargano Decl."), Ex. 71 (Office Action for *Ex Parte* Reexamination for U.S. Patent No. 6,278,264), Ex. 73 (Order Granting Request for *Ex Parte* Reexamination for U.S. Patent No. 6,278,264), Ex. 20 (PTO Order Granting Request for Reexamination of U.S Patent No. 6,462,522), and Ex. 21 (Office Action in *Ex Parte* Reexamination of U.S. Patent No. 6,462,522).

[14]Similarly, Volterra argues in its Undisclosed References SJ Motion that the Court should grant summary judgment of no invalidity as to two obviousness combinations, including Hallberg in view of Stager, that were not disclosed in Defendants' First Amended Invalidity Contentions. *See* Plaintiff's Undisclosed References SJ Motion at 2.

Defendants respond that the Fair and Garrou statements to which Volterra objects do not contain new opinions, citing similar statements made by these experts in earlier reports. Response to Volterra Semiconductor Corporation's Objections to Evidence in Support of Defendants' Motions for Summary Judgment Filed August 20, 2010 (Docket No. 1127) ("Defendants' Response to Volterra's Objections (Primarion SJ Motions)") at 1-9, 12. To the extent that the language of the later declarations on occasion differs from the language used previously, Defendants contend, this is merely a result of the fact that the experts are summarizing their earlier opinions. *Id*. at 12.

As to the Stager, Hallberg and Honn references, Defendants assert that Volterra's objection should be overruled because Volterra has long been aware of this prior art. In particular, Defendants state that "Volterra was aware of the Stager and Hallberg references at least as early as April 26, 2010 when Primarion identified and disclosed the Stager Reference . . . in Infineon AG's Second Amended and Supplemental Responses to Plaintiff's Interrogatory No. 4. *Id*. at 12; *see also* Gargano Decl., Ex. 85 at 110 – 112, 364-366. Defendants further assert that "Volterra was aware of the Honn reference at least as early as August 12, 2009 when Primarion submitted it as an exhibit in support of summary judgment briefing." *Id*. at 12.

Defendants argue that the PTO orders and office actions are admissible because Defendants are not using this evidence to show invalidity, but rather, to "show how the asserted claims and the prior art should be interpreted and understood in the appropriate context." *Id*. at 13. Defendants cite to *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1439 (Fed. Cir. 1998), in which the Federal Circuit "determined that statements made during reexamination were relevant in construing patent claims." *Id*. Similarly, Defendants assert, "Primarion offers evidence from the pending reexamination proceedings as being relevant to the proper construction and understanding of the asserted patent claims." *Id*.

a. Opinions of Drs. Fair and Garrou

The Court has reviewed the opinions by Drs. Fair and Garrou to which Volterra objects and finds that as to most of them, the opinions were articulated, in some form, in previous reports and declarations by these experts. However, Defendants have not identified any timely prior testimony that expresses the opinions contained in the following testimony: 1) paragraphs 38, and 43-45 of the

Fair Decl. in Support of Defendants' Sicard SJ Motion; 2) paragraphs 125-126 of the Fair Decl. in Support of Defendants' Sicard SJ Motion & Claim Chart 4 to the extent these opinions are now being offered to support obviousness rather than only anticipation; and 3) Opinions expressed in Appendix 2 to Fair Decl. in Support of Defendants' Stratakos SJ Motion with respect to the claim term "a first flip-chip type integrated circuit chip mounted on a printed circuit board." Accordingly, the Court sustains Volterra's objections to this testimony on the basis that it is untimely.

b. PTO Office Actions and Orders

With respect to the PTO Initial Office Actions and reexamination orders, it is well-established that while statements made by the patentee during reexamination proceedings may be probative as to questions of claim construction, *see E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1439 (Fed. Cir. 1998), preliminary decisions and actions by the PTO in the course of a reexamination proceeding are *not* probative of invalidity. *See Presidio Components Inc. v. American Technical Ceramics Corp.*, 2010 WL 1462757, at *12 (S.D.Cal., April 13, 2010). Here, Defendants have not cited to any statement by the patentee and therefore, the holding of *Phillips Petroleum* does not apply. Rather, Defendants have relied on the preliminary opinions expressed by the PTO on questions of invalidity. As these opinions are only preliminary, however, they have no probative value on that question, as the court in *Presidio Components* explained. Therefore, Plaintiff's objections to Defendants' reliance on the PTO office actions and orders are sustained to the extent that Defendants rely on them to support their positions regarding invalidity.

c. Honn, Stager and Hallberg

Finally, the Court sustains Volterra's objection to Defendants' reliance on Honn, Stager and Hallberg to show obviousness. Patent Local Rule 3-3 requires that a party disclose the prior art upon which it intends to rely in support of its invalidity defenses and amend its invalidity contentions promptly upon the discovery of new information. Defendants have not shown good cause for their failure to either include these references in their amended invalidity contentions or seek leave to amend their invalidity contentions. The omission is particularly striking in light of the citations to these references in the prosecution history. Clearly, Defendants (like Plaintiff) were

aware of these references at an early stage of the case, yet Defendants have offered no explanation for their failure to include them in their invalidity contentions. As a result, Volterra was deprived of the notice to which it was entitled under the patent local rules that Defendants intended to rely on this prior art to show invalidity. *See O2 Micro International Limited v. Monolithic Power Systems, Inc.*, 467 F.3d 1355, 1365 (Fed. Cir. 2006) (affirming ruling by district court denying leave to amend invalidity contentions under the Patent Local Rules of the Northern District of California and noting that "[t]he [patent local] rules are designed to require parties to crystallize their theories of the case early in the litigation and to adhere to those theories once they have been disclosed") (quoting *Nova Measuring Instruments Ltd. v. Nanometrics, Inc.*, 417 F.Supp. 2d 1121, 1123 (N.D.Cal.2006)).

2. Objections to Evidence Offered in Support of Defendants' Opposition Briefs (Docket No. 1154)

a. Opposition to MSJ No. 1 (Plaintiff's Infringement SJ Motion)

Volterra objects to Paragraphs 36 and 37 of the Declaration of Richard B. Fair, Ph.D. in Support of Defendants' Oppositions to Volterra's Motions for Summary Judgment ("Fair 9/10/10 Opposition Decl.") on the basis that it is not reliable and therefore, inadmissible under Rule 702 of the Federal Rules of Evidence.[15] Plaintiff Volterra Semiconductor Corporation's Objections to Evidence Submitted by Defendants in Support of Defendants' Oppositions to Volterra's Summary Judgment Motions (Docket No. 1154) ("Volterra's Objections (Primarion's Oppositions)") at 1, 5. In Paragraph 37, Dr. Fair states as follows:

> In view of Dr. Szepesi's position that [REDACTED]

[15]Although Volterra objects to both paragraphs 36 and 37, the discussion in its objections is primarily aimed at paragraph 37. The basis for Volterra's objection to paragraph 36, which expresses a separate opinion, is not clear. *See* Volterra's Objections (Primarion's Oppositions) at 5-6. Therefore, the Court overrules Volterra's objection to paragraph 36.

Fair 9/10/10 Opposition Decl., ¶ 37.[16] Volterra argues that this equivocal statement will not be helpful to the jury to the extent Dr. Fair is not confident enough of his conclusion to affirmatively state that the accused product *does not* infringe. Volterra further asserts that the paragraphs are unreliable because Dr. Fair ignores highly pertinent conflicting evidence that was cited in Volterra's motion papers, namely, [REDACTED].

Defendants respond that Volterra's objection is unfounded to the extent that it relies on the use of the words "it *appears*" because Dr. Fair's statement was made in the context of his invalidity analysis and Dr. Szepesi himself has "not applied his 'invalidity' version of [REDACTED] to the accused products, *even though Volterra has the burden of showing infringement.*" Defendants' Response to Plaintiff's Objections to Evidence in Support of Defendants' Oppositions to Volterra's Motions for Summary Judgment ("Defendants' Response to Volterra's Objections (Primarion's Oppositions)") at 2 (emphasis in original). According to Defendants, Dr. Fair's testimony is admissible because it reveals the inconsistency in Dr. Szepesi's positions and therefore will be helpful to the trier of fact. *Id*.

The admissibility of expert testimony is governed by Rule 702 of the Federal Rules of Evidence, which provides:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

F.R.Evid. 702. In determining whether expert testimony meets the requirements of Rule 702, courts follow the approach set forth in *Daubert v. Merrell Dow Pharm., Inc*., in which the Supreme Court described the relevant inquiry as follows:

> Faced with a proffer of expert scientific testimony, then, the trial judge must determine . . . whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue. This entails a preliminary assessment

[16]Virtually the same statement is included in the Fair Reply Invalidity Report, ¶ 48. The Court's ruling, therefore, applies to that statement as well.

> of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue.

509 U.S. 579, 590 (1993). If the basis for the expert's opinion is clearly unreliable, the district court may disregard that opinion in deciding whether a party has created a genuine issue of material fact. *See id.* at 596 (if "the trial court concludes that the scintilla of [expert] evidence presented supporting a position is insufficient to allow a reasonable juror to conclude that the position more likely than not is true, the court remains free to . . . grant summary judgment"). The determination of reliability is left to the discretion of the district court, consistent with its gatekeeping function under Rule 702. *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 149 (1999).

The Court finds that Dr. Fair's opinion in paragraph 37 is unhelpful and misleading because it is not supported by a factual basis. First, Dr. Fair's statements are based on a single picture that only shows [REDACTED] of the accused product. Second, Dr. Fair does not address [REDACTED]

Third, Dr. Fair does not explain why he apparently rejects Dr. Szepesi's opinion that [REDACTED] Accordingly, the Court sustains Volterra's objection to Dr. Fair's statements in Paragraphs 37 of his opposition declaration and does not consider that testimony in deciding Volterra's Infringement Summary Judgment Motion.[17]

b. Opposition to MSJ No. 2 (Plaintiff's Prior Art SJ Motion)

Volterra objects to statements made by Dr. Fair in paragraphs 26-29 and 31-34 of his September 10, 2010 opposition declaration. Volterra's Objections (Primarion's Oppositions) at 6-7. Volterra's objections are overruled.

i. Paragraphs 26-29 of Fair Opposition Declaration

In paragraphs 26-29 of his opposition declaration, Dr. Fair challenges statements by Dr. Szepesi in his invalidity report regarding the date the invention in the asserted patents was conceived. Fair 9/10/10 Opposition Decl., ¶ 26-29; *see also* Szepesi 7/14/10 Rebuttal Report on

[17]In sustaining Volterra's objection to Dr. Fair's statements in paragraph 37, the Court does not place significant weight on Dr. Fair's use of the words "it appears," given that his purpose was not so much to express an opinion about infringement as to highlight what he considers an inconsistency in Volterra's positions.

Invalidity, ¶¶ 389-402 (opining that invention of asserted claims was conceived as of April 3, 1998, or at least, by April 16, 1998, citing entries in the lab notebooks of Drs. Nickel and Burstein dated March 26, 1998, April 3, 1998, April 16, 1998 and July 7, 1998). According to Dr. Fair, Dr. Szepesi appeared not to have "conducted an independent analysis regarding whether the asserted claims were conceived by April 3, 1998 [but instead] relie[d] solely on the declaration of Andrew Burstein." Fair 9/10/10 Opposition Decl., ¶¶ 26-27. Dr. Fair opines further that Dr. Burstein, contended in his declaration that the April 3, 1998 date of conception was "supported by the document labeled VLTR0007451 because it show[ed] all of the claim limitations of the asserted claims of the Burstein Patents." *Id*., ¶ 27. Dr. Fair states that this document – which is a page dated April 3, 1998 from Dr. Burstein's lab notebook – lacks certain required elements of the asserted claims, including "a plurality of doped regions," "solder balls," a "filter," a "control circuit" or a "second filter" and that Dr. Burstein conceded as much in his deposition. *Id*, ¶ 28-29.

Volterra objects to Dr. Fair's statement on the basis that he addresses only the April 3, 1998 entry in Dr. Burstein's notebook whereas Dr. Szepesi's opinion about the conception date was based on several entries in the inventors' lab notebooks. Volterra's Objections (Primarion's Oppositions) at 6-7. Because Dr. Fair ignores relevant evidence, Volterra asserts, his opinion is unreliable and should be found inadmissible. Volterra's Objections (Primarion's Oppositions) at 7 (citing *Union Carbide Corp. v. American Can. Co.*, 724 F.2d 1567, 1572 (Fed. Cir. 1984) and *Arthur A. Collins, Inc. v. N. Telecom Ltd.*, 216 F.3d 1042, 1047 (Fed. Cir. 2000)). Volterra further asserts that Dr. Fair's statements concerning the missing claim elements in the April 3, 1998 entry are inadmissable because they are entirely conclusory. *Id.*

Defendants respond that *Union Carbide* is not on point because in that case, the court did not find that the expert's affidavit was inadmissible but rather, found that it did not create a fact question on summary judgment because it merely ignored relevant evidence rather than contradicting it. *See* Defendants' Response to Volterra's Objections (Primarion Oppositions to SJ Motions) at 4. Further, Defendants assert, *Union Carbide* is distinguishable because in that case, the expert whose testimony was at issue had little background in the relevant subject matter. In addition, Defendants assert that Dr. Fair's testimony differs from the affidavit in *Union Carbide* because he highlights

contradictions between the Burstein declaration cited by Volterra and Dr. Burstein's deposition testimony. *Id*. Finally, Defendants argue that *Arthur A. Collins* is also distinguishable because in that case, as in *Union Carbide*, the court did not find the expert testimony to be inadmissible but instead, found that an expert's conclusory statement that the accused device included a critical claim limitation could not defeat summary judgment without factual support. *Id*. at 5(citing 216 F.3d at 1047). Here, in contrast, Dr. Fair has offered factual support for his opinion, Defendants argue. *Id*.

As discussed above, a court has the discretion to find expert testimony inadmissible – or decline to consider expert testimony on summary judgment – where it is unreliable or misleading. The testimony in paragraphs 26-29 of the Fair Opposition Declaration does not warrant exclusion on this basis. Although the narrow focus of Dr. Fair's statements, which address only the April 3, 1998 notebook entry, may or may not be sufficient to create a dispute of fact sufficient to survive summary judgment, the Court does not find Dr. Fair's statements to be so unreliable or misleading as to find them inadmissible. Dr. Fair is, undisputably, qualified to express an opinion as to the significance of Dr. Burstein's notebook entries and he has done so. It is apparent from the statements in paragraphs 26-29 that Dr. Fair's opinions regarding the invention date are based only on his review of the April 3, 1998 notebook entry. While Dr. Fair does not address Dr. Szepesi's opinions regarding the other notebook entries cited by Dr. Szepesi, this omission is not so misleading as to warrant the exclusion of these paragraphs, even if it may render these opinions less persuasive to a fact finder. Therefore, Volterra's objection is overruled.

ii. Paragraphs 31-34 of Fair Opposition Declaration

In paragraphs 31-34 of his opposition declaration, Dr. Fair challenges statements by Dr. Szepesi in his invalidity report regarding the date the invention in the asserted patents was reduced to practice. Fair 9/10/10 Opposition Decl., ¶ 31-34; *see also* Szepesi 7/14/10 Rebuttal Report on Invalidity, ¶¶ 376-388 (opining that the first embodiment of the invention was the Cop5 device that was tested on September 5, 1998). According to Dr. Fair, Dr. Szepesi's opinion that the invention was reduced to practice on September 5, 1998 is based entirely on statements in Dr. Burstein's declaration, many of which were uncorroborated. Fair 9/10/10 Opposition Decl., ¶ 31. For example, according to Dr. Fair, Dr. Burstein frequently relies on pages from Mr. Nickel's notebook

to show that all of the limitations of the asserted claims were present in the embodiment that was tested on September 5, 1998 but fails to present any evidence that the drawings in Dr. Nickel's notebooks accurately reflect the embodiment that was tested on September 5, 1998. *Id*., ¶¶ 32-33. Dr. Fair also cites to deposition testimony by Dr. Burstein in which he conceded that a September 5 email on which he relied in his declaration failed to show some of the asserted claim limitations. *Id*., ¶ 34.

Volterra contends that these paragraphs should be excluded on the basis that they are not based on Dr. Fair's expertise, are not helpful and invade the province of the trier of fact. Volterra's Objections (Primarion's Oppositions) at 7 (citing *Union Carbide Corp. v. American Can. Co.*, 724 F.2d 1567, 1572 (Fed. Cir. 1984) and *Arthur A. Collins, Inc. v. N. Telecom Ltd.*, 216 F.3d 1042, 1047 (Fed. Cir. 2000)). Defendants respond that it is appropriate for an expert to compare factual evidence to claim limitations and that this testimony is admissible. Defendants' Response to Volterra's Objections (Primarion Oppositions to SJ Motions) at 5.

The Court finds that the opinions offered by Dr. Fair in paragraphs 31-34 are based on his expertise and supported by a factual basis. Therefore, Volterra's objection to these paragraphs is overruled.

c. Opposition to MSJ No. 3 (Plaintiff's Undisclosed References SJ Motion)

Plaintiff objects to Appendices A and B to Defendants' Opposition to Plaintiff Volterra Semiconductor Corporation's Motion for Partial Summary Judgment of No Invalidity Based on Prior Art References and On-Sale Bar Allegations Not Disclosed in Defendants' First Amended Invalidity Contentions, or, in the Alternative, to Preclude Defendants from Relying Upon Undisclosed Prior Art and On-Sale Bar Allegations ("Defendants' Opposition to Plaintiff's Undisclosed References SJ Motion") on the basis that these appendices were not timely filed. Volterra's Objections (Primarion's Oppositions) at 16. In particular, although Defendants expressly referred to these appendices in their Opposition brief, which was filed on September 10, 2010, they failed to serve them on Plaintiff until September 16, 2010 and did not file them until the next day. *Id*. The appendices identified the specific documents and deposition transcripts that Defendants

contend Volterra improperly failed to include in its interrogatory responses. *Id*.; *see also* Docket No.1095 (Notice of Errata containing Appendices A & B). The Court concludes that exclusion of the appendices is not warranted.

First, there is no indication that Defendants' omission was willful. Rather, Defendants state in their Notice of Errata that their failure to attach the appendices was inadvertent and the Court has no reason to doubt this representation, especially as Defendants apparently responded promptly to Plaintiff's inquiry by serving and filing the appendices within a week of filing their Opposition brief.

Second, Plaintiff was not materially prejudiced by the omission, as it received the appendices on September 16, 2010 – eight days before its Reply brief was due. Although Plaintiff's time to respond was admittedly cut short, Plaintiff did not request an extension on its Reply brief and has never requested leave to file a supplemental brief addressing the specific testimony and documents disclosed in the appendices.

Accordingly, the objection is overruled.

d. Oppositions to MSJ Nos. 4 (Plaintiff's Anticipation SJ Motion) & 5 (Plaintiff's Obviousness SJ Motion)

Plaintiff objects to the following evidence cited in support of Defendants' Opposition to Plaintiff's Motion for Partial Summary Judgment of No Anticipation Pursuant to 35 U.S.C. § 102 [MSJ No. 4] ("Defendants' Opposition to Plaintiff's Anticipation SJ Motion") and Defendants' Opposition to Plaintiff's Motion for Partial Summary Judgment of Nonobviousness ("Defendants' Opposition to Plaintiff's Obviousness SJ Motion"): 1) the PTO Initial Office Actions and reexamination orders discussed above, on the ground that this evidence has no relevance to invalidity; 2) the prosecution history of the '264 patent and ten prior art references that were not disclosed in Defendants' First Amended Invalidity Contentions, on the basis that Defendants failed to comply with Patent Local Rule 3-3, which requires that a party must disclose all prior art on which it intends to rely in support of invalidity in its invalidity contentions; 3) opinions expressed by Drs. Fair and Garrou in supporting declarations based on the same prior art references; 4) the Stratakos Thesis as prior art, based on the arguments regarding the invention date advanced in Plaintiff's Prior Art SJ Motion; and 5) demonstrative exhibits 128 and 129 to the Gargano Decl.,

based on the assertion that these figures are not what they appear to be. Volterra's Objections (Primarion's Oppositions) at 4.

Defendants respond that the PTO Initial Office Actions and reexamination orders are admissible for the reasons discussed above.[18] Defendants' Response to Volterra's Objections (Primarion Oppositions to SJ Motions) at 13-14. They argue that the references that were not disclosed in their invalidity contentions should be considered because they are simply being used to provide "context for how a [person of ordinary skill in the art] would have understood certain terms of art" and not as prior art references, and moreover, that Volterra was aware of all of them because they were disclosed in interrogatory responses or expert reports, or were initially cited by Volterra. *Id*. at 10-11. Defendants further assert that Volterra's objections to Hallberg and Stager should be overruled because Volterra was aware of this prior art and therefore, no prejudice will arise from considering it. *Id*. at 10. Defendants argue that the Court should overrule Plaintiff's objections to the opinions expressed in the declarations of Drs. Fair and Garrou that rely on the undisclosed references to the extent the underlying references are admissible. *Id*. at 13. Defendants also argue that the objections to the opinions of Drs. Fair and Garrou are untimely because those opinions were contained in the opening declarations of Drs. Fair and Garrou, filed on August 20, 2010, but Plaintiff failed to include the objections in its earlier evidentiary objections. *Id*. at 13. Defendants reject Plaintiff's objection to the Stratakos Thesis, citing the arguments that it advances in its opposition to Plaintiff's Prior Art SJ Motion. *Id*. at 14. Finally, Defendants argue that Exhibits 128 and 129 are simply graphic aids and are not evidence and further, that they are not misleading.

i. The Undisclosed Prior Art References

With respect to the patent prosecution history, Volterra has not pointed to any authority that persuades the Court that a party asserting an invalidity defense is required, under the Patent Local Rules, to list as prior art the prosecution history of the asserted patent in its invalidity contentions. Therefore, Volterra's objection to Defendants' reliance on the prosecution history is overruled. On the other hand, with respect to the remaining ten prior art references, the Court finds no authority for

[18]Because the Court has already addressed Plaintiff's objection to the PTO Initial Office Action and reexamination order, which is sustained, the Court does not address it again here.

what appears to be an end-run around the Patent Local Rules by Defendants. As discussed further below, one of the goals of Patent Local Rule 3-3 is to ensure that a party asserting invalidity disclose the theories on which it intends to rely in a timely manner so as to avoid undue prejudice to the patent holder. Because Defendants failed to comply with the Patent Local Rules, the Court sustains Volterra's objections as to the ten undisclosed prior art references listed in Volterra's objections.

ii. Opinions Expressed by Drs. Fair and Garrou that rely on the Undisclosed References

Volterra also objects to the following opinions expressed by Drs. Fair and Garrou that "discuss or are dependent upon" one or more of Defendants' undisclosed prior art references: 1) Fair Decl. in Support of Defendants' Stratakos SJ Motion, ¶¶ 21, 35, 39, 40, 45, 58, 78-85, 86, 88 & 91 (citing to the undisclosed references cited in paragraph 58), as well as Appendix 2 at pp. 5-6; and 2) Garrou Decl. in Support of Defendants' Stratakos SJ Motion, ¶¶ 20, 22, 24, 26-30, 35-41, 45-46, 51, 54, 56-57, 62, 66-72 and 78-79. Volterra's Objections (Primarion's Oppositions) at 13. These objections are sustained, except with respect to ¶¶ 36 and 37 of the Garrou declaration and ¶¶ 78-85, 86, 88 and 91 of the Fair declaration, which express opinions based on the prosecution history of the '264 patent.

iii. Stratakos Thesis

Volterra objects to Defendants' reliance on the Stratakos Thesis for the same reasons it argues that it is entitled to summary judgment that the Stratakos Thesis is not prior art. As discussed below, the Court concludes that fact questions remain as to whether the Stratakos Thesis is prior art and therefore, the objection is overruled.

iv. Exhibits 128 and 129

Volterra objects to Exhibits 128 and 129 to the Gargano Declaration on the basis that they are inauthentic and misleading. The Court overrules this objection because these exhibits are not offered as evidence but only to illustrate Defendants' position regarding [REDACTED] in the accused product as compared to[REDACTED]. While the diagrams may or may not be helpful, the Court finds that they are not so misleading as to require that they be excluded.

e. Opposition to MSJ No. 7 (Plaintiff's Inequitable Conduct SJ Motion)

Volterra objects to evidence cited by Defendants in support of their Opposition to Plaintiff's Inequitable Conduct SJ Motion on the ground that these documents were not disclosed by Defendants in their interrogatory responses. Specifically, Volterra seeks exclusion of the following evidence: 1) excerpts of the prosecution file histories for the '522 and '264 patents, including Small Entity Status Declarations submitted by Volterra in connection with the '522 and '264 patent applications (Gargano Decl., Exs. 2, 94 & 95); 2) PTO orders granting reexamination requests for the '522 and '264 patents and documents related to the reexamination proceeding (Gargano Decl., Exs. 20, 21, 71, 73, 124, 144); 3) the first page of a Power-Point presentation by Alan King and Anthony Stratakos listing Alan King as Chairman and CEO of Berkeley Integrated Technologies and Anthony Stratakos as President and CTO of the same entity (Gargano Decl., Ex. 115) and February 4, 1999 letter from Alan King to Jeff Staszak listing "Volterra People" (Gargano Decl., Ex. 116); 4) interrogatory response by Volterra stating that Berkeley Integrated Technologies, Inc. was incorporated in Delaware in August 1996 and changed its name to Volterra in 1997 and providing list of officers (Gargano Decl., Ex. 4); 5) section of Fair opposition declaration addressing materiality of ten prior art references listed in Defendants' invalidity contentions in connection with their inequitable conduct affirmative defense (Fair 9/10/10 Opposition Decl., ¶¶ 58-185). In addition, Volterra seeks exclusion of two arguments it contends should have been disclosed by Defendants in their discovery responses: 1) the argument that any undisclosed prior art reference is material based on the fact that the PTO has either granted reexamination of the Burstein Patents based on the reference or issued any subsequent office action based upon it; and 2) the argument that Volterra's BIT-Buck prototype would have been material to the patentability of the Burstein Patents.[19]

[19]Volterra also objects to Gargano Decl, Ex. 118. Defendants respond that that exhibit was left blank and the Court finds no document at Exhibit 118. The Court notes, however, that Defendants cite to Exhibit 118 in their Opposition to Plaintiff's Inequitable Conduct SJ Motion, describing the exhibit as "Stratakos Dep. Ex. 28." Defendants' Opposition to Plaintiff's Inequitable Conduct SJ Motion at 7, 8. To the extent that Defendants seek to rely on that document, Plaintiff's objection is sustained on

Defendants assert that these objections should be overruled. First, with respect to Gargano Exs. 2, 94 and 95, the prosecution file histories of the '522 and '264 patents (which include the Small Entity Status Declarations for the '264 and '522 patents), Defendants argue that this evidence is admissible because Defendants' interrogatory responses state that Volterra engaged in inequitable conduct "for at least the reasons set forth in Defendants' First Amended Answer . . . incorporated herein by reference." Defendants' Response to Volterra's Objections (Primarion Oppositions to SJ Motions) at 6 (citing Gargano Decl., Ex. 236 (Infineon AG's Second Amended and Supp. Response to Interrog. No. 8, 4/26/10)). Defendants' First Amended Answer, in turn, includes an inequitable conduct counterclaim based on allegations related to the prosecution of the patents in suit, including allegations based on the Small Entity Status Declarations for the '522 and '264 patents, which were signed by Anthony Stratakos. First Amended Answer [docket no. 92], Counterclaim ¶¶ 32-38.

Second, Defendants assert that Exhibits 115 and 116 to the Gargano Declaration are admissible because in their interrogatory responses, Defendants stated that Volterra committed inequitable conduct by withholding "the Bit-Buck voltage regulator (identified during the depositions of Dr. Stratakos, Dr. Lidsky, and Dr. Burstein) developed by Volterra and/or Berkeley Integrated Technologies, Inc." Defendants' Response to Volterra's Objections (Primarion Oppositions to SJ Motions) at 7 (citing Gargano Decl., Ex. 236) (emphasis added). Defendants further point out that Exhibit 115 was marked as exhibit 9 during the July 15, 2009 deposition of Dr. Lidsky, and that Dr. Lidsky testified about the slides showing the Bit-Buck voltage regulator conained in that exhibit. *Id*. (citing Ex. 115 (showing exhibit tag on document) and Ex. 233 (excerpt of 7/15/09 Lidsky deposition transcript)). Similarly, Exhibit 116 was marked as exhibit 26 at the July 28, 2009 deposition of Dr. Stratakos and Dr. Stratakos was asked questions about the document during his deposition. *Id*. (citing Ex. 116 (showing exhibit tag on document) and Ex. 234 (excerpt of 7/28/09 Stratakos deposition transcript)).

Third, Defendants argue that Exhibit 141 is admissible because it is Volterra's own interrogatory responses and therefore is an admission.

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the basis that Defendants did not provide the document to the Court and did not provide any substantive response to Plaintiff's objection.

Fourth, Defendants argue that they adequately disclosed in their interrogatory responses their position that the PTO Office Actions and orders granting the reexamination requests show that the undisclosed prior art references are material to patentability. In particular, Defendants assert that their "interrogatory responses expressly disclose that Defendants' case of inequitable conduct is based *inter alia* on the pending reexaminations of the '264 and '522 patents, which necessarily includes the documents filed in these reexaminations." Defendants' Response to Volterra's Objections (Primarion Oppositions to SJ Motions) at 7. Defendants point also to their further statement in their interrogatory responses that Volterra has taken "positions in the reexamination proceedings that contradict positions taken during this litigation" and cited examples. *Id.*

Fifth, Defendants assert that Dr. Fair's opinions addressing the materiality of the references that Defendants contend were withheld from the PTO during patent prosecution are proper because materiality is a proper subject of expert opinion and the opinions were timely submitted. " Defendants' Response to Volterra's Objections (Primarion Oppositions to SJ Motions) at 8.

Sixth, Defendants argue that their argument relating to the BIT-Buck voltage regulator is admissible because they stated in their interrogatory responses that Plaintiff committed inequitable conduct by withholding the BIT-Buck voltage regulator, as discussed above.

i. Prosecution History and Small Entity Status Declarations

The Court overrules Volterra's objections to Defendants' reliance on the prosecution history and the Small Entity Status Declarations. Defendants' interrogatory responses made clear that their inequitable conduct claim was based, in part, on conduct that occurred during the prosecution of the patent. Accordingly, Volterra had sufficient notice that Defendants intended to rely on the prosecution history file. In addition, Defendants expressly incorporated their First Amended Answer, which included allegations in support of their inequitable conduct counterclaim and affirmative defense based on the Small Entity Status Declarations. Therefore, the Court finds that Gargano Decl., Exs. 2, 94 and 95 are admissible.

ii. Exhibits 115 and 116

The Court overrules Volterra's objection to Exhibit 115 and sustains its objection to Exhibit 116. Exhibit 115 is the first page of a Power-Point presentation that included a slide depicting

Volterra's BIT-Buck voltage regulator. *See* Declaration of Daniel R. Foster in Support of Defendants' Response to Plaintiff's Objections to Evidence in Support of Defendants' Oppositions to Volterra's Motions for Summary Judgment and Plaintiffs' Objections to Evidence in Support of Defendants' Reply Memoranda ("Foster Decl."), Ex. 233 (excerpt of 7/15/09 Lidsky Depo.) at 86. This document was marked as an exhibit during the deposition of Dr. Lidsky, who was asked to testify about the contents of the document, including the slide depicting Volterra's BIT-Buck voltage regulator, at some length. *Id*. Accordingly, Defendants' interrogatory response referencing the BIT-Buck voltage regulator identified during Dr. Lidsky's deposition gave Plaintiff sufficient notice that Defendants intended to rely on this document.

On the other hand, Defendants' interrogatory response did not provide Volterra sufficient notice as to Exhibit 116. That document is an email message by Alan King listing "Volterra people." Gargano Decl., Ex. 116. It contains no mention of the BIT-Buck voltage regulator and although it was marked as an exhibit at the deposition of Dr. Stratakos, the questions that were asked about the document during Dr. Stratakos' deposition also did not relate to the BIT-Buck voltage regulator. *See* Foster Decl., Ex. 234 (excerpt of 7/28/09 deposition of Dr. Stratakos) at 137-144. As a result, Defendants' interrogatory responses stating that their inequitable conduct defense was based on the BIT-Buck voltage regulator identified during Dr. Stratakos' deposition did not put Volterra on notice that Defendants intended to rely on the email offered as Exhibit 116. Volterra's objection to Exhibit 116 is sustained.

iii. Volterra's Interrogatory Responses

Exhibit 141 of the Gargano Declaration is an excerpt from Volterra's own interrogatory responses. While Defendants are *incorrect* in their assertion that Volterra's interrogatory responses are binding admissions (and thus admissible), *see Synopsys, Inc. v. Magma Design Automation, Inc.*, 2006 WL 825277 (N.D.Cal., March 30,2006) (Chesney, J.) ("answers were given in response to interrogatories, rather than to requests for admissions and, consequently, are not binding") (citing Fed.R.Civ.P. 33(c) and Fed.R.Civ.P. 36(b)); *Fort Hall Landowners Alliance, Inc. v. Bureau of Indian Affairs*, 2007 WL 2187256, at *2 (D.Idaho, July 16, 2007) (noting that answers to interrogatories "are not binding admissions in this circuit") (citing *Victory Carriers Inc. v. Stockton*

Stevedoring Co., 388 F.2d 955, 959 (9th Cir. 1968)(holding that answers to interrogatories not given the same binding effect conferred on responses to requests for admission) and *Donovan v. Crisotomo*, 689 F.2d 869, 875 (9th Cir.1982) (stating that "[i]nterrogatories do not supersede or supplement pleadings, nor do they bind parties as an allegation or admission in a pleading or pre-trial order")), the Court also finds no authority for the proposition that a party's own interrogatory responses may be excluded on the basis that the party seeking to rely on them did not expressly state as much in *their* interrogatory responses. Therefore, Plaintiff's objection to Exhibit 141 is overruled.

iv. Argument that Undisclosed Prior Art is Material Based on Fact that PTO has Granted Reexamination Request

Volterra argues that Defendants should not be allowed to rely on the PTO decisions relating to the reexamination request to establish materiality because they did not identify these decisions in their interrogatory responses. Because the Court does not reach the question of whether the undisclosed prior art is material to patentability, it declines to rule on this objection.

v. Expert Opinion Addressing Materiality of Undisclosed References

In paragraphs 58-185 of the Fair 9/10/10 Opposition Decl., Dr. Fair addresses the materiality of the references that Defendants identified in their interrogatory responses as the ones that allegedly were not disclosed by individuals at Volterra during the prosecution of the asserted patents. Because the Court does not reach the question of whether the undisclosed prior art is material to patentability, it declines to rule on this objection.

vi. Argument that BIT-Buck Voltage Regulator is Material to Patentability

Because the Court does not reach the question of whether the undisclosed prior art is material to patentability, it declines to rule on this objection.

f. MSJ No. 8 (Plaintiff's On-Sale Bar SJ Motion)

Volterra objects to several documents cited by Defendants in support of their Opposition to Plaintiff's On-Sale Bar SJ Motion on the ground that these documents were not disclosed by

Defendants in their interrogatory responses. Specifically, Volterra seeks exclusion of the following documents: 1) Docket No. 358 (Prototype Tracking Document, dated 1/6/99); 2) Gargano Decl., Ex.s 107-108 (Volterra's responses to Primarion Interrogatory Number 8); 3) Gargano Decl., Ex. 109 (Volterra email dated 1/20/99); and 4) Ex. 100 to Declaration of David Dolkas in Support of Defendants' Opposition to Plaintiff's Motion for Preliminary Injunction.[20] Defendants respond that the interrogatory responses are admissible as party admissions. They further contend that the remaining documents are admissible because Volterra had notice of them. In particular, Defendants point out that: 1) the Prototype Tracking Document (Docket Number 358) was offered by Volterra as an exhibit in support of its preliminary injunction motion; 2) Exhibit 109 to the Gargano Declaration was marked as an exhibit by Defendants on August 7, 2009, at the deposition of Dr. Burstein; and 3) Exhibit 100 to the Dolkas Declaration was cited by Defendants in their opposition to the preliminary injunction motion for the same purpose as it is offered here, namely, to show delivery of the Tut prototype in December 1998. The Court overrules Plaintiff's objections as to all of the documents except Exhibit 109.

In its interrogatories, Volterra asked Defendants to "describe in detail ALL facts that YOU contend support EACH defense, including without limitation by IDENTIFYING ALL DOCUMENTS which support or RELATE to EACH affirmative defense." *See* Comb. Fisher Decl., Ex. 28 (Defendant Primarion Inc.'s Third Supplemental and Amended Response to Plaintiff Volterra Semiconductor Corporation's Second Set of Interrogatories [Supplemented as to Interrogatory No. 14]) ("Primarion 6/18/10 Supp. Interr. Responses") at 4 (interrogatory 14); Ex. 29 (Defendant Infineon Technologies North America Corp.'s Third Amended and Supplemental Responses to Plaintiff Volterra Semiconductor Corporation's Second Set of Interrogatories [Supplemented as to Nos. 4 and 8]("Infineon 6/18/10 Supp. Interr. Responses")) at 401 (interrogatory no. 8); Ex. 30 (Defendant Infineon Technologies AG's Third Amended and Supplemental Responses to Plaintiff Volterra Semiconductor Corporation's Second Set of Interrogatories [Supplemented as to Interrogatory Nos. 4 and 8] ("Defendant Infineon AG's 6/18/10 Supp. Interr. Responses")) at 403.

[20]Although Defendants also identify this document as Exhibit 110 to the Gargano Declaration, the document provided as Exhibit 110 is a different document.

Defendants' initial responses in connection with their on-sale bar defenses were brief and conclusory and did not list *any* documents. Subsequently, Volterra brought a motion to compel seeking more complete responses, and the Court expressly ordered that Defendants provide all facts, documents and witnesses related to their affirmative defenses. *See* May 7, 2010 Hearing Transcript [Sealed Version]. Despite the Court's order, in their supplemental responses Defendants again failed to identify any documents supporting their on-sale bar defense. Thus, it is within the Court's discretion to exclude all of the undisclosed documents to which Volterra objects on the basis of Defendants' failure to comply with the Court's order. *See Avila v. Willits Environmental Remediation Trust*, 2007 WL 108347, at *4 (N.D. Cal. Jan. 10, 2007) (holding that plaintiffs were barred from introducing evidence in opposition to summary judgment that was not included in discovery responses despite representation to court in response to defendant's motion to compel that plaintiff's discovery responses were "complete").

Having found that Defendants failed to comply with the Court's order, however, the Court declines to adopt the remedy sought by Plaintiff, namely, the exclusion of virtually all of the evidence cited by Defendants in support of their on-sale bar defenses, because Plaintiff had sufficient notice as to at least some of the documents that Defendants' on-sale bar defense would rely on them. First, the Prototype Tracking Document (Docket Number 358) was cited by Volterra in connection with the preliminary injunction and Defendants expressly referred to Volterra's use of Prototype Tracking Documents in connection with their on-sale bar defense in their amended invalidity contentions. *See* Comb. Fisher Decl., Ex. 39 (First Amended Invalidity Contentions) at7 (contending in support of invalidity under § 102(b) that "Plaintiff . . .admits to using Prototype Tracking Documents ('PTD') to track delivery and maintain the confidentiality of information it disclosed to Intel [and] has failed to produce any PTDs that cover the December 1998 delivery to ESG"). Therefore, the Court overrules Volterra's objection to Docket Number 358.

Second, Ex. 100 to the Dolkas preliminary injunction declaration, an email offered by Defendants to show delivery of the prototype to Intel in December 1998, was offered by Defendants for the same purpose in their Opposition to the preliminary injunction motion. Indeed, Defendants quoted the email in that brief, just as they have in their opposition to Plaintiff's On-Sale Bar SJ

Motion. Therefore, the Court overrules Plaintiff's objection to Ex. 100 to the Dolkas preliminary injunction declaration.

Third, as discussed above, while Defendants are *incorrect* in their assertion that Volterra's interrogatory responses are binding admissions (and thus admissible), the Court also finds no authority for the proposition that a party's own interrogatory responses may be excluded on the basis that the party seeking to rely on them did not expressly state as much in *their* interrogatory responses. Therefore, the Court overrules Volterra's objections as to Exhibits 107 and 108 to the Gargano Declaration.

The Court sustains Plaintiff's objections to Exhibit 109, however. This document was not referenced in Defendants' invalidity contentions; nor was it addressed by the parties at the preliminary injunction phase of the case. Accordingly, Defendants' failure to disclose in their interrogatory responses that they intended to rely on the document to support their on-sale bar defense gives rise to sufficient prejudice to warrant its exclusion.

3. Objections to Defendants' Evidence in Support of Reply Briefs (Docket No. 1177)

Volterra objects to the following evidence offered by Defendants in support of their Reply briefs on their Sicard and Stratakos SJ Motions: 1) opinions expressed in paragraphs 16-18 and 88 of the Supplemental Declaration of Richard B. Fair, Ph.D., in Support of Defendants' Motions for Summary Judgment ("Fair 9/24/10 Supp. Decl.") regarding whether the patent examiner would have allowed the claims of the '264 patent if the examiner had been aware of certain prior art, which Volterra argues are speculative and also unreliable in light of the September 27, 2010 Notice of Intent to Issue Ex Parte reexamination Certificate regarding the '264 Patent ("'264 NIRC"), *see* Declaration of Jeffrey M. Fisher in Support of Plaintiff Volterra Semiconductor Corporation's Objections to New Evidence Submitted by Defendants in Support of Defendants' Reply Memoranda re: Defendants' Motions for Summary Judgment ("Fisher Evid. Decl."), Ex. A;[21] 2) new prior art

[21]On the same date, the PTO issued a Notice of Intent to Issue Ex Parte Reexamination Certificate as to the challenged claims of the '522 Patent ("the '522 NIRC"). *See* Fisher Evid. Decl., Ex. B.

references that were offered in support of Defendants' Reply memoranda that were not listed in Defendants' invalidity contentions; 3) paragraphs 4-13 of the Declaration of Kenneth Ostrom in Support of Defendants' Reply Memoranda on the basis that these opinions lack foundation because although Mr. Ostrom addressed the reasons Defendants' Callisto chip was discontinued in his declaration, he testified at his deposition that he did not know why that chip was discontinued; 4) new expert opinions in the Reply Declaration of James E. Malackowski in Support of Defendants' Motions for Summary Judgment at ¶ 22 beginning at the words "In fact, while I am aware. . . ." *See* Plaintiff Volterra Semiconductor Corporation's Objections to New Evidence Submitted by Defendants in Support of Defendants' Reply Memoranda re: Defendants Motions for Summary Judgment ("Volterra's Objections (Primarion's Replies)").

Defendants respond that the opinions regarding the decision of the patent examiner are not speculative but rather, are based on Dr. Fair's familiarity with the relevant prior art and the prosecution history of the '264 patent. Defendants' Response to Plaintiff's Objections to Evidence in Support of Defendants' Reply Memoranda re: Motions for Summary Judgment [Docket Nos. 1105 & 1106] ("Defendants' Response to Volterra's Objections (Primarion Replies)") at 1-3. They reject

Volterra's reliance on the '264 NIRC, arguing that the recent decision of the PTO was based on discrepancies between the arguments made before the Court regarding relevant claim terms and those made in the PTO. *Id*. Defendants further assert that the prior art that Volterra asserts is new should be considered, even though it was not included in Defendants' invalidity contentions, because it was disclosed to Volterrra in various interrogatory responses and "[s]ome of these references go to rebutting opinions in Volterra's expert reports." *Id*. at 3-8. Defendants argue that the opinions of Mr. Ostrom do not lack foundation and that Volterra has mischaracterized his deposition testimony. *Id*. at 9. Finally, Defendants argue that the opinions expressed by Mr. Malackowski in his reply declaration but rather, are consistent with the opinions he expressed in his deposition and in his July 26, 2010 expert report. *Id*. at 9-10.

a. Fair 9/24/10 Supp. Decl., ¶¶ 16-18 and 88

The Court overrules Volterrra's objections to these opinions. Without reaching any

conclusions as to the significance of the decision of the PTO in the '264 NIRC, the Court concludes that Dr. Fair's familiarity with the prior art and the prosecution history provides a sufficient basis to support the opinions stated in these paragraphs.

b. Prior Art References that Were Not Included in Invalidity Contentions

As discussed above with reference to prior art references cited by Defendants in support of their Opposition briefs, the Court finds that Defendants are prohibited, under the Patent Local Rules, from relying on prior art that was not disclosed in their invalidity contentions to show invalidity. Nor is the Court persuaded by Defendants' assertions that their failure to comply with the requirements of the Patent Local Rules is excused because Plaintiff was aware of this prior art, or on the basis that it is merely offered to provide "context." Finally, although Defendants have asserted that "some" of these references are offered as rebuttal, this conclusory statement is insufficient to overcome Volterra's objection without further explanation addressing which references are offered in rebuttal and what specific opinions the references rebut. Therefore, the Court sustains Volterra's objections with respect to the prior art references listed at pages 2 and 3 of its objections.

c. Declaration of Kenneth Ostrom in Support of Defendants' Reply Memoranda, ¶¶ 4-13

Having reviewed the deposition testimony of Mr. Ostrom, the Court finds that the opinions to which Volterra objects are supported by adequate foundation based on Mr. Ostrom's familiarity with and knowledge of Primarion's corporate documents. Therefore, the Court overrules Volterra's objection.

d. Reply Declaration of James E. Malackowski in Support of Defendants' Motions for Summary Judgment, ¶ 22

Having reviewed Mr. Malackowski's deposition testimony and earlier expert report, the Court concludes that the opinions express by Mr. Malackowski in his Reply declaration at ¶ 22 are similar to earlier opinions expressed by Mr. Malackowski and therefore are not new. Accordingly, the Court overrules Volterra's objection.

IV. INFRINGEMENT

A. Background[22]

On February 2, 2010, the Court issued its Claim Construction Order, in which it construed ten terms used in the asserted claims of the Burstein Patents. *See* Docket No. 697 (Claim Construction Order); Docket No. 755 (Order Denying Motion for Reconsideration). At the request of the parties, the Court issued a supplemental claim construction order on June 9, 2010, construing the claim term "fabricated on a surface of the substrate." *See* Docket No. 833 (Order Construing Claim Term "Fabricated on a Surface of the Substrate"). In that order, the Court adopted Plaintiff's proposed construction of the term and rejected Defendants' proposed construction. In light of the Court's constructions, on August 6, 2010, Defendants stipulated that they "have directly and indirectly, both contributorily and by inducement, infringed claims 9, 11, 16, 17, 18 and 19 of the '522 patent by making, using, offering for sale, and/or selling" the accused products. *See* Docket No. 894. Defendants did not, however, stipulate to infringement of any of the asserted claims of the '264 patent, despite having stated on several occasions to the Court that they would likely do so.[23]

According to Defendants, their eleventh-hour decision *not* to stipulate to infringement of the '264 patent was in response to Dr. Thomas Szepesi's July 14, 2010 rebuttal expert report on invalidity, in which he [REDACTED]

[22]An extensive overview of the facts of this case, including a detailed description of the technology at issue, is contained in the Court's November 17, 2009 order addressing Plaintiff's motion for a preliminary injunction. *See* Docket No. 566 (sealed version), 767 (redacted version). In this Order, the Court provides only the background information that is relevant to the specific disputes raised in the parties' summary judgment motions.

[23]*See* Combined Declaration of Jeffrey M. Fisher in Support of Plaintiff Volterra Semiconductor Corporation's Motions for Partial Summary Judgment Related to U.S. Patent Nos. 6,278,264 and 6,462,522 ("Comb. Fisher Decl.") ¶ 2 ("At the Court-ordered meet and confer session, which the Court facilitated on April 12, 2010 at the courthouse, Defendants' lead counsel stated to both Volterra's counsel and the Court that Defendants would stipulate to infringement of the asserted claims of the Burstein Patents in the event a final claim term, "fabricated on a surface of the substrate," was construed against Defendants"); transcript of May 7, 2010 status conference (Docket No. 802) at 3: 12-14 ("The only remaining two patents are the Burstein Patents. We proposed to the Plaintiff a . . . stipulation where infringement would be entered"); Comb. Fisher Decl., Ex. 80 (transcript of July 29, 2010 discovery hearing at 4) ("we are prepared to stipulate to infringement on the Burstein Patents. We have received the draft from Volterra. We are looking at it right now. We will get them in very short order").

Volterra now brings a motion for summary judgment that the accused products infringe claims 26 and 34 of the '264 patent and claims 22 and 24 of the '522 patent. The only dispute is

[REDACTED]

Finally, Volterra asserts that to the extent that Defendants now take the position that this limitation is not met, the Court should refuse to consider Defendants' non-infringement defense, impose monetary sanctions and/or preclude Defendants from arguing that [REDACTED]

either on summary judgment or at trial. Volterra offers several grounds in support of its request for sanctions.

First, Volterra cites to Defendants' alleged failure to provide discovery on infringement despite the Court's order at the July 29, 2010 hearing on Volterra's motion to compel that Defendants must provide such discovery if they did not stipulate to infringement.

Second, Volterra points to Defendants' refusal to stipulate to infringement despite their repeated assertions to the Court that they would do so.

Third, Volterra cites to Defendants' failure to disclose to the Court at the July 29, 2010 hearing their new theory of non-infringement, even though Dr. Fair's Reply Invalidity Expert Report, which included this theory, had been served several days earlier, on July 26, 2010.

Fourth, Volterra asserts that Defendants' non-infringement defense is being asserted for an improper purpose, namely, to use as leverage to induce Volterra to drop its argument that [REDACTED]

Fifth, in its Reply brief, Volterra points to a figure included in one of Defendants' briefs that, while purportedly duplicating a figure [REDACTED], alters the figure by [REDACTED]

Defendants oppose Plaintiff's request for summary judgment of infringement for the reasons stated above, namely, that there is evidence that the accused devices do not include [REDACTED]

Defendants further assert that sanctions should not be imposed because: 1) they properly moved for a protective order to address remaining discovery disputes relating to the infringement-related discovery sought by Volterra; and

2) they produced the discovery required by the Court in its ruling on that motion. As to Defendants' allegedly untimely disclosure of its new non-infringement position, Defendants argue that it is Volterra that has engaged in "misconduct" by trying to "slip in a new limitation." Opposition to Volterra's Infringement SJ Motion at 15. As to Volterra's request that Defendants be precluded from arguing that [REDACTED] Defendants argue that there is no authority to support the imposition of such drastic sanctions under circumstances such as this.

B. Whether the Court Should Enter Summary Judgment of Infringement

The only remaining question before the Court with respect to infringement is whether [REDACTED] as required under the Court's claim construction. Based on the admissible evidence in the record, the Court concludes that this limitation is met as a matter of law and therefore, that the accused products infringe the asserted claims at issue.

A determination of infringement is a two-step process. *Wright Med. Tech., Inc. v. Osteonics Corp.*, 122 F.3d 1440, 1443 (Fed. Cir. 1997). The first step is claim construction, which is a question of law to be determined by the court. *Id*. The second step is an analysis of infringement, in which it must be determined whether a particular device infringes a properly construed claim. *Id*. A device literally infringes if each of the elements of the asserted claims is found in the accused device. *Id*. In the alternative, a device may infringe under the doctrine of equivalents "if every limitation of the asserted claim, or its 'equivalent,' is found in the accused subject matter, where an 'equivalent' differs from the claimed limitation only insubstantially." *Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.*, 149 F.3d 1309, 1315 (Fed. Cir. 1998). As infringement is a question of fact, the issue on summary judgment is whether there is any genuine issue of material fact regarding infringement. *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998).

The Court has construed the claim term "metalized pad" as follows:

> Pads that include an under-bump metalization layer (UBM) that forms an interface between the top metal layer of the integrated circuit and the solder balls (bumps) that are often used in flip-chip type integrated circuits. Pads in an integrated circuit are openings in the top passivation layer that allow connection to the top metal layer, to enable formation of connections between the integrated circuit and external circuit element.

The Court rejects Defendants' assertion that it must revisit its construction of the term [REDACTED]

Therefore, Defendants have not established that there is a genuine issue of material fact as to infringement of claims 26 and 34 of the '264 Patent and claims 22 and 24 of the '522 Patent. Accordingly, Volterra is entitled to summary judgment that those claims are infringed by the accused products.

C. Whether the Court Should Impose Sanctions

Volterra seeks a variety of sanctions under Rule 37 of the Federal Rules of Civil Procedure, arguing that Defendants have engaged in misconduct and have pursued a frivolous non-infringement position as to [REDACTED] . While the Court agrees with Volterra that Defendants' non-infringement position is extremely weak, it cannot say that the argument is so baseless as to warrant the imposition of sanctions. Nor does the Court find that Defendants have engaged in misconduct of the sort that would justify the imposition of sanctions, either monetary or in the form of preclusion. Defendants' failure to produce all of the infringement-related discovery sought by Plaintiffs was the subject of legitimate disputes, which Defendants brought to the attention of the Court for resolution. Further, Defendants were not *required* to stipulate to non-infringement, as it is Volterra's burden to establish infringement. The fact that Defendants did not alert the Court to the new argument at the July 29 hearing also does not offer a sufficient basis for imposing sanctions.

The Court also does not find that Defendants' offer to withdraw their infringement position if Volterra agreed to drop its defense based on [REDACTED] to be obviously improper. Given that Volterra's position [REDACTED] is closely related to Defendants' non-infringement position, the Court finds no bad faith in Defendants' offer. Similarly, the [REDACTED] figure that Plaintiff says was doctored in one of Defendants' briefs does not rise to the level of sanctionable conduct. Given that on the previous page of the same brief, the [REDACTED] figure appears to be represented accurately, the Court is not persuaded that Defendants intended to mislead the Court. *See* Defendants' Opposition to Volterra's Obviousness SJ Motion at 210. Therefore, the Court denies Volterra's request for sanctions under Rule 37.

V. INVALIDITY

A. Legal Standards

1. Anticipation

Under 35 U.S.C. § 102(a), a patent may be anticipated if the claimed invention was described in a printed publication "before the invention thereof by the applicant for patent." 35 U.S.C. § 102(a). The "reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it." *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990). In particular, to establish anticipation under § 102(a) on the basis of a printed publication, "each and every limitation [must be] found either expressly or inherently in a single prior art reference." *Oakley Inc. v. Sunglass Hut Int'l*, 316 F.3d 1331, 1339 (Fed. Cir. 2003) (quotations omitted). A limitation is "inherent" if it is "necessarily present" in the prior art invention. *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1343 (Fed. Cir. 2005). "Because the hallmark of anticipation is prior invention, the prior art reference – in order to anticipate under 35 U.S.C. § 102 – must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements 'arranged as in the claim.'" *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)). In order to anticipate, the prior art reference also must enable one of ordinary skill in the art to make the invention without undue experimentation. *Impax Labs., Inc. v. Aventis Pharms. Inc.*, 545 F.3d 1312, 1314 (Fed. Cir. 2008).

In a patent infringement action, the accused infringer bears the burden of proving invalidity of the asserted patent by clear and convincing evidence. *Central Admixture Pharmacy Services, Inc. v. Advanced Cardiac Solutions, P.C.*, 482 F.3d 1347, 1357-58 (Fed. Cir. 2007). "[A]nticipation is a question of fact, including whether or not an element is inherent in the prior art." *Eli Lilly and Co. v. Zenith Goldline Pharmaceuticals, Inc.*, 471 F.3d 1369, 1375 (Fed. Cir. 2006). However, summary judgment of no anticipation is appropriate where no reasonable jury could find by clear and convincing evidence that the claimed invention occurred prior to the critical date based on the evidence produced by the accused infringer. *Central Admixture Pharmacy Services*, 482 F.3d at 1358.

2. Obviousness

The standard regarding obviousness is set forth in 35 U.S.C. § 103(a), which provides, in relevant part, as follows:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

35 U.S.C. § 103(a). In *Graham v. John Deere Co.*, the Supreme Court instructed courts to address the question of obviousness against the "background" of three inquiries: 1) the scope and content of the prior art; 2) differences between the prior art and the claims at issue; and 3) the level of ordinary skill in the pertinent art. 383 U.S. 1, 17 (1966). In addition, under *Graham* courts are to consider "secondary considerations" that may be relevant to obviousness, such as "commercial success" and "long felt but unsolved needs." *Id*. In order to be relevant, there must be a nexus between these secondary considerations and the claimed invention. *Ormco Corp. v. Align Tech. Inc.*, 463 F.3d 1299, 1311-1312 (Fed. Cir. 2006) (holding that commercial success was not relevant to obviousness because it was due to unclaimed features and features that were not novel).

In *Great Atl. & Pac. Tea Co. v. Supermarket Equip.*, the Court explained the policy on which the nonobviousness requirement is based:

The function of a patent is to add to the sum of useful knowledge. Patents cannot be

> sustained when, on the contrary, their effect is to subtract from former resources freely available to skilled artisans. A patent for a combination which only unites old elements with no change in their respective functions . . . obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men.

340 U.S. 147, 152-53 (1952). On the other hand, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). For example, "when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious." *Id*. at 416. It may also be "helpful" to ask whether there was a "teaching, suggestion, or motivation to combine known elements" that would have rendered an invention obvious ("the TSM test"). *Id.* at 418.

In *KSR*, the Supreme Court decided that the Federal Circuit had applied the TSM test too rigidly by holding that the patent examiner should look only to the question the patentee was trying to resolve in determining whether there was a motivation to combine elements found in prior art. *Id*. at 420. The Court explained, "[t]he question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art." *Id*. Therefore, "any need or problem known in the field of the endeavor at the time of the invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id*.

While the ultimate conclusion of obviousness is a legal question, it is based upon underlying facts. *In re Icon Health & Fitness*, 496 F. 3d 1374, 1378 (Fed. Cir. 2007). "Underlying facts include the scope and content of the prior art, the level of ordinary skill in the art at the time of the invention, objective evidence of nonobviousness, and differences between the prior art and the claimed subject matter." *Id*. (citing *Graham*, 383 U.S. at 17-18). The presence or absence of a motivation to combine is also a question of fact, *see In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000), as are the "secondary considerations" discussed in *Graham*. *See PharmaStem Therapeutics v. ViaCell, Inc.*, 491 F.3d 1352, 1359 (Fed. Cir. 2007). Obviousness must be proved by clear and convincing evidence. *Procter & Gamble Company v. Teva Pharmaceuticals USA, Inc.*, 566 F.3d 989, 994 (Fed. Cir. 2009). Thus, the inquiry on summary judgment is whether a jury applying the

clear and convincing evidence standard could reasonably find, based on the evidence produced by the accused infringer, that the claimed invention was obvious. *See TriMed, Inc. v. Stryker Corp.*, 608 F.3d 1333, 1339-1340 (Fed. Cir. 2010).

3. Prior Art

Under 35 U.S.C. § 102, a reference may qualify as invalidating prior art on several grounds. First, under § 102(a), a person is not entitled to a patent if "the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent." The Federal Circuit has explained that § 102(a) establishes that a person cannot "patent what was already known to others." *Woodland Trust v. Flowertree Nursery, Inc.*, 148 F.3d 1368, 1370 (Fed. Cir. 1998). Second, under § 102(b), a person is not entitled to a patent if "the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States." 35 U.S.C. § 102(b). This provision "establishes a one year grace period based on publication or public use or sale, after which an inventor is barred from access to the patent system." *Id*. The provision is aimed at the policy of encouraging an inventor "to enter the patent system promptly, while recognizing a one year period of public knowledge or use or commercial exploitation before the patent application must be filed." *Id*. Under § 102(b), the date one year prior to the filing date of the patent application is considered the "critical date." *Orion IP, LLC v. Hyundai Motor America*, 605 F.3d 967, 974 (Fed. Cir. 2010). Third, a patent application may be prior art under § 102(e) if it was filed in the United States before the invention date of the invention in the asserted patent. 35 U.S.C. § 102(e). This provision is limited, however, by 35 U.S.C. § 103(c)(1), which provides:

> Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.

35 U.S.C. § 103(c)(1).

a. Invention Date

In determining priority of invention for the purposes of §§ 102(a) and (e), courts look to when the patentee conceived of the invention and when it was reduced to practice. *See Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1577 (Fed. Cir. 1996). In particular, the Federal Circuit has explained that "[i]n the United States, the person who first reduces an invention to practice is "prima facie the first and true inventor." *Id*. (citing *Christie v. Seybold*, 55 F. 69, 76 (6th Cir. 1893)). "However, the person 'who first conceives, and, in a mental sense, first invents . . . may date his patentable invention back to the time of its conception, if he connects the conception with its reduction to practice by reasonable diligence on his part, so that they are substantially one continuous act.'" *Id*. (citation omitted). Thus, to establish an invention date prior to the date of the patent filing date, a patentee must demonstrate "conception coupled with reasonable diligence in reducing the invention to practice . . . ." *Singh v. Brake*, 317 F.3d 1334, 1340 (Fed.Cir. 2003).

"To have conceived of an invention, an inventor must have formed in his or her mind 'a definite and permanent idea of the complete and operative invention as it is hereafter to be applied in practice.'" *Mahurkar*, 79 F.3d at 1577 (quoting *Burroughs Wellcome Co. v. Barr Labs, Inc.*, 40 F.3d 1223, 1228 (1996)). "A conception must encompass all limitations of the claimed invention and is complete only when the idea is so clearly defined in the inventor's mind that only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation." *Singh*, 317 F.3d at 1340. Where a party seeks to establish conception through the oral testimony of the inventor, corroboration of the inventor's story must be presented. *Mahurkar*, 79 F.3d at 1577. In assessing corroboration of oral testimony, a "rule of reason" is applied whereby all pertinent evidence is analyzed to determine whether the inventor's story is credible. *Id*. To show reduction to practice, "an inventor must demonstrate that the invention is suitable for its intended purpose." *Id*. at 1578; *see also Cooper v. Goldfarb*, 154 F.3d 1321, 1330 (Fed. Cir. 1998)("In order to corroborate a reduction to practice, it is not necessary to produce an actual over-the-shoulder observer. Rather, sufficient circumstantial evidence of an independent nature can satisfy the corroboration requirement. . . . Furthermore, an actual reduction to practice does not require corroboration for every factual issue contested by the parties").

It is presumed that the invention date is the filing date of the asserted patent, or the asserted patent's parent, until an earlier date is proved. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 449 (Fed. Cir. 1986). Once a party challenging a patent's validity makes a prima facie case of invalidity based on prior art, the burden shifts to the patentee to come forth with evidence of an earlier invention date. *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1305 (Fed. Cir. 2008). The ultimate burden, however, remains with the alleged infringer to prove invalidity by clear and convincing evidence. *Id*.; *see also Mahurkar*, 79 F.3d at 1578 (explaining that where patentee had produced evidence that he conceived and reduced invention to practice before allegedly invalidating prior art reference was published, burden was on alleged infringer to establish by clear and convincing evidence that either the patentee had not conceived and reduced invention to practice prior to publication of reference or that patentee had not conceived of invention prior to publication and worked diligently to reduce it to practice); *see also Innovative Scuba Concepts, Inc. v. Feder Industries, Inc.*,26 F.3d 1112, 1115 (Fed. Cir. 1994) (holding that district court erred in placing ultimate burden on patentee to prove invention date prior to filing of asserted patent where patentee had produced evidence of earlier invention date and explaining that presumption of patent validity under 35 U.S.C. § 282 places ultimate burden on party asserting invalidity).

b. "Printed Publication"

"[I]n order to invalidate a patent based on prior knowledge or use, that knowledge or use must have been available to the public." *Woodland Trust v. Flowertree Nursery, Inc.*, 148 F.3d at 1370; *see also Ormco v. Aligned Technology, Inc.*, 463 F.3d 1299, 1305 (Fed. Cir. 2006) ("[a]rt that is not accessible to the public is generally not recognized as prior art"). Thus, public accessibility is the "touchstone" in determining whether a reference is a "printed publication." *In re Hall*, 781 F.2d 897, 899 (Fed. Cir. 1986). A party seeking to establish invalidity based on a prior art reference "must show that prior to the critical date the reference was sufficiently accessible, at least to the public interested in the art, so that such a one by examining the reference could make the claimed invention without further research or experimentation." *Id*. The test for sufficient public

accessibility to qualify as prior art is a legal determination based on underlying fact issues, subject to a case-by-case analysis. *See In re Wyer*, 655 F.2d 221, 224 (C.C.P.A. 1981).

In the case of an academic paper, such as a dissertation thesis that has been deposited in a university library, the Federal Circuit has held that as a general rule, whether the paper is a "printed publication" depends on whether it has been "meaningfully catalogued and shelved." *In re Cronyn*, 890 F.2d 1158, 1161 (Fed. Cir. 1989). Thus, in *In re Bayer*, the Federal Circuit held that a dissertation thesis was not a "printed publication" because at the relevant time, it had not yet been catalogued and remained in a private library office available only to library employees. 568 F.2d 1357, 1359-1360 (Fed. Cir. 1978). Similarly, in *In re Cronyn*, the court held that a student thesis was not a "printed publication" because it was not meaningfully catalogued where the title and author's name were recorded on an index card, which was stored in alphabetical order by author's name with hundreds of other index cards in a shoe box that was kept in the chemistry department library. 890 F.2d 1158, 1161 (Fed. Cir. 1989). On the other hand, in *In re Hall*, a dissertation was found to be a "printed publication" based on an affidavit by the university librarian describing the library's general procedures regarding cataloguing and shelving of dissertation theses and opining that the dissertation would likely have been catalogued and available to the public at the relevant time. 781 F.2d at 899-900.

Even where a dissertation has not been catalogued or shelved, however, it may be considered a "printed publication" on other grounds. *See In re Klopfenstein*, 380 F.3d 1345, 1348 (Fed. Cir. 1986) (noting that cases discussed above do not limit courts to finding that a reference is a "printed publication" *only* on the basis that they have been meaningfully catalogued and shelved). Thus, in *Cornell University v. Hewlett-Packard Co.*, the court held that "[t]he question of whether a reference was 'meaningfully catalogued or indexed' falls to the side when a 'research aid' enables one of skill in the art to locate the sought-after reference." 2008 U.S. Dist. LEXIS 39343, at *21-22 (N.D.N.Y. May 14, 2008) (holding that where article in seminal and broadly available electrical engineering publication referred readers to thesis for specific illustration of algorithm, and where the article provided the information necessary for a reader to find the thesis, thesis was a "printed publication" regardless of whether it was catalogued at relevant time).

4. Public Use/ On-Sale Bar

As stated above, under 35 U.S.C. § 102(b), a patent can be invalidated if the invention was "in public use or on sale in this country, more than one year prior to the date of application for patent in the United States." "The purpose of the public use bar to patentability is to discourage 'the removal of inventions from the public domain which the public justifiably comes to believe are freely available.'" *American Seating Co. v. USSC Group, Inc.*, 514 F.3d 1262, 1267 (Fed. Cir. 2008) (quoting *Bernhardt, L.L.C. v. Collezione Europa USA, Inc.*, 386 F.3d 1371, 1379 (Fed. Cir.2004)). The test for public use is "whether the purported use: (1) was accessible to the public; or (2) was commercially exploited." *Id.* (quoting *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 424 F.3d 1374, 1380 (Fed. Cir. 2005)). Whether a patent is invalid based on public use under § 102(b) is a question of law based on underlying questions of fact. *Minnesota Mining & Mfg. v. Chemque, Inc.*, 303 F.3d 1294, 1301 (Fed. Cir. 2002).

5. Enablement/Written Description

The Patent Act requires that every patent must contain a written description and be enabled, as stated in 35 U.S.C. § 112 ¶ 1, which provides as follows:

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

In *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Company*, the Federal Circuit made clear that the written description requirement is distinct from the enablement requirement, although the two "often rise and fall together." 598 F.3d 1336, 1352 (Fed. Cir. 2010).

To satisfy the written description requirement, "the description 'must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.'" *Id*. at 1351 (quoting *In re Gosteli*, 872 F.2d 1008, 1012 (Fed. Cir. 1989)). "In other words, the test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Id*. (quoting *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575 (Fed. Cir. 1985)). The "test requires an objective inquiry into the four corners of the specification from the perspective of a

person of ordinary skill in the art." *Id*. To meet this requirement, "[a]n applicant is not required to describe in the specification every conceivable and possible future embodiment of his invention." *Cordis Corp. v. Medtronic AVE, Inc*. 339 F.3d 1352, 1365 (Fed. Cir. 2003) (quoting *Rexnord Corp. v. Laitram Corp*., 274 F.3d 1336, 1344 (Fed. Cir. 2001)). Thus, "[a] specification may, within the meaning of 35 U.S.C. § 112 para. 1, contain a written description of a broadly claimed invention without describing all species that [the] claim encompasses." *Id*. (quoting *Utter v. Hiraga*, 845 F.2d 993, 998 (Fed. Cir.1988)). Further, "[a] patent need not teach, and preferably omits, what is well known in the art." *Epistar Corp. v. International Trade Commission*, 566 F.3d 1321, 1336 (Fed. Cir. 2009) (quoting *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1534 (Fed. Cir. 2009)).

The test for enablement is whether a person "skilled in the art, after reading the specification, could practice the claimed invention without undue experimentation." *Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 999 (Fed. Cir. 2008) (citation omitted). In determining whether a disclosure requires undue experimentation, courts may consider the following factors:

> (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

ALZA Corp. v. Andrx Pharmaceuticals, LLC, 603 F.3d 935, 940 (Fed. Cir. 2010) (quoting *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988)). To satisfy the enablement requirement, the full scope of the claimed invention must be enabled. *Sitrick*, 516 F.3d at 999. Enablement is a question of law based on underlying factual determinations. *Durel Corp. v. Osram Sylvania Inc.*, 256 F.3d 1298, 1307 (Fed. Cir. 2001).

6. Indefiniteness

The requirement that claims be sufficiently "definite" is set forth in 35 U.S.C. § 112, ¶ 2, which provides that, "[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." "The definiteness inquiry focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." *Union Pacific Resources Co. v. Chesapeake Energy Corp.*, 236 F.3d 684, 692 (Fed. Cir. 2001). "Yet, because claim

construction frequently poses difficult questions over which reasonable minds may disagree, proof of indefiniteness must meet 'an exacting standard.'" *Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776, 783 (Fed. Cir. 2010) (quoting *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008)). The Federal Circuit in *Haemonetics* explained:

> Only claims not amenable to construction or insolubly ambiguous are indefinite. A claim is not indefinite merely because parties disagree concerning its construction. An accused infringer must thus demonstrate by clear and convincing evidence that one of ordinary skill in the relevant art could not discern the boundaries of the claim based on the claim language, the specification, the prosecution history, and the knowledge in the relevant art.

Id. (citations omitted). Indefiniteness is a question of law. *Honeywell International, Inc. v. U.S.*, 609 F.3d 1292, 1301 (Fed. Cir. 2010).

7. Inequitable Conduct

"A patent may be rendered unenforceable for inequitable conduct if an applicant, with intent to mislead or deceive the examiner, fails to disclose material information or submits materially false information to the PTO during prosecution." *Digital Control Inc. v. Charles Mach. Works*, 437 F.3d 1309, 1313 (Fed. Cir.2006); *see also* 37 C.F.R. § 1.56(a) ("Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section."). Both materiality and intent must be proven by clear and convincing evidence. *Norian Corp. v. Stryker Corp.*, 363 F.3d 1321, 1330-31 (Fed. Cir.2004). "When both materiality and intent have been established, the court must balance the equities and determine whether the applicant's conduct in prosecuting the patent application was egregious enough to warrant holding the entire patent unenforceable." *Optium Corp. v. Emcore Corp.*, 603 F.3d 1313, 1320 (Fed. Cir. 2010) (citing *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1365 (Fed. Cir. 2008) and *J.P. Stevens & Co. v. Lex Tex Ltd.*, 747 F.2d 1553, 1560 (Fed. Cir. 1984) ("Once the thresholds of materiality and intent are established, the court must balance them and determine as a matter of law whether the scales tilt to a conclusion that inequitable conduct occurred.")). In conducting this balancing, "[t]he more material the omission or the misrepresentation, the lower [the] level of intent [is] required to establish inequitable conduct, and vice versa." *Star Scientific*, 537 F.3d at 1367 (quoting *Critikon, Inc. v. Becton Dickinson Vascular*

Access, Inc., 120 F.3d 1253, 1256 (Fed. Cir.1997)). In *Star Scientific*, the Federal Circuit described the balancing as follows:

> At this second stage . . . the question is no longer whether materiality and/or intent to deceive were proven with evidence that is sufficiently clear and convincing. While the facts of materiality and intent to deceive must be proven by clear and convincing evidence, the district court must balance the substance of those now-proven facts and all the equities of the case to determine whether the severe penalty of unenforceability should be imposed. It is this balancing that is committed to the district court's discretion.

Id.

"Information is material if there is a 'substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent.'" *Avid Identification Systems, Inc. v. Crystal Import Corp.*, 603 F.3d 967, 971 (Fed. Cir. 2010) (quoting *J.P. Stevens & Co.*, 747 F.2d at 1559). In addressing whether information is material, the Federal Circuit looks to PTO Rule 56 and associated regulation, 37 C.F.R. § 1.56. *Avid*, 603 F.3d at 972-973 (citing 37 C.F.R. § 1.56(b)). Section 1.56 defines materiality as follows:

> Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and
>
> (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
>
> (2) It refutes, or is inconsistent with, a position the applicant takes in:
>
> (i) Opposing an argument of unpatentability relied on by the Office, or
>
> (ii) Asserting an argument of patentability.

37 C.F.R. § 1.56(b). Thus, an applicant has no obligation to disclose to the PTO a reference that is otherwise material where it is cumulative of information or references that have already been disclosed. *Halliburton Co. v. Schlumberger Technology Corp.*, 925 F.2d 1435, 1441 (Fed. Cir. 1991). Nor must a reference actually invalidate a patent to be material, or even be prior art. *See GFI, Inc. v. Franklin Corp.*, 265 F.3d 1268, 1274 (Fed. Cir. 2001) ("Materiality is not limited to prior art but instead embraces any information that a reasonable examiner would be substantially likely to consider important in deciding whether to allow an application to issue as a patent").

With regard to the deceptive intent prong, the Federal Circuit has held that "materiality does not presume intent, which is a separate and essential component of inequitable conduct." *Star*

Scientific, Inc. v. R.J. Reynolds Tobacco Co., 537 at 1366. Rather, inequitable conduct will be found only when it has been shown by clear and convincing evidence that an applicant had the specific intent to mislead or deceive the PTO, that is, "that the applicant made a deliberate decision to withhold a known material reference." *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1181 (Fed. Cir. 1995). "To satisfy the requirement of the intent to deceive element of inequitable conduct, the involved conduct, viewed in light of all the evidence, including evidence of good faith, must indicate sufficient culpability to require a finding of intent to deceive." *M. Eagles Tool Warehouse, Inc. v. Fisher Tooling Co., Inc.*, 439 F.3d 1335, 1341 (Fed. Cir. 2006)(quotations omitted). In *M. Eagles Warehouse*, the Federal Circuit explained that "just as a good faith explanation can be presented as evidence to refute an inference of intent, and usually is so presented, the absence of such an explanation can constitute evidence to support a finding of intent." *Id*. It cautioned, however, that "[w]hen the absence of a good faith explanation is the only evidence of intent, . . . that evidence alone does not constitute clear and convincing evidence warranting an inference of intent." *Id*. at 1341. Similarly, the fact that information later found material was not disclosed cannot, by itself, satisfy the deceptive intent element of inequitable conduct. *Id*. at 1340; *see also Kingsdown Med. Consultants, Ltd. v. Hollister Inc*., 863 F.2d 867, 876 (Fed.Cir.1988) (en banc) (holding even gross negligence insufficient to prove intent to deceive).

The Federal Circuit has explained that because direct evidence of deceptive intent is rarely available, such intent can be inferred from indirect and circumstantial evidence. *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1364 (Fed. Cir. 2007). Nonetheless, an inference of deceptive intent "must not only be based on sufficient evidence and be reasonable in light of that evidence, but it must also be the single most reasonable inference able to be drawn from the evidence to meet the clear and convincing standard." *Star Scientific*, 537 F.3d at 1366 (citing *Scanner Techs. Corp. v. ICOS Vision Sys. Corp.*, 528 F.3d 1365, 1376 (Fed.Cir.2008)("Whenever evidence proffered to show either materiality or intent is susceptible of multiple reasonable inferences, a district court clearly errs in overlooking one inference in favor of another equally reasonable inference")).

Under Rule 56 and Section 1.56, a duty of candor to the PTO is owed by (1) each named inventor, (2) each attorney or agent that prepares or prosecutes the application, and (3) every other

person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor or assignee. *Avid*, 603 F.3d at 973. In *Avid*, the Federal Circuit addressed the meaning of the phrase "substantively involved in the preparation or prosecution of the application." *Id*. The court held that "substantively involved" means "that the involvement relates to the content of the application or decisions related thereto, and that the involvement is not wholly administrative or secretarial in nature." *Id*. (citing Manual of Patent Examining Procedures § 2001.01 (8th ed., rev.2, May 2004)).

The burden of proving inequitable conduct lies with the accused infringer. *Star Scientific*, 537 F.3d at 1365 (citing *Ulead Sys., Inc. v. Lex Computer & Mgmt. Corp.*, 351 F.3d 1139, 1146 (Fed.Cir.2003)). "The need to strictly enforce the burden of proof and elevated standard of proof in the inequitable conduct context is paramount because the penalty for inequitable conduct is so severe, the loss of the entire patent even where every claim clearly meets every requirement of patentability." *Id*. Further, even where both materiality and intent to deceive are established by clear and convincing evidence, the court may decline to find a patent unenforceable on the basis of inequitable conduct. *Id*.

B. Prior Art Summary Judgment Motion

1. Background

In its Prior Art SJ Motion, Plaintiff seeks summary judgment that the following references that Defendants rely upon in support of their invalidity defenses do not qualify as prior art, as a matter of law:

1. The dissertation thesis by Stratakos entitled "High-Efficiency Low-Voltage DC-DC Conversion for Portable Applications" ("the Stratakos Thesis"): Volterra argues that the Stratakos Thesis is not prior art under either § 102(a) or (b). With respect to § 102(a), Plaintiff asserts that the undisputed evidence shows that the Stratakos Thesis was not publicly available at the time of invention – which Volterra asserts is April 3, 1998. Plaintiff's Prior Art SJ Motion at 1. Plaintiff further asserts that the Stratakos Thesis was not publicly available on the critical date under § 102(b), that is, February 4, 1999, and therefore also is not prior art under that provision. *Id*.

2. U.S. Patent Nos. 6,133,634 ("Joshi '634 Patent"), 6,489,678 ("Joshi '678 Patent") & 6,198,261 ("Schultz '261 Patent"): Volterra argues that these references do not qualify as prior art under §§ 102(a) or (b) because they were not issued before the April 3, 1998 invention date or the February 4, 1999 critical date. *Id*. In particular, the Joshi '634 Patent issued on October 17, 2000; the Joshi '678 Patent issued on December 3, 2002, and the Schultz '261 Patent issued on March 6, 2001. *Id.* at 15-16. Volterra further asserts that these references do not qualify as prior art under § 102(e) because the patent applications were not *filed* before the April 3, 1998 invention date. *Id*. In particular, the Joshi '634 application was filed on August 5, 1998; the Joshi '678 Patent resulted from a continuation-in-part filed on March 15, 1999, and the Schultz '261 application was filed on October 30, 1998. Finally, as to the Schultz '261 Patent, Volterra asserts that this reference also does not qualify as prior art under§§ 103(c) and 102(e) because the Schultz '261 Patent and the Burstein Patents were, at the time of the invention, owned by the same person or subject to an obligation of assignment to the same person. *Id*. at 18.

3. Xunwei Zhou's article entitled "Low-voltage High-efficiency Fast-transient Voltage Regulator Module ("Zhou") and International Patent Application Publication No. WO 99/31790 ("Stratakos '790 Publication"): Volterra asserts that these publications are not prior art under §§ 102(a) or (b) because they were not published before the April 3, 1998 invention date or the February 4,1999 critical date. *Id*. at 1, 15-16. Zhou is a dissertation thesis that is dated July 1999. *Id*. at 15. The Stratakos '790 Publication was published June 24, 1999.

4. U.S. Patent No. 6,020,729 ("Stratakos '729 Patent"): Volterra contends that the Stratakos '729 Patent is not prior art under §§ 102(a) and (b) because the patent issued on February 1, 2000, after the invention date and the critical date and further, that it does not qualify as prior art under §§ 103(c) and 102(e) because the Stratakos '729 Patent and the Burstein Patents were, at the time of invention, owned by the same person or subject to an obligation of assignment to the same person. *Id*. at 2, 17.

Volterra's prior art summary judgment motion rests on four main contentions: 1) the evidence establishes, as a matter of law, that the invention date of the asserted patents was April 3,

1998; 2) in any event, Defendants have conceded in their interrogatory responses that the invention was conceived and reduced to practice no later than December 1998; 3) the evidence establishes, as a matter of law, that the Stratakos Thesis was not publicly available until mid-February 1999, which is after both the invention date and the critical date; and 4) as to the Stratakos '729 Patent and the Schultz '261 Patent, these reference cannot be prior art under § 102(e) because they were commonly owned with the Burstein Patents at the time of the invention.

a. Evidence of Invention Date

In support of its contentions that the date of invention was April 3, 1998 and the first reduction to practice was September 5, 1998, Plaintiff cites to the declaration of Dr. Burstein describing the development of a device referred to as "Tut," which he contends was the first embodiment of the invention claimed in the asserted patents.[24] Plaintiff's Prior Art SJ Motion at 2 (citing Fisher Comb. Decl., Ex. 5 (Reply Declaration of Andrew Burstein in Support of Volterra Semiconductor Corporation's Motion for Entry of Preliminary Injunction ("Burstein Decl.")). According to Dr. Burstein, Tut was demonstrated at Volterra's offices on September 5, 1998 and shown to work as a buck regulator. Fisher Comb. Decl., Ex. 5 (Burstein Decl.) at ¶¶ 2-14. Volterra also offers the lab notebooks of Drs. Burstein and Nickel to corroborate the dates of conception and reduction to practice, along with the opinion of its expert, Dr. Szepesi, based on his review of the notebooks, that the inventors had a "definite and permanent idea of the complete and operative invention" by April 3, 1998. Plaintiff's Prior Art SJ Motion at 2 (citing Comb. Fisher Decl., Exs. 7 & 8 (notebooks); Ex. 22 (Szepesi 7/14/10 Rebuttal Report on Invalidity) at ¶¶ 376, 389-402). According to Volterra, the evidence supporting the April 3, 1998 conception date is overwhelming and largely undisputed and therefore, Plaintiff is entitled to summary adjudication as to this date. *Id.* at 9.

Defendants reject Volterra's position, arguing that Volterra bears a "heavy burden" to establish an invention date that is earlier than the presumed invention date of February 4, 2000, that

[24]Dr. Szepesi explains that "Tut" was the name used by Dr. Burstein and his colleagues to refer to an embodiment that used an integrated circuit chip that they called "Cop5" or "Copperhead." Szepesi 7/14/10 Rebuttal Report on Invalidity, ¶ 376. According to Dr. Szepesi, "Tut" was "comprised of the Cop5 device and input capacitors mounted to the interposer." *Id.* at ¶ 383.

is, the application date. Defendants' Opposition to Plaintiff Volterra Semiconductor Corporation's Motion for Partial Summary Judgment that Certain References Relied Upon by Defendants Do Not Qualify as Prior Art ("Defendants' Opposition to Plaintiff's Prior Art SJ Motion") at 10. According to Defendants, the evidence offered by Volterra to support its invention and reduction to practice dates is insufficient to meet this burden because: 1) it does not establish, as a matter of law, that either the concept or the prototype reducing the concept to practice included all of the claimed limitations of the invention; and 2) it consists solely of testimony and documents by the inventors, which is insufficient, as a matter of law, without corroborating evidence. *Id*. at 11 (citing *Mahurkar*, 79 F.3d at 1577; *Shu-Hui Chen v. Bouchard*, 347 F.3d 1299, 1309 (Fed. Cir. 2003)). At a minimum, Defendants assert, there are disputed issues of fact with respect to when the invention was conceived and reduced to practice that preclude summary adjudication of this issue. *Id*. at 12-21. In particular, Defendants cite to Dr. Fair's opinion that the April 3, 1998 entry in Dr. Burstein's lab notebook does not disclose all of the limitations of the asserted claims and that the Tut device tested on September 5, 1998 also did not include every claim limitation. *Id*. at 13 (citing Fair 9/10/10 Opposition Decl., ¶¶ 28-29, 31-34).

In its Reply brief, Volterra rejects Defendants' assertion that the conception and reduction to practice of the invention are not corroborated by independent evidence. Reply in Support of Plaintiff Volterra Semiconductor Corporation's Motion for Partial Summary Judgment that Certain References Relied Upon by Defendants do not Qualify as Prior Art ("Reply on Plaintiff's Prior Art SJ Motion") at 4-6. Volterra contends that the corroborating evidence of conception and reduction to practice is "overwhelming." *Id.* at 4. With respect to reduction to practice, Volterra cites, *inter alia*, declarations by David Lidsky and Aaron Schultz, coworkers of the inventors who were present for the September 5, 1998 test, as well as pictures of the devices that were tested that day. *Id*. at 4-5 (citing Reply Declaration of David Lidsky in Support of Plaintiff Volterra Semiconductor Corporation's Motion for Partial Summary Judgment That Certain Prior Art References Relied Upon by Defendants Do Not Qualify as Prior Art ("Lidsky Reply Decl.") & Reply Declaration of Aaron Schultz in Support of Plaintiff Volterra Semiconductor Corporation's Motion for Partial Summary Judgment That Certain Prior Art References Relied Upon by Defendants Do Not Qualify as Prior

Art ("Schultz Reply Decl.")). In addition, Volterra asserts, the declarations of Drs. Burstein, Schultz and Lidsky establish that the prototype that was tested on September 5, 1998 contained all the elements of the asserted claims. *Id.* at 6. Volterra also points to the opinions of its expert, Dr. Szepesi, who reviewed the documents and images of the device that was tested and found that it worked as a Buck regulator and contained all the claim limitations. *Id*. (citing Szepesi 7/14/10 Rebuttal Report on Invalidity, ¶¶ 377-388 & Comb. Fisher Decl., Ex. 23 (claim chart)). As to the April 3 conception date, Volterra argues that there is also extensive evidence, pointing to the declarations of Drs. Burstein, Lidsky and Schultz confirming that by late April and early May 1998, Volterra was in the process of proceeding to "tapeout"[25] of a flip-chip prototype embodying the Burstein inventions. *Id*. at 7.

b. Defendants' Interrogatory Responses

Volterra contends that even if the Court does not find, as a matter of law, that the invention was conceived in April 1998, Defendants have conceded that the invention date is no later than December 1998 by repeatedly asserting, in sworn interrogatory responses, that Volterra demonstrated an embodiment of the invention to Intel in December 1998. Plaintiff's Prior Art SJ Motion at 9. In particular, in their June 18, 2010 supplemental responses to Plaintiff's contention interrogatories, Defendants state as follows:

> In addition, claims 26 and 34 of the '264 Burstein Patents are anticipated under 35 U.S.C. § 102(b) based on Volterra's public use and/or offer for sale more than one year before the earliest priority date. The Plaintiff's various proposals to Intel to develop a voltage regulator more than one year before the filing date of the Burstein Patents represents an offer for sale, barring the patentability of claims 26 and 34 of the '264 patent. *In addition, the Plaintiff demonstrated and delivered a voltage regulator to Intel that embodied the inventions of the Asserted Claims more than one year before the earliest filing date of the Asserted Patents*, i.e., February 4, 2000.

Comb. Fisher Decl., Ex. 28 (Primarion's 3d Supp. Am. Resp. to 2d Set of Interrogs. No. 14 at 7, 9), Ex. 29 (Infineon NA's 3d Am. Supp. Resp. to 2d Set of Interrogs. No. 8 at 404-405), Ex. 30 (Infineon AG's 3d Am. Supp. Resp. to 2d Set of Interrogs. No. 8 at 407, 409) (emphasis added).

[25]According to Volterra, "tapeout" refers to "finalizing the design details of a device in an electronic database, which is then used to generate an electronic file which is provided to the semiconductor fabricator. It usually takes about four to six weeks for ICs to be fabricated once the IC is taped out." *Id*. at 7 n. 9 (citing Lidsky Reply Decl., ¶ 4).

In their Opposition, Defendants do not dispute that they contend, in the context of their on-sale bar defense, that an embodiment demonstrated at Intel in December 1998 included all the claim limitations of the asserted patents. Defendants' Opposition to Plaintiff's Prior Art SJ Motion at 17 n. 7. However, they reject Volterra's assertion that Primarion has thereby conceded that for the purposes of determining whether references constitute prior art, the invention date was no later than December 1998. *Id*. Defendants state their position as follows:

> Primarion does not agree that Drs. Burstein and Nickel conceived and reduced to practice all limitations of the claimed inventions before February 4, 2000 for purposes of proving an earlier reduction to practice date. But if Volterra contends that the device they made and disclosed to Intel before February 4, 1999 reduced the claimed invention to practice, then Primarion will rely on Volterra's contention for the limited purpose of showing a prior use or sale more than one year before the filing date of the Burstein Patents.

Id.

Volterra argues in its Reply that Defendants cannot escape the binding effect of their interrogatory responses. Reply on Plaintiff's Prior Art SJ Motion at 3 n.4 (citing Fed. R. Civ. P. 33(b)(3), *Jack v. Trans World Airlines, Inc.*, 854 F. Supp. 654, 660 (N.D. Cal. 1994), *Huthnance v. District of Columbia*, 255 F.R.D. 297 (D.D.C. 1998)). It does not, however, address Defendants' suggestion that if Defendants are bound by the December 1998 invention date based on the embodiment that was demonstrated at Intel, Plaintiff should likewise be bound in connection with Defendants' on-sale bar defense and therefore be precluded from arguing that the embodiment that was demonstrated at Intel did not include all of the elements of the asserted patent. The Court notes, however, that in a separate brief, Volterra suggests that it does not concede this point. *See* Reply in Support of Motion for Partial Summary Judgment and Notice of No Invalidity Based on Alleged Prior Public Use or On-Sale Bar Pursuant to 35 U.S.C. §102(b) ("Reply on Plaintiff's On-Sale Bar SJ Motion") at 2 n. 1("Defendants have also not presented *any* evidence to establish precisely what was disclosed to Intel in December, 1998 (i.e. what was demonstrated or allegedly delivered) or that what was disclosed was in fact an embodiment of the Asserted Claims. This too is fatal to their claim").

c. Public Availability of Stratakos Thesis

In support of its assertion that the Stratakos Thesis was not publicly available until after the

April 3, 1998 invention date or the February 4, 1999 critical date, Plaintiff points to evidence relating to the general procedures at UC Berkeley for making dissertation theses available, specific evidence relating to the cataloguing and shelving of the Stratakos Thesis, and the practices of ProQuest LLC, which maintains a database of dissertation abstracts. Plaintiff's Prior Art SJ Motion at 10-11. In particular, Volterra points to the following evidence that the Stratakos Thesis was not publicly available until well after mid-February 1999: 1) a declaration by UC Berkeley's Assistant Director of Graduate Studiesm, Jeret Lemontt, stating that once a student's dissertation committee has approved a dissertation thesis, it is stored in a box and is not sent to the main library or ProQuest until after the Graduate Division has finalized the degree by confirming that all graduation requirements have been met and stating further that a degree completed in the fall term would not be finalized any sooner than February 15 of the following year. Fisher Comb. Decl., Ex. 24 (Declaration of Jeret Lemontt in Support of Volterra Semiconductor Corporation's Motion for Preliminary Injunction ("Lemontt Decl.")); 2) a declaration by ProQuest customer service representative Heather Milliken stating that the Stratakos Thesis first became available on ProQuest in September 1999. Declaration of Heather Milliken ("Milliken Decl."); 3) a declaration by the Head Librarian at Kresge Engineering Library of UC Berkeley, Jean McKenzie, stating that a temporary record for the Stratakos Thesis was created on February 18, 1999, but that the thesis was subsequently sent out for binding and was not returned to the Kresge Library until October 7, 1999 and thus was not available to the public until after October 7, 1999. Fisher Comb. Decl., Ex. 27 (Declaration of Jean McKenzie in Support of Volterra Semiconductor Corporation's Motion for Preliminary Injunction ("McKenzie Decl.")); and 4) a declaration by the head of UC Berkeley's Cataloguing Department, Armanda Barone, confirming that the first record of the Stratakos Thesis in the system was February 18, 1999 and that Kresge Library did not receive the bound version of the thesis until October 7, 1999. Declaration of Armanda Barone ("Barone Decl.")).

Defendants do not challenge Volterra's evidence relating to the dates the Stratakos Thesis was first catalogued, shelved and made available through ProQuest. Defendants' Opposition to Plaintiff's Prior Art SJ Motion at 4. Rather, they contend that these dates are not relevant because even before the Stratakos Thesis was catalogued and shelved, it could be located by virtue of a

mention of it in a "research aid," namely, a citation to the Stratakos Thesis in an academic paper presented at an electronics symposium by Drs. Jan Rabaey and Hui Zhang in August 1998 entitled "Low-Swing Interconnect Interface Circuits" ("the Zhang Article"). *Id*. (citing Declaration of Jeffrey R. Gargano in Support of Defendants' Oppositions to Volterra's Motions for Summary Judgment ("Gargano Opposition Decl."), Ex. 98 (Zhang Article). The Zhang Article was published by the Association for Computing Machinery, Inc. and carries a publication date of 1998. Gargano Opposition Decl., Ex. 98. The list of references at the end of the article includes the following citation:

> [7] A.J. Stratakos, *High-Efficiency Low-Voltage DC-DC Conversion for Portable Applications*, Ph.D. Dissertation, UC Berkeley, 1998.

Id. The text within the Zhang Article to which this reference is linked states as follows:

> **5. PROPOSED INTERFACE CIRCUITS**
> We now present several modified or novel low-swing interconnect interface circuits to address some problems of the earlier schemes. For robustness sake, we only selected static drivers and avoided floating interconnect. The first two schemes use a single supply voltage for the drivers, while the rest need extra supplies. These can be realized on-chip with power-efficiencies around 90% [7].

Id. According to Defendants, because the Stratakos Thesis was included as a reference in the Zhang Article and contained the thesis title, author's name, institution and publication date, it was sufficient to guide a person skilled in the art to the Stratakos Thesis. *Id*.

Plaintiff rejects Defendants' reliance on the Zhang Article, offering declarations by its authors (who were part of the same department at U.C. Berkeley as Stratakos at the time they wrote the paper) stating that while they cited to the Stratakos Thesis, they did not recall having seen the written document, which had not yet been finalized, and were referring instead to information exchanged in internal discussions within the Electrical Engineering Department. Plaintiff's Prior Art SJ Motion at 12 (citing Declaration of Professor Jan Rabaey ("Rabaey Decl."), Declaration of Hui (Tom) Zhang ("Zhang Decl.")). Professor Rabaey explains that the Stratakos Thesis was cited "only for the generic proposition that on-chip power efficiency of around 90% was possible during the August 1998 time frame," which the authors understood was "something that had been established by Dr. Stratakos' work." Rabaey Decl., ¶ 7. Dr. Rabaey notes that another reference in

the Zhang Article similarly cites a dissertation by a member of the U.C. Berkeley Electrical Engineering Department, Thomas Burd, that was based on internal conversations rather than the finalized document. Raebey Decl., ¶ 8. The Burd dissertation was not published until 2001, even though the reference in the Zhang Article lists its publication date as 1998. *Id*. Plaintiffs also point to Dr. Stratakos' statement that he did not give or show a copy or any draft version of his Ph.D. thesis to either Professor Rabaey or Hui (Tom) Zhang before he finished drafting it in late 1998. Plaintiff's Prior Art SJ Motion at 12 (citing Declaration of Anthony Stratakos in Support of Volterra's Motions for Summary Judgment ("Stratakos SJ Decl."), ¶ 7). Finally, Plaintiff points to Dr. Stratakos' statement in his declaration that at the time the Zhang Article was written, he had not yet written the sentence referring to "flip-chip solder bump . . . technologies" that Defendants rely upon in support of their anticipation and obviousness arguments. *Id*. (citing Stratakos SJ Decl., ¶ 6).

d. Common Ownership Under § 103(c)

Plaintiff asserts that as to the Schultz '261 Patent and the Stratakos '729 Patent, there is an additional ground for holding, as a matter of law, that these references are not prior art, namely, that they were commonly owned with the Burstein inventions at the time the Burstein inventions were made. Plaintiff's Prior Art SJ Motion at 17-18 (citing Declaration of David Lidsky in Support of Plaintiff Volterra Semiconductor Corporation's Motions for Summary Judgment ("Lidsky Motion Decl.")(stating that all three were owned by Volterra). Thus, Volterra contends, to the extent these inventions are not prior art under §§ 102(a) & (b), they also cannot be prior art under § 102(e).

Defendants do not dispute that the Schultz '261 Patent, the Stratakos '729 Patent and the Burstein inventions were commonly owned. *See* Defendants' Opposition to Plaintiffs' Prior Art SJ Motion at 9. Rather, they argue that § 103(c)(1) does not apply because it is limited to references that are prior art *only* under subsections (e), (f) or (g) whereas here, the references at issue are also prior art under § 102(a). *Id*. at 8-9.

2. Analysis

a. Invention Date

Volterra asserts that it is entitled to summary judgment as to certain prior art references on the basis that the undisputed evidence shows that the invention date for the Burstein Patents is April 3, 1998. Defendants are incorrect when they assert that Plaintiff's evidence as to the conception and reduction to practice of the invention fails, as a matter of law, because it consists of the inventor's testimony and is not corroborated by independent evidence. Volterra's evidence is not limited to inventor testimony and notebooks but also includes testimony of coworkers who observed the alleged reduction to practice, as well as pictures of the prototype that was tested. This is sufficient evidence from which a jury could reasonably conclude that the invention was conceived in April 1998. *See Cooper v. Goldfarb*, 154 F.3d 1321, 1330 (Fed. Cir. 1998) (holding that testimony of two coworkers was adequate to corroborate inventor's testimony regarding conception and reduction to practice). On the other hand, Defendants have produced the testimony of their expert, who has reviewed the notebooks and photographs, opining that elements of the invention were not disclosed in the notebooks or photographs and that the evidence presented by Volterra also does not establish that the prototype that was tested on September 5, 1998 included all of the limitations of the asserted claims. The Court finds that this evidence is sufficient to create an issue of fact as to the April 1998 conception date and the September 5, 1998 reduction to practice date. Therefore, the Court declines to enter summary judgment in favor of Volterra to the extent its Prior Art SJ Motion is based on these two dates.

Volterra, however, argues in the alternative that summary judgment should be entered as to a number of prior art references based on Defendants' interrogatory responses contending that Volterra used the invention in December 1998, when it demonstrated an embodiment of the invention at Intel.[26] According to Plaintiff, this contention is binding on Defendants and establishes that the invention was conceived no later than December 1998 for the purposes of determining

[26]According to Volterra, references that were published after December 1998 include the Stratakos Thesis, the Zhou Article, the application that led to the Joshi '678 Patent, the Stratakos '729 Patent and PCT Publication No. WO 99/31790. Reply on Plaintiff's Prior Art SJ Motion at 1 n. 2.

which references are prior art. The Court declines Volterra's invitation to bind Defendants to their interrogatory responses.

Rule 33 of the Federal Rules of Civil Procedure governs the use of interrogatory responses. The comment to the 1970 Amendment made clear that contention interrogatories were permitted, a question as to which there was conflicting authority at the time. As to whether the responses to such interrogatories would be binding, the comment offers the following explanation:

> The principal question raised with respect to the cases permitting [contention] interrogatories is whether they introduce the undesirable aspects of the prior pleading practice, whereby parties were chained to misconceived contentions or theories, and ultimate determination on the merits was frustrated. . . . The general rule governing the use of answers to interrogatories is that under ordinary circumstances they do not limit proof. . . Although in exceptional circumstances reliance on an answer may cause such prejudice that the court will hold the answering party bound to his answer . . . the interrogating party will ordinarily not be entitled to rely on the unchanging character of the answers he receives and cannot base prejudice on such reliance. The rule does not affect the power of the court to permit withdrawal or amendment of answers to interrogatories.

Fed. R. Civ. P. 33, Comment, 1970 Amendment (citations omitted); *see also* C. Wright & A. Miller, *Federal Practice and Procedure* § 2180 (2010) ("unfair results would follow [from permitting contention interrogatories] only if the answers are given a more conclusive effect than they should be. Although interrogatory answers – like other discovery responses – may properly limit issues and foreclose avenues of proof, those consequences should only follow when appropriate"). Thus, the Ninth Circuit has held that interrogatory responses generally are not binding. *See Donovan v. Crisostomo*, 689 F.2d 869, 875 (9th Cir. 1982) (citing *Marcoin, Inc. v. Edwin K. Williams & Co., Inc*., 605 F.2d 1325, 1328 (4th Cir. 1979) (stating that there is "some discretion in the trial judge as to the weight to be given to answers to interrogatories")); *see also Synopsys, Inc. v. Magma Design Automation, Inc.*, 2006 WL 825277, at *10 (N.D.Cal., March 30, 2006) (rejecting patentee's argument that alleged infringer had admitted reduction to practice date in its interrogatory responses on the basis that the answers were given in response to interrogatories under Rule 33 rather than requests for admissions under Rule 36 and therefore were not binding); *Intellect Wireless, Inc. v. T-Mobile USA, Inc.*, 2010 WL 3257924, at *5 n. 5 (N.D. Ill.) ("courts, particularly in patent suits, generally still do not treat responses to contention interrogatories as binding").

Here, the Court does not find it appropriate to bind Defendants to their interrogatory responses regarding the invention date. Defendants have made clear from the outset of this case that they intend to challenge the validity of the Burstein Patents on the basis of the 1998 demonstration to Intel. They have also made clear from early on that they challenge the April 1998 conception date alleged by Volterra. While these theories may be factually inconsistent, Volterra will not be so prejudiced that Defendants should be bound by their interrogatory responses. Therefore, the Court rejects Volterra's assertion that the responses should be binding as to the December 1998 date.[27]

Because material factual disputes remain as to whether the invention date was earlier than the critical date or the filing of the application, Plaintiff's motion is denied to the extent it is based on the April 3, 1998 alleged invention date.

b. When Stratakos Thesis Was Publicly Available

Plaintiff seeks summary judgment that the Stratakos Thesis was not publicly available before the invention date or the critical date and therefore is not prior art under §§ 102(a) or (b). As discussed above, fact questions remain as to the invention date. To the extent that a jury might conclude that the invention date was after October 7, 1999 – the date Volterra concedes the Stratakos Thesis was catalogued and available on the shelf at Kresge Library – Volterra is not entitled to summary judgment that the Stratakos Thesis is not prior art under § 102(a) on the basis that it was not publicly available at the time of the invention. On the other hand, the Court agrees with Volterra that the undisputed evidence establishes that the Stratakos Thesis was not publicly available before the February 4, 1999 critical date.

Defendants do not challenge the evidence presented by Volterra that the earliest record of Dr. Stratakos' Thesis in the U.C. Berkeley library system was February 18, 1999, that a dissertation submitted for fall semester graduates would not have been passed on to the library system any sooner than February 15 of the following year, that the Stratakos Thesis was not placed on the shelf at Kresge Library until October 7, 1999 or that the dissertation was not listed in the ProQuest Database

[27]The Court leaves open, however, the question of whether the jury will require instruction to avoid the potential confusion that may arise as a result of Defendants' decision to advance defenses based on alternative theories that may be factually inconsistent, or whether an election is required.

until September 1999. Rather, Defendants rely on the Zhang Article to establish public availability, arguing that the facts here are analogous to the fact in *Cornell University v. Hewlett-Packard Co.*, 2008 U.S. Dist. LEXIS 39343, at *21-22 (N.D.N.Y. May 14, 2008). That case is not on point.

In *Cornell University v. Hewlett-Packard Co.*, the court found that a dissertation thesis was publicly available for two reasons. First, the dissertation could be obtained from the library where it was stored upon request (as was stated on the face page of the dissertation itself), and borrowers' signatures established that three individuals had actually borrowed the dissertation at issue before the critical date. 2008 U.S. Dist. LEXIS 39343, at *16-17. Second, although dissertations were only listed by the author's name and date in the library's catalogue and did not include a title or abstract, the dissertation at issue was cited in an article that appeared in a prominent publication; that article stated that the dissertation provided a "specific illustration" of the principle discussed in the article. *Id*. at * 17-18. The court concluded that the article provided a research aid that would have allowed a person skilled in the art to access the dissertation thesis.

The facts here are quite different. In contrast to the facts of the *Cornell* case, there is no evidence that at the time the Zhang Article was published the Stratakos Dissertation could be obtained by request, whether from the University library system or anywhere else. Rather, all of the evidence in the record establishes that the Stratakos Dissertation was not yet available to the public and indeed, had not even been completed. Because no reasonable jury could find that the Stratakos Thesis was publicly available before the February 4, 1999 critical date, Plaintiff is entitled to summary judgment that the Stratakos Thesis is not prior art under § 102(b).

c. Common Ownership

Volterra asserts that the Schultz '261 Patent and the Stratakos '729 Patent were commonly owned, along with the Burstein invention, by Volterra and therefore, that these references cannot be prior art under § 102(e) because of the limitation contained in § 103(c)(1). Defendants do not dispute that all three were commonly owned. Rather, they assert that the Schultz '261 Patent and the Stratakos '729 Patents are prior art under §§ 102(a) and (b) and therefore, that § 103(c)(1), which applies to references that are prior art *only* under subsections (e), (f) or (g), does not apply. Thus, Volterra's request for summary judgment that the Schultz '261 Patent and the Stratakos '729 Patent

are not prior art under § 102(e) depends upon whether there are fact questions as whether these same references are prior art under §§ 102(a) and (b).

The Schultz '261 Patent issued on March 6, 2001, after the Febrary 4, 1999 critical date and after the presumptive invention date, which is the date the Burstein parent application was filed, that is, February 4, 2000. Thus, to the extent that the Schultz '261 Patent might be prior art under § 102(e), the exclusion contained in § 103(c)(1) applies. Therefore, Volterra is entitled to summary judgment that the Schultz '261 Patent does not qualify as prior art under § 102(e).

The Stratakos '729 Patent issued on February 1, 2000. This date is after the critical date and therefore, this reference is not prior art under § 102(b). However, because a fact question remains as to the date of the Burstein invention, and in light of the fact that the Stratakos '729 Patent issued *before* the presumed February 4, 2000 invention date, the Court cannot find, as a matter of law, that this reference is not prior art under § 102(a). Therefore, the Court also cannot resolve the question of whether this reference is prior art under § 102(e).

d. Conclusion

For the reasons stated above, the Court rules as follows on Plaintiff's Prior Art SJ Motion:

1. Stratakos Thesis: Because fact questions remain as to the invention date, Volterra's request for summary judgment that the Stratakos Thesis is not prior art under § 102(a) is DENIED. Because the Court finds, as a matter of law, that the Stratakos Thesis was not publicly available as of February 4, 1999, Volterra's request for summary judgment that the Stratakos Thesis is not prior art under § 102(b) is GRANTED.

2. Joshi '634 Patent: Because the Joshi '634 Patent issued on October 17, 2000, after the presumed invention date of February 4, 2000 and the critical date of February 4, 1999, summary judgment that the Joshi '634 Patent is not prior art under §§ 102(a) and (b) is GRANTED. Because the Joshi '634 Patent application was filed August 5, 1998, before the presumed invention date, and fact questions remain as to whether the Burstein invention was conceived on April 3, 1998, as Volterra contends, Volterra's request for summary judgment that the Joshi '634 Patent is not prior art under § 102(e) is DENIED.

3. Joshi '678 Patent : Because the Joshi '678 Patent issued on December 3, 2002, after the presumed invention date of February 4, 2000 and the critical date of February 4, 1999, summary judgment that the Joshi '678 Patent is not prior art under §§ 102(a) and (b) is GRANTED. Because the Joshi '678 Patent application was filed March 15, 1999, before the presumed invention date, and fact questions remain as to whether the Burstein invention was conceived on April 3, 1998, as Volterra contends, Volterra's request for summary judgment that the Joshi '678 Patent is not prior art under § 102(e) is DENIED.

4. Schultz '261 Patent: Because the Schultz '261 Patent issued on March 6, 2001, after the presumed invention date of February 4, 2000 and the critical date of February 4, 1999, summary judgment that the Schultz '261Patent is not prior art under §§ 102(a) and (b) is

GRANTED. Because it is undisputed that the Schultz '261 Patent and the Burstein invention were commonly owned, Volterra's request for summary judgment that the Schultz '261 Patent is not prior art under § 102(e) is also GRANTED.

5. Zhou: Because the publication date on Zhou is July 1999, after the critical date of February 4, 1999, Volterra's request for summary judgment that Zhou is not prior art under § 102(b) is GRANTED. Because the Zhou publication date is before the presumed invention date of February 4, 2000, and fact questions remain as to whether the Burstein invention was conceived on April 3, 1998, as Volterra contends, Volterra's request for summary judgment that the Zhou Article is not prior art under § 102(a) is DENIED.

6. Stratakos '790 Publication: Because the publication date on the Stratakos '790 Publication is June 24, 1999, after the critical date of February 4, 1999, Volterra's request for summary judgment that the Stratakos '790 Publication is not prior art under § 102(b) is GRANTED. Because the publication date of the Stratakos '790 Publication is before the presumed invention date of February 4, 2000, and fact questions remain as to whether the Burstein invention was conceived on April 3, 1998, as Volterra contends, Volterra's request for summary judgment that the Stratakos '790 Publication is not prior art under § 102(a) is DENIED.

7. Stratakos '729 Patent: Because the Stratakos '729 patent issued February 1, 2000, after the critical date of February 4, 1999, Volterra's request for summary judgment that the Stratakos '729 Patent is not prior art under § 102(b) is GRANTED. Because the Stratakos '729 Patent issued before the presumed invention date of February 4, 2000, and fact questions remain as to whether the Burstein invention was conceived on April 3, 1998, as Volterra contends, Volterra's request for summary judgment that the Stratakos '729 Patent is not prior art under § 102(a) is DENIED. Because § 103(c)(1) limits the definition of prior art under § 102(e) only if the Stratakos '729 Patent is *not* prior art under § 102(a), the Court also denies Volterra's request for summary judgment that the Stratakos '729 patent is not prior art under § 102(e). However, the Court finds, as a matter of law, that the Burstein invention and the Stratakos '729 Patent were commonly owned at the time of invention.

C. Motions for Summary Judgment Based on Anticipation and Obviousness

1. Background

a. Defendants' Sicard SJ Motion

In their Sicard SJ Motion, Defendants assert that, as a matter of law, claims 26 and 34 of the '264 Patent and claims 22 and 24 of the '522 Patent (hereinafter, "the Metalized Pad Claims") are anticipated by U.S. Patent No. 5,945,730 ("Sicard" or "the Sicard Patent"). In addition, Defendants seek summary judgment that these claims are rendered obvious in light of Sicard in combination with: 1) the knowledge of a person of skill in the art; 2) the Stratakos 1994 Article; and 3) the Stratakos 1994 Article, the prior art cited during prosecution of the '264 Patent and other prior art disclosing doped regions in an alternating patter (hereinafter, the "Alternating Pattern" References").

b. Defendants' Stratakos SJ Motion

In their Stratakos SJ Motion, Defendants seek summary judgment that claims 9, 11, and 16-19 of the '522 patent (hereinafter, the "Flip-Chip Claims") are anticipated by the Stratakos 1994 Article, asserting that all of the limitations of these claims are disclosed, either expressly or inherently, in the Stratakos 1994 Article. Defendants further assert that even if the Court concludes that the Stratakos 1994 Article does not disclose the flip-chip limitation and therefore does not anticipate the Flip-Chip Claims, these claims are obvious, as a matter of law, based on the Stratakos 1994 Article in view of a book edited by John H. Lau entitled "Chip on Board Technologies for Multichip Technologies," published by Chapman & Hall in 1994 ("Lau Chip on Board Book"). In support of this position, Defendants assert that a person of skill in the art would be motivated to combine the two references because of the known benefits of flip-chip packaging and the widely-known problems associated with wire-bonding. Further, Defendants argue, to the extent that Plaintiff points to disputed facts relating to "secondary considerations" of non-obviousness, this evidence is not sufficient to defeat summary judgment because Volterra has not established a nexus between the claimed invention and the secondary considerations.

c. Plaintiff's Anticipation SJ Motion

In its Anticipation SJ Motion, Volterra seeks summary judgment that: 1) Sicard does not anticipate the Metalized Pad Claims; 2) the Stratakos 1994 Article does not anticipate the Flip-Chip Claims; and 3) the Stratakos Thesis does not anticipate the Flip-Chip Claims.

d. Plaintiff's Obviousness SJ Motion

In its Obviousness SJ Motion, Plaintiff seeks summary judgment of non-obviousness on several grounds. First, it asserts that it is entitled to summary judgment that the Flip-Chip Claims are not obvious because Defendants have failed to produce evidence that it would have been obvious to combine flip-chip packaging with an integrated circuit containing a power switch for a voltage regulator, especially in light of undisputed evidence that at the time of the invention, technical challenges and drawbacks associated with the use of flip-chip packaging in an integrated circuit chip including a power switch for a voltage regulator were well-known to those skilled in the art and that the prior art taught away from such a combination.

Second, Plaintiff requests summary judgment that for the purposes of obviousness, no reasonable jury could find that the Stratakos 1994 Article teaches flip chip or suggests a motivation to combine an integrated circuit chip containing a power switch for a voltage regulator with flip-chip packaging. Thus, Plaintiff asserts, it is entitled to summary judgment as to the obviousness combination relying on the Stratakos 1994 Article to invalidate the Flip-Chip Claims.

Third, Plaintiff asserts that because Sicard does not disclose the limitations of "metalized pads," "power switch for a voltage regulator" or "solder balls," (for the reasons stated in Volterra's Anticipation SJ Motion), summary judgment should be entered that all of the obviousness combinations that rely on Sicard alone to teach these limitations fail as a matter of law.

2. Whether the Metalized Pad Claims Are Anticipated by Sicard

a. Defendants' Position

Defendants assert that the Court should grant summary judgment of invalidity as to the Metalized Pad Claims on the basis that Sicard discloses every element of these claims and therefore, these claims are anticipated as a matter of law.

First, Defendants produce evidence that Sicard discloses all of the elements of claim 26 of the '264 patent, namely, an integrated circuit chip with a power switch for a voltage regulator fabricated thereon, a substrate with an alternating pattern of doped regions, an array of metalized pads fabricated on a surface of the substrate, and electrical connections connecting the first plurality of pads to the first plurality of doped regions and the second plurality of pads to the second plurality of doped regions. *See* Defendants' Sicard SJ Motion at 5-7; Fair Decl. in Support of Defendants' Sicard SJ Motion, ¶¶ 92-104 & Claim Chart 1 at 2-7.

Second, Defendants produce evidence that Sicard discloses the additional limitation of dependent claim 34 calling for solder balls that are connected to the pads in claim 26. *See* Defendants' Sicard SJ Motion at 11; Fair Decl. in Support of Defendants' Sicard SJ Motion ¶¶ 104-115 & Claim Chart 1 at 7-8.

Third, as to claim 22 of the '522 patent, which is identical to claim 26 of the '264 Patent with the exception of one additional claim element calling for a "gate region on the substrate separating the first plurality of doped regions and the second plurality of doped regions," Defendants produce

evidence that this element also is found in Sicard. Sicard SJ Motion at 16-17; Fair Decl. in Support of Defendants' Sicard SJ Motion, ¶¶ 106-114 & Claim Chart 4 at 2-7.

Finally, Defendants produce evidence that claim 24 of the '522 patent is anticipated by Sicard because the additional limitation of that claim, calling for a gate region that is a "unitary gate structure that separates adjacent doped regions," is also satisfied. Sicard SJ Motion at 17; Fair Decl. in Support of Defendants' Sicard SJ Motion, ¶115 & Claim Chart 4 at 7.

b. Plaintiff's Position

Volterra, in turn, seeks summary judgment that the metalized pad claims are *not* anticipated by Sicard. First, as to claim 26 of the '264 Patent, Volterra points to evidence that Sicard does not disclose the following limitations: 1) a power switch for a voltage regulator; 2) metalized pads; and 3) a second plurality of doped regions or a first and second plurality of doped regions arranged in an alternating pattern. Plaintiff's Anticipation SJ Motion at 6-10; Plaintiff's Opposition to Defendants' Sicard SJ Motion at 9-13; Szepesi 7/14/10 Rebuttal Report on Validity, ¶¶ 59-99; Rebuttal Expert Report of Dr. John Bravman Regarding Validity of U.S. Patent Nos. 6,278,264 and 6,462,522 ("Bravman Validity Report"), ¶¶ 116, 117, 119, 122-24, 126.

Second, as to dependent claim 34 of the '264 Patent, Volterra argues that Sicard does not disclose the additional "solder ball" limitation of that claim. Plaintiff's Anticipation SJ Motion at 10-11; Plaintiff's Opposition to Defendants' Sicard SJ Motion at 13-14; Szepesi 7/14/10 Rebuttal Report on Validity, ¶¶ 106-115; Bravman Validity Report, ¶¶ 116, 117, 119, 122-24, 126.

Third, with respect to claim 22 of the '522 Patent, Volterra points to evidence that Sicard does not disclose a gate region separating the first and second pluralities of doped regions. Plaintiff's Anticipation SJ Motion at 11; Plaintiff's Opposition to Defendants' Sicard SJ Motion at 15-16; Szepesi 7/14/10 Rebuttal Report on Validity, ¶¶ 100-105.

c. Analysis

The Court finds, as a matter of law, that Sicard does not disclose all of the limitations of the metalized pad claims and therefore, that Volterra is entitled to summary judgment that Sicard does not anticipate these claims. Below, the Court addresses each of the disputed claim limitations.

i. Power switch for a voltage regulator

The preamble of claim 26 of the '264 Patent and claim 22 of the '522 Patent calls for a "power switch for a voltage regulator." The parties agree that this requirement is a claim limitation, even though it is contained in the preamble of these claims. Defendants, however, argue that the evidence presented by Volterra to show that the invention disclosed by Sicard was *not* a device that would have been suitable for use in a voltage regulator is not relevant because it addresses features of voltage regulator switches that are not addressed in *other* limitations of the Metalized Pad Claims. Defendants instead point to their own expert's opinion that the LDMOS power transistor device disclosed in Sicard is a "power switch," as that term has been construed by the Court, and argue that a person of skill in the art would understand that power switches can be used in voltage regulators. The Court rejects Defendants' approach, as well as its ultimate conclusion. The question before the Court is whether a jury could reasonably find, based on the evidence produced by Defendants, that a person of skill in the art would conclude that the invention disclosed in Sicard was *for a voltage regulator*, as required by the preamble of the Metalized Pad Claims. The Court concludes that it could not.

In support of their contention that Sicard meets the limitation preamble, Defendants cite to statements by its expert that: 1) Sicard discloses "an integrated circuit chip with a power transistor, which a person of skill in the art would understand could act as a switch," *see* Fair Decl. in Support of Defendants' Sicard SJ Motion, ¶¶ 92-93; and 2) "[t]he LDMOS device of Sicard would, in general, operate easily as a switching element at the frequencies required by a switching voltage regulator." *See* Supplemental Declaration of Richard B. Fair, Ph.D., In Support of Defendants' Motions for Summary Judgment ("Fair 9/24/10 Supp. Decl."), ¶ 5. Defendants do not, however, point to evidence that the device that was actually disclosed by Sicard would have been suitable for use as a power switch for a voltage regulator.

In contrast, Volterra's expert offers a detailed explanation of why a person skilled in the art would have understood that the Sicard device would not have been suitable for such a use. *See* Szepesi 7/14/10 Rebuttal Report on Validity ,¶¶ 59-77. First, he cites to prior art showing that a

person of skill in the art knew in 1998 that power switches for switching regulators were expected to be efficient and operate at high switching frequency and further, that in order to achieve small and efficient voltage regulator solutions, it was necessary to minimize the on-resistance and the gate capacitances of the MOSFET transistor used in the power switch, and to reduce parasitic inductance. *Id*.

Second, he points to the disclosures in the specification and claims of the Sicard Patent to show that the Sicard invention was neither intended to be, nor is appropriate for, a switching regulator application. *Id*. As a preliminary matter, Sicard does not mention or refer to such a use anywhere in the patent. More importantly, the description and claims indicate that Sicard's invention was suitable for a very different kind of application and *was not* suitable for use as a switching regulator. In particular, the specification states that the invention is appropriate for use as a static switch, such as a load switch. *Id*. ¶¶ 72-73 (citing Sicard, col 4: 50-57). For example, the Sicard specification states:

> By utilizing thick metal or any other material of high conductivity [for the frame] and also bumps spread across the metal conductors on the semiconductor regions, the resistance of the final metal interconnects can be significantly reduced . . . . This significant reduction in the device resistance ensures that the power device in accordance with the present invention can sustain higher currents, in the order of 15-20A, for the same power level . . .compared to the prior art arrangements. This is particularly useful in applications requiring the integration of logic and power devices on the same chip with continuous operation at power levels of above 5A.

Sicard, col 4: 41-57. Dr. Szepesi explains that load switches are widely used in automotive applications to turn off high-current loads such as headlights, break lights or small motors, and that because these switches operate at very low frequency compared to switching voltage regulators, dynamic switching losses in LDMOS transistors designed for such applications are immaterial. Szepesi 7/14/10 Rebuttal Report on Validity, ¶ 73. Because Sicard's invention disclosed a load switch, and was not intended to work as a switch for a voltage regulator, Dr. Szepesi opines, Sicard did not address any dynamic properties and dynamic/switching losses or make any references to high frequency switching. *Id*., ¶ 76. Further, Sicard's invention, as shown in Figure 6, is designed in such a way as to have an unusually high gate to drain capacitance, leading to large dynamic switching losses – another indication that the Sicard invention would not be used in a switching device for a

voltage regulator. *Id*., ¶¶ 68-89. Finally, Dr. Szepesi points to Sicard's use of a high voltage p-well, PHV, in Figure 6, which Dr. Fair conceded was a high voltage transistor. *Id*., ¶ 75 (citing Fair Depo., Nov. 20, 2009 at 209). According to Dr. Szepesi, the use of a high voltage transistor is a further indication that the Sicard device was designed to be used in automotive load switch applications, which require high voltage transistors. *Id.*

In the face of Dr. Szepesi's testimony, no reasonable jury could conclude that the Sicard device was a switching device for a voltage regulator. *See Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*, 868 F.2d 1251 (1989). In *Corning Glass*, the preamble of the asserted claim called for an "optical waveguide." *Id*. at 1256. The defendants asserted that the claim was anticipated on the basis of an earlier patent which disclosed a device that they asserted could function as an optical waveguide, even though the prior art patent did not call the device an optical waveguide. *Id*. In making this argument, the defendants took the position that the words "optical waveguide" in the preamble did not constitute a claim limitation but rather, that the patentee had merely specified a new use for an old structure. *Id*. The Federal Circuit rejected this argument, however, reasoning that the specification of the asserted patent "ma[de] clear that the inventors were working on the particular problem of an effective optical communication system not on general improvements in conventional optical fibers." *Id*. at 1257. The court continued, "[t]o read the claim in light of the specification indiscriminately to cover all types of optical fibers would be divorced from reality." *Id*. Consequently, the court concluded that the claim preamble was a limitation. *Id*. On the basis of that conclusion, the court further held that the prior art did not disclose a device that functioned as an optical waveguide, as described in the specification of the asserted patent, even though the prior art device could function as a "waveguide," albeit poorly. *Id*. The court noted that its holding did not amount to reading extraneous limitations from the specification into the claims but rather, properly relied on the specification to interpret the meaning of the words in the claim. *Id.*

Similarly, the preamble of the Metalized Pad Claims, as the parties agree, is a claim limitation. This means that in order to anticipate, it is not enough that a prior art device might possibly be used as a power switch for a switching regulator. Rather, it must be disclosed in a manner that would be sufficient for a person skilled in the art to conclude that the device was to be

used for such an application. Where, as here, the prior art utterly fails to address the key considerations required of such an application at the relevant time period, and further, does not meet the requirements that were generally understood to apply and that were addressed in detail in the asserted patent, there is no anticipation.

ii. Metalized pads

> In the Court's Claim Construction Order, it construed the term "metalized pads" as follows:
>
> Pads that include an under-bump metalization layer (UBM) that forms an interface between the top metal layer of the integrated circuit and the solder balls (bumps) that are often used in flip-chip type integrated circuits. Pads in an integrated circuit are openings in the top passivation layer that allow connection to the top metal layer, to enable formation of connections between the integrated circuit and external circuit element.

Claim Construction Order at 70. Volterra asserts that Sicard does not meet this claim limitation because no UMB layer is disclosed. Defendants, on the other hand, assert that bump 8, shown in Figure 6 of Sicard, is a UBM layer. The Court concludes that no reasonable jury could find that Sicard discloses a UBM layer based on the evidence in the record.

Defendants' assertion that bump 8 in Figure 6 of Sicard is a UBM layer as required in the Metalized Pad Claims fails because: 1) Defendants have not produced evidence showing that a person skilled in the art would have understood a "bump," as described in Sicard, to be a "layer" as required under the Court's claim construction; and 2) Defendants have ignored the discussion in the Sicard specification teaching *away* from use of a UBM layer to form the "interface" described in the Court's claim construction.

Defendants' expert, Dr. Fair opines that element 8 in Figure 6 of Sicard shows a UBM layer, relying on the fact that it is between top metal layer 34 and the layer of solder 52 that Defendants contend is a solder ball. Fair Decl. in Support of Defendants' Sicard SJ Motion, ¶ 99 & Claim Chart 1 at 4; Fair 9/10/10 Opposition Decl., ¶ 36. As a preliminary matter, the Court does not accept Defendants' assertion that structure 52 is a solder ball, as discussed further below. Even assuming that it is, however, the location of bump 8 is not sufficient to show that it is a UBM "layer." Defendants have presented no evidence that a person of skill in the art in the relevant time period would have considered that structure to be a "layer." Rather, in the face of Dr. Szepesi's opinion, supported by definitions from technical dictionaries, that they would not have understood structure 8

to be a "layer," Defendants have simply attempted to read this structural requirement out of the Court's construction altogether. In particular, Defendants argue that "the Court's construction does not require the UBM to have any particular shape." Opposition to Plaintiff's Anticipation SJ Motion at 10. Defendants are only half right. It is true that the Court's construction does not specify a particular shape for the UBM layer. The Court's construction does, however, require that the UBM must be a *layer*. The fact that the Court was not asked to provide a detailed definition of that word during claim construction does not mean that Defendants can now ascribe a meaning to it that is contrary to either the intrinsic or extrinsic evidence relating to the claim terms of the Burstein Patents. Rather, it is Defendants' burden to show that a person of skill in the art in the relevant time period would have considered structure 8 to be a "layer," consistent with the Burstein Patents. Having failed to produce any intrinsic or extrinsic evidence suggesting Dr. Szepesi's opinion as the meaning of the term "layer" is incorrect, Defendants fail to meet their burden on summary judgment on this question.[28]

Defendants' position also fails because the specification of Sicard not only fails to disclose but actually teaches away from using a UBM layer. The Sicard specification states as follows:

> The connecting portions of the present invention are made as part of the frame or lead frame of the device. This means that the connections to the semiconductor regions can be performed by a simple assembly step and without the need for wire bonds. The present invention is therefore simple to manufacture and provides significant die size reductions since it avoids the need for wire bond pad areas. Moreover, the present invention does not require an expensive third thick metal deposition process as used in the prior art arrangement mentioned in the introduction.

Sicard, 4: 6 - 5: 3. The Introduction, in turn, describes an alternative to wire bonding in the prior art that uses "a thick layer of copper metal deposited on the disc above the final metal conductors to reduce the resistances of the power device," replacing the "plurality of wires by large aluminum wires bonded on the semiconductor regions." Sicard, 1: 49-50. The Introduction continues, "the additional deposition step of this solution increases the complexity and cycle time of the

[28]As discussed above, Defendants' reliance on Volterra's infringement position is misplaced. In essence, Defendants argue that [REDACTED]

manufacturing process which adds significant cost to the integrated power device." Sicard, 1: 53-56. The invention disclosed by Sicard was supposed to mitigate this problem. Sicard, 1: 56-58. Dr. Szepesi opines that a person of skill in the art would have understood that just as Sicard teaches away from adding a third thick metal layer, "similarly it teaches away from adding a more complicated and more expensive . . . UBM layer." Szepesi 7/14/10 Rebuttal Report on Validity, ¶ 99. Further, Dr. Szepezi opines that by calling structure 8 a "bump," Sicard made clear that this structure was not an "underbump metalization layer," as Dr. Fair contends. *Id*., ¶ 92. Dr. Szepesi also points to Figure 7 of Sicard in support of Plaintiff's assertion that a person of skill in the art would understand that structure 8 in Sicard is not a UBM layer. Szepesi 9/1/10 Opposition Decl., ¶¶ 28-30. According to Dr. Szepesi, Figure 7 shows the chip of Figure 6 when it is mounted on a lead frame and confirms that bump 8 is the connection between the chip and the lead frame itself and not a UBM. *Id*.

Defendants do not challenge Dr. Szepesi's opinion that a person skilled in the art would have understood that use of a UBM layer would have been inconsistent with an important benefit of Sicard's invention, namely, a semiconductor chip that was easier and less expensive to manufacture than chips in the prior art that required a thick metal deposition process. Rather, Defendants dismiss these arguments as a "red herring" because "the UBM is already present in Sicard." Opposition to Volterra Anticipation Motion at 11. Defendants' are incorrect because, as stated above, no reasonable jury could conclude, based on the evidence in the record, that bump 8 is a "layer."

Volterra is entitled to summary judgment that Sicard does not disclose a "metalized pad."

iii. A second plurality of doped regions or a first and second plurality of doped regions arranged in an alternating pattern

The Metalized Pad Claims require "a substrate having a first plurality of doped regions and a second plurality of doped regions, the first and second pluralities of doped regions arranged in a first alternating pattern." Volterra argues that Sicard does not meet this claim requirement because in Sicard, there is a single n-type drain-connected doped region, into which a series of n-type source regions are embedded. Szepesi 7/14/10 Rebuttal Report on Validity, ¶ 79. Therefore, Dr. Szepesi opines, while the source regions in Sicard may be a "first plurality of doped regions," there is no

second *plurality* of doped regions. *Id*., ¶ 81. Similarly, there can be no alternating pattern of doped regions because there is no second plurality of doped regions. *Id*., ¶ 82.

Defendants' expert counters that doped regions need not correspond to the drain, under the Court's claim construction, and that the unitary drain in Sicard may be divided into subregions, located at the surface of the substrate, as depicted in Dr. Fair's mark-up of Figure 6 of Sicard. *See* Expert Report of Richard B. Fair, Ph.D. on the Issues of Invalidity of U.S. Patent Nos. 6,278,264 and 6,462,522 ("Fair 6/28/10 Opening Report on Invalidity"), ¶ 64. According to Dr. Fair, these are doped regions that make up the "second plurality of doped regions," and further, they are arranged in an "alternating pattern," as can be seen from the same diagram. *Id*. Defendants point out that in the accused devices, [REDACTED] , yet Volterra nonetheless argued that the claim limitation was met.

Volterra responds that its infringement position was based on evidence that [REDACTED]

To the extent that Dr. Fair states that the second plurality of doped regions are regions within the drain found at the surface of the substrate, Volterra argues that this statement is unreliable because it is unsupported. In particular, Volterra argues, Dr. Fair fails to identify anything in Sicard that suggests that dopants are introduced into the surface areas of the subtrate that he identifies. Volterra's expert also offers testimony regarding the knowledge of a person of skill in the art regarding the process of introducing impurities into a substrate, *ie*., doping, in order to support Volterra's position that Sicard does not disclose doped regions at the surface of the substrate. *See* Szepesi 9/24/10 Reply Decl., ¶¶ 23-30.

The Court concludes that there is a fact question as to whether Sicard discloses this limitation. While it is undisputed that Sicard discloses a unitary drain, the Court's construction does not require that the entire drain well must be considered to be a single doped region. Rather, the question that must be resolved is whether a person skilled in the art would agree with Dr. Fair that there are doped regions at the surface of the substrate shown in Figure 6 that would be considered a "second plurality of doped regions." Although Dr. Fair's testimony on this question is somewhat conclusory, the Court cannot say, as a matter of law, that Sicard does not disclose a second plurality

of doped regions. Conversely, the evidence produced by Volterra on this issue is not sufficient to conclude that no reasonable juror could find that this requirement is met by Sicard.

The Court denies both parties' request for summary judgment as to whether Sicard discloses this claim limitation because fact questions remain.

iv. Solder balls

Claim 34 of the '264 Patent calls for a "first plurality of pads . . . connected to a first plurality of solder balls" and a "second plurality of pads . . . connected to a second plurality of solder balls." Defendants' expert asserts that the thin coating of solder 52 shown in Figure 6 of Sicard satisfies this requirement. *See* Fair 6/28/10 Opening Report on Invalidity, ¶ 81; Fair 7/26/10 Reply Invalidity Report, ¶ 51-52.[29] Volterra's expert rejects this assertion, however, on the basis that solder 52 is not a "ball." Szepesi 7/14/10 Rebuttal Report on Invalidity, ¶¶ 110-113. Dr. Szepesi explains his conclusion as follows:

> The New Webster's Dictionary of the English Language College Edition, 1975, on page 118 defines ball the following way: "A spherical body; a sphere; a globe." . . . [A person skilled in the art] would have recognized that the thin sliver of gold coating 52 on top of bump 8 in Sicard's Fig. 6 is neither a spherical body, nor a sphere, nor a globe, hence it cannot be understood as a "solder ball." In contrast, the solder coating 52 . . .is a ball like semi-spherical structure.

Id., ¶¶ 111-112. Dr. Szepesi goes on to point to a figure depicting a solder ball in the Elenius Patent (U.S. Patent No. 6,441,487), asserting that a person of skill in the art would have "never agreed" that the structure shown in Elenius is the same or similar to solder 52 in Sicard. *Id*., ¶ 113. Dr. Fair responds that it is well known in the art that a solder ball need not be solid and can consist of a solder coating over a core that is made of some other material. Fair 7/26/10 Reply Invalidity Report, ¶¶ 51-52.

The Court concludes that no reasonable jury could find that solder 52, by itself, is a solder ball. Although Defendants' expert has opined that a person skilled in the art would understand that a

[29]At times, Dr. Fair has also suggested that the solder ball in Sicard consists of bump 8 and solder 52 *together*. *See, e.g.*, Fair 6/28/10 Opening Report on Invalidity, ¶ 85 ("solder 52 may be applied on top of the bumps shown in Fig. 6 to form a solder bump (ball)." This assertion appears to be inconsistent with Defendants' position that bump 8 in Sicard is the UBM layer. Defendants stipulated at oral argument, however, that it is now their position that solder 52, by itself, meets Sicard's "solder ball" limitation.

solder ball may have a core made out of a different material, Defendants have not cited to any evidence that a person skilled in the art would consider the solder coating, by itself, to be a solder ball. Nor have Defendants addressed Dr. Szepesi's opinion, supported by a dictionary definition and the Elenius Patent, that a person skilled in the art would not consider solder 52 to be a ball because it is *semi*-spherical and not spherical.

Accordingly, the Court finds that Sicard does not disclose solder balls, as required by Claim 34 of the '264 Patent.

v. Gate region

Claims 22 and 24 of the '522 Patent requires a "gate region on the substrate separating the first plurality of doped regions and the second plurality of doped regions." According to Dr. Fair, Sicard satisfies this requirement. In particular, Dr. Fair points to the structure identified as a "gate" in Figure 6, opining that "the 'gate region' is that portion of the 'gate' that controls the charge in the channel formed in the PHV region." Fair 9/10/10 Opposition Decl., ¶ 42. Thus, he opines, "the 'gate region' in Sicard functions to separate adjacent doped regions of the first plurality of doped regions and the second plurality of doped regions." *Id*. Dr. Fair further notes that claim 3 of the '522 Patent provides that a "gate region" is "a unitary gate structure separating adjacent doped regions of the first plurality of doped regions and the second plurality of doped regions." *Id*.

Dr. Szepesi rejects Dr. Fair's position, arguing that the structure identified by Dr. Fair does not, in fact, separate the first plurality of doped regions from the second plurality of doped regions, assuming there is one. *See* Szepesi 9/10/10 Opposition Decl., ¶¶ 32-33. He illustrates his point with a marked-up version of Figure 6 showing the "gate regions" as identified by Dr. Fair. *Id*. From this figure, it can be seen that the areas Dr. Fair asserts are the "gate region" in Sicard do not, in fact, separate all of the areas that Dr. Fair argues are the first plurality of doped regions from all of the areas that he asserts are the second plurality of doped regions. *Id*. Further, the Court agrees with Volterra that the requirements of claim 3 of the '522 Patent are not relevant to whether the limitation in claim 22 is found in Sicard. The Court concludes that Defendants have failed, as a matter of law, to show that Sicard includes the gate region called for in claims 22 and 24 and therefore, that Volterra is entitled to summary judgment on this question.

vi. Conclusion

The Court concludes, as a matter of law, that Sicard does not include all of the requirements of the metalized pad limitations and therefore does not anticipate the Metalized Pad Claims of the Burstein Patents.

3. Whether The Flip-Chip Claims Are Anticipated by the Stratakos 1994 Article

As noted above, both parties seek summary judgment on the question of whether the Stratakos 1994 Article anticipates independent claim 9 or dependent claims 11, 16, 17, 18 and 19 of the '522 Patent. The only dispute is whether this prior art discloses a "flip-chip type integrated circuit chip," as required by these claims; Volterra does not dispute that the Stratakos 1994 Article discloses the remaining limitations. The Stratakos 1994 Article does not expressly refer to "flip chip." However, the article does refer to "chip on board" or "COB." In particular, in discussing the relatively low efficiency of the prototype integrated circuit chip created to illustrate the technology disclosed in the Stratakos 1994 Article, the authors noted that "a major component of the loss [was] the package," which used wire bonding. Fisher Comb. Decl., Ex. 97 (Stratakos 1994 Article) at PRIM00001728. The authors continued, "[t]hese components of dissipation will virtually be eliminated using a custom lead frame in an MCM or chip-on-board (COB) technology." *Id*. The question before the Court is whether the reference to COB in the Stratakos 1994 Article inherently anticipates the flip-chip claim limitation. The Court concludes, as a matter of law, that it does not.

a. Defendants' Position

Defendants take the position that the reference to COB quoted above inherently discloses flip chip because a person skilled in the art during the relevant time period would have "immediately envisaged or understood the reference . . . to mean" flip chip, wire bonding or tape automated bonding ("TAB"). Fair Decl. in Support of Defendants' Stratakos SJ Motion, ¶ 57;[30] *see also* Fair

[30]Volterra objects to paragraph 57 of the Fair Decl. in Support of Defendants' Stratakos SJ Motion on the basis that he expresses opinions that were not disclosed in his expert reports, arguing that these opinions are therefore untimely. The Court finds that the opinions expressed in paragraph 57 are not materially different from those expressed in paragraphs 121-122 and 176 of Dr. Fair's 6/28/10 Opening Report on Invalidity and therefore overrules the objection (as stated above).

6/28/10 Opening Report on Invalidity, ¶ 121 ("It is my opinion that one of ordinary skill in the art at the time of the alleged invention would have understood COB technology to include flip-chip packaging"); Garrou Decl. in Support of Defendants' Stratakos SJ Motion, ¶ 55. Further, Defendants assert, because the Stratakos 1994 Article *teaches away* from COB technology that uses wire bonding, a person skilled in the art would have understood that the authors were affirmatively recommending flip chip over COB technologies that used wire bonding.

In support of Defendants' position that the reference to COB would have been understood to include flip chip, Defendants cite to the Lau Chip on Board Book, which defines COB technology as including wire-bonding, TAB and flip chip. *See* Fair Decl. in Support of Defendants' Stratakos SJ Motion., ¶ 57 (citing Gargano Decl., Ex. 45 (Lau Chip on Board Book) at 2-3); Garrou Decl. in Support of Defendants' Stratakos SJ Motion, ¶ 59. According to Dr. Fair, the Lau Chip on Board Book "includes information from 24 contributing authors from throughout the industry . . . all experts in their respective fields." Fair Decl. in Support of Defendants' Stratakos SJ Motion, ¶ 57. Further, the Lau Chip on Board Book includes "three chapters and over 120 pages of disclosures relating to the processes, design techniques, and materials that can be used to implement COB technology in the form of flip-chip." *Id.*[31]

Finally, Defendants assert that the Stratakos 1994 Article actually teaches away from wire bonding and therefore, that the reference to COB likely would have been understood by a person skilled in the art to refer to flip chip. Garrou Decl. in Support of Defendants' Stratakos SJ Motion, ¶ 75. Defendants' expert, Dr. Garrou, reasons as follows:

> The Stratakos 1994 Article explicitly teaches away from using wire bonding. It would not make sense, and certainly would be inconsistent, for the Stratakos 1994 Article to describe disadvantages related [to] the use of wire bond technology and then suggest that the

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[31]Defendants also cite other prior art references that they assert show that the COB reference in the Stratakos 1994 Article discloses flip chip, including R.R. Tummala & E.J Rimaszewski eds., *The Microelectronics Packaging Handbook* (Van Nostrand Reinhold 1989) ("Tummala 1989") and R.R. Tummala, Eugene J. Rymaszewski, Alan G. Klopfenstein, *Microelectronics Packaging Handbook, Part II: Semiconductor Packaging* (Springer 2nd ed. 1997) ("Tummala 1997"). Fair Decl. in Support of Defendants' Stratakos SJ Motion, ¶ 58; Garrou Decl. in Support of Defendants' Stratakos SJ Motion, ¶ 22; Expert Report of Philip Garrou, Ph.D. on the Issues of Invalidity of U.S. Patent Nos. 6,278,264 and 6,462,522 ("Garrou 6/28/10 Opening Report on Invalidity"), ¶¶ 26, 28, 30. As discussed above, the Court has sustained Volterra's objections to this prior art based on Defendants' failure to include these references in their invalidity contentions. Therefore, the Court does not consider this prior art.

> disadvantages of wire bond technology could be solved using wire bond technology. Rather, the Stratakos 1994 Article suggests using a packaging technology that would overcome the problems associated with wire bond technology. Accordingly, one of ordinary skill in the art would have sought out a packaging technology that maximized electrical performance by decreasing energy loss and series resistance. As I explained above, it was well known at the time of the alleged invention that flip-chip technology provided several advantages over the other types of packaging technology (i.e., wire bonding and tape automated bonding), including maximized electrical performance by decreasing energy loss and series resistance.

Id. Therefore, Defendants argue, the Stratakos 1994 Article anticipates claims 9, 11, 16, 17, 18 and 19 of the '522 Patent.

b. Plaintiff's Position

Volterra rejects Defendants' assertion that the Stratakos 1994 Article discloses flip chip and therefore anticipates claims 9, 11, 16, 17, 18 and 19 of the '522 Patent. Volterra points to evidence that the term "chip on board" generally was *not* used to refer to "flip chip" at the time the Stratakos 1994 Article appeared and that the authors of the Stratakos 1994 Articles were not, in fact, referring to "flip chip" when they used the term "chip on board." Further, Volterra asserts that even if the Stratakos 1994 Article disclosed flip chip by referring to "COB technology," the disclosure was not enabling and therefore, this prior art does not anticipate independent claim 9 or dependent claims 11, 16, 17, 18 and 19 of the '522 Patent.

According to Volterra's experts, at the time of the 1994 Stratakos Article, COB usually referred to wire bonding. Szepesi 7/14/10 Rebuttal Report on Validity, ¶ 129 (opining that the broad definition of COB in the Lau Chip on Board Book "is largely inconsistent with a great body of prior art in the field," in which COB was understood to refer to wire-bonded packaging and that when COB was used to refer to flip chip, authors referred to "*flip* chip on board" to signal to the reader that what was being referred to was not the normally understood "wire bonded COB packaging"); Rebuttal Expert Report of Dr. John Bravman Regarding Validity of U.S. Patent Nos. 6,278,264 and 6,462,522 ("Bravman 7/14/10 rebuttal Report on Validity") ¶ 139. Dr. Bravman states as follows:

> While the term "chip-on-board" or COB has not always been used consistently in the semiconductor packaging industry, the vast majority of usages of which I am aware refer to conventional wire-bonding in which an integrated circuit is mounted on a substrate with its active side facing up, and wires that connect the chip pads to pads or contact points on the substrate are stitched or bonded one by one. This is particularly true when the term "chip on board" or "COB" is used in connection with low end or consumer applications. In instances where the term chip-on-board or COB is used in a text where the author intends for COB to

> mean something other than its customarily understood meaning, in my experience, the author provides some discussion, or related qualifying language, and/or illustration which makes it clear that the author is deviating from the widely understood meaning of a wire bonded chip which is mounted to a PCB such that the active side of the die faces away from the PCB. This was especially true in the time frame of the Burstein Patents.

Bravman 7/14/10 Rebuttal Report on Validity ¶ 139. Volterra's experts further point out that even the Lau Chip on Board Book, on which Defendants rely heavily, acknowledges that only 3% of chips were solder bumped, that is, used flip chip, while 90% were wire-bonded. *See* Szepezi 7/14/10 Rebuttal Report on Validity ¶ 134; Comb. Fisher Decl., Ex. 99 (Lau Chip on Board Book) at 25-27, 29.

Volterra asserts that "voluminous" prior art references support its position that COB meant wire bonding, including the following prior art cited by Defendants: 1) *Flip Chip Technologies*, edited by John Lau (McGraw-Hill 1995) ("Lau Flip Chip Book"); 2) U.S. Patent No. 5,399,898 ("Rostoker"); 3) Sherry L. Clough, *Flip Chip Attachment Methods*, MIT 1998 ("Clough"); 4) R.R. Tummala & E.J Rimaszewski eds., *The Microelectronics Packaging Handbook* (Van Nostrand Reinhold 1989) ("Tummala 1989"); and 5) R.R. Tummala, Eugene J. Rymaszewski, Alan G. Klopfenstein, *Microelectronics Packaging Handbook, Part II: Semiconductor Packaging* (Springer 2nd ed. 1997) ("Tummala 1997").[32]

Further, according to Volterra, this general understanding of the meaning of the term "chip on board" is consistent with the usage of that term by the authors of the Stratakos 1994 Article. In particular, all three of the authors of the Stratakos 1994 Article testified that in using the term "COB," they were referring to a chip attached to the printed circuit board with short bond wires. *See* Comb. Fisher Decl., Ex. 25 (Stratakos Depo. at 195); Broderson Decl. ¶¶ 6, 7; Declaration of Seth R. Sanders ¶¶ 7-9.

Nor does the Stratakos 1994 Article"teach away" from the use of wire bonding, Volterra contends. First, Dr. Szepesi notes that nothing in the Stratakos 1994 Article *expressly* teaches away

[32]As discussed above, the Court sustains Volterra's objections to a number of these references on the basis that they were not included in Defendants' invalidity contentions. Therefore, the Court does not address those prior art references in its analysis.

from wire bonding.[33] Szepesi 9/10/10 Opposition Decl., ¶ 41. Second, Dr. Szepesi opines that it is clear from the reference to use of a "custom lead frame in an MCM or chip-on-board (COB) technology" in the Stratakos 1994 Article that the authors were recommending an approach that would use *shorter* bond wires, not abandon the use of bond wires altogether. *Id*., ¶ 42. Dr. Szepesi explains that a person skilled in the art would have understood that the package used in the prototype described in the Stratakos 1994 Article was relatively large, resulting in longer bond wires – and higher resistance and inductance – than would occur if a production package were used. *Id*. Dr. Szepesi further explains that a person skilled in the art would understand that by using a custom lead frame, as described in the Stratakos 1994 Article, the bond wire length would be significantly shorter, thus reducing parasitic loss, while at the same time using well-known packaging methods that were inexpensive and highly reliable. *Id*.

Volterra also offers the declaration of one of the co-authors of the Stratakos 1994 Article, Seth Sanders, in support of its position that the Stratakos 1994 Article does not teach away from wire bonding. Sanders states as follows:

> The reference to "chip-on-board" or "COB" technology [in the Stratakos 1994 Article] is to a type of wire bonded packaging technology in which the back side of a silicon chip is secured to a PC board such that the active side of the silicon chip is facing up away from the PC board. Short bonding wires are used to make connections from the active side of the silicion chip to conductive areas on the PC board. Because the bonding wires are shorter than what would be used in a standard wire bonded package, using shorter wire bonds in a custom lead frame in an MCM package or shorter wire bonds in COB technology would significantly reduce, i.e., virtually eliminate the efficiency losses described in the article. . . .The reference to "COB" in the article was not intended to be and does not refer to flip chip packaging technology. Indeed, during the time period that we worked on the 1994 paper, I had never considered packaging a power switch for a voltage regulator using flip chip technology; nor was I aware of anyone else considering using flip chip technology in such a manner until I learned that Volterra had done so.

Declaration of Seth R. Sanders ("Sanders Decl."), ¶¶ 7, 9.

Based on the evidence summarized above, Volterra argues that a person skilled in the art would have understood that the reference to COB in the Stratakos 1994 Article meant wire bonding,

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[33]Defendants object to the portions of Dr. Szepesi's 9/10/10 Opposition Declaration that address this issue (paragraphs 36-45) on the basis that Dr. Szepesi offers new opinions that were not timely disclosed. As discussed above, the Court overrules Defendants' objection to these paragraphs on the basis that Dr. Szepesi's opinion merely expands upon opinions expressed in his earlier reports in order to rebut the opinions stated by Dr. Garrou in his motion declaration.

not flip chip. Volterra argues further that even if a person skilled in the art would have believed that the reference to COB in the Stratakos 1994 Article *might* include flip chip, this is not sufficient to establish that this prior art *necessarily* includes this claim limitation, as is required to established inherent anticipation.

Finally, Volterra argues that even if the Stratakos 1994 Article inherently discloses flip chip, this prior art does not anticipate the Flip-Chip Claims because it is not enabling. In support of this assertion, Volterra points out that the Stratakos 1994 Article lacks any explanation of how one of skill in the art would implement a flip-chip type integrated circuit including a power switch for a voltage regulator, together with the other elements of claims 9,11, and 16-19 of the '522 Patent.[34]

c. Analysis

i. Inherent Anticipation

The Federal Circuit has described the doctrine of inherent anticipation as follows:

> To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. . . . This modest flexibility in the rule that "anticipation" requires that every element of the claims appear in a single reference accommodates situations where the common knowledge of technologists is not recorded in the reference; that is, where technological facts are known to those in the field of the invention, albeit not known to judges.

Continental Can Company USA, Inc. v. Monsanto Company, 948 F.2d 1264, 1268 (Fed. Cir. 1991). "A prior art reference that discloses a genus still does not inherently discloses all species within that broad category." *Metabolite Laboratories, Inc. v. Laboratory Corporation of America Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004). On the other hand, "a very small genus can be a disclosure of each species within the genus." *Atofina v. Great Lakes Chemical Corp.*, 441 F.3d 991, 999 (Fed. Cir. 2006)(citing *In re Petering*, 301 F.2d 676, 682 (C.C.P.A. 1962)). The court in *In re Petering*

[34]At oral argument, Volterra asserted that the Court should also consider the PTO's finding in the '522 NIRC that the Stratakos 1994 Article does not disclose flip chip. As noted above, the significance of the NIRCs is disputed and is the subject of a separate sanctions motions currently pending in this action. The Court need not resolve that issue here, however, because it finds the Stratakos 1994 Article does not anticipate the Flip-Chip Claims based on the other evidence presented by Volterra. Therefore, the Court does not consider the '522 NIRC in deciding the parties' summary judgment motions.

explained that this may occur when the prior art describes not only a broad class but also a "much more limited class within that broad class," such that a person who is skilled in the art would "at once envisage each member of this limited class." 301 F.2d at681. The court went on to note that "it is not the mere number . . .in this limited class which is significant . . . but rather, the total circumstances involved." *Id.*

A review of the circumstances that led the court to find inherent anticipation in *In re Petering* is instructive. That case involved a challenge by a patent applicant to a rejection by the Patent Examiner of certain composition claims describing chemical compounds. 301 F.2d 676, 677 (CCPA 1962). The Examiner found that the claims were anticipated based on prior art that disclosed "generically the claimed compounds." *Id*. at 679. The Court of Customs and Patent Appeals addressed whether the prior art patent inherently disclosed the compositions described in the rejected claims. *Id*. at 681. The court began by noting that the prior art contained a broad generic formula that could have covered "a vast number" of compounds because no express limits were articulated as to some of the variables in the formula. *Id*. The court went on to note, however, that the prior art also included specific preferences which, when applied to the more generic formula, gave rise to a limited class of 20 compounds. *Id*. The court concluded that because a person skilled in the art would read the generic formula in connection with the specific preferences, that person would "immediately envisage each member of the class" of compounds. *Id*. On that basis, the court concluded that the prior art anticipated the claims that had been rejected by the Examiner. *Id.*

In *Atofina,* which was cited with approval in *In re Petering*, the Federal Circuit reached a different result. 441 F.3d 991 (2006). There, the Federal Circuit reversed a decision by the district court, after a bench trial, that the asserted patent was anticipated by prior art. *Id*. at 993. The asserted patent was directed to a method of synthesizing diflueoromethane. *Id.* The defendant argued the patent was anticipated, citing to a number of Japanese patents, including one that disclosed a process that claimed a temperature range that overlapped with the temperature range claimed in the asserted patent. *Id*. at 1000. The Federal Circuit held that the district court had erred in finding that this prior art inherently anticipated the asserted patent, stating that "no reasonable fact

finder could determine that this overlap describes the entire claimed region with sufficient specificity to anticipate this limitation of the claim." *Id*.

Volterra argues that *Transclean Corp. v. Bridgewood Services, Inc.*, 290 F.3d 1364 (Fed. Cir. 2002) is on point. In *Transclean*, the defendants argued that a means-plus-function claim in the asserted patent was anticipated by prior art. 290 F.3d at 1372. To anticipate such a claim, the prior art must disclose the recited function identically. *Id*. The function at issue was "equalizing fluid flow," which the district court construed as requiring "equalization of flow rate." *Id*. The prior art on which the defendant relied was a patent that disclosed equalization of fluid amounts but not necessarily fluid flow rates. *Id*. at 1373. The defendants asserted that the patent was anticipated based on a prior art patent that, like the asserted patent, disclosed equalization of flow. *Id*. However, the device in the prior art accomplished this function using a detection means that ensured the equalization of fluid weight rather than the fluid flow rate. *Id*. The court stated that "[a]lthough it is possible that the detection means could under some circumstances . . .effectively equalize the flow rates as well, it is also possible for that not to be the case." *Id.* On that basis, the Federal Circuit held that the prior art did not *necessarily* include the unstated limitation and therefore, did not anticipate the asserted patent. *Id*.

Defendants counter that *In re Gleave*, 560 F.3d 1331 (Fed. Cir. 2009) supports their position on inherent anticipation. In that case, the asserted patent included composition claims directed to antisense oligodeoxynucleotides and method claims direct to making pharmaceutical compounds containing these oligodeoxynucleotides and using them to treat certain cancers. 560 F.3d at 1333. The Examiner rejected the antisense oligodeoxynucleotides claims on the basis that a prior art reference listed every 15-base oligodeoxynucleotide sequence possible, including those claimed in the rejected composition claims. *Id*. at 1338. On that basis, the Federal Circuit held that the claims were anticipated. *Id*.

Turning to the circumstances here, the Court is mindful that in general, anticipation is a question of fact and further, that it must draw all reasonable inferences in favor of the party opposing summary judgment when ruling on a summary judgment motion. On the other had, it is the accused infringer who bears the burden on this defense, and the threshold is high; a party seeking to defeat

summary judgment on an anticipation defense is required to do more than establish that the experts disagree. Instead, an accused infringer must point to sufficient evidence for a reasonable jury to conclude *by clear and convincing evidence* that the asserted claims are anticipated. Defendants have failed to do so here. Even if Defendants are correct that a person skilled in the art would understand that flip chip was *one type* of COB technology, this is not sufficient to establish inherent anticipation. Rather, it is Defendants' burden to establish that the Stratakos 1994 Article *necessarily* disclosed flip chip. In context, the Stratakos 1994 Article merely suggested use of *some* COB technology to address the problem of energy loss; nothing in the article requires that each and every type of COB technology available must be used.

Further, Defendants have offered only a few conclusory statements by their experts that a person skilled in the art would understand that the authors of the Stratakos 1994 Article meant flip chip when they made the reference to COB. For example, Dr. Garrou opines that the Stratakos 1994 Article teaches away from wire bonding on the basis of statement that "it would not make sense, and certainly would be inconsistent," for the authors to recommend a solution that used bond wires in light of the authors' discussion of energy loss that resulted from bond wires in the prototype. Garrou Supp. Decl., ¶ 39; *see also* Garrou Decl. in Support of Defendants' Stratakos SJ Motion, ¶¶ 74-75. Dr. Garrou fails to address the extensive evidence offered by Volterra not only that the authors meant wire-bonding technologies when they referred to COB but that COB was commonly believed to refer to wire-bonding, at least in the context of consumer electronics. Nor does Dr. Garrou explain why the authors' discussion of the energy losses associated with wire bonding is inconsistent with a suggestion that COB technologies using wire bonding be used, to the extent that it was understood (as explained by Volterra's expert) that the bond-wires would be shorter when these types of packaging were used and thus, the device would be more efficient. Indeed, notably absent from Dr. Garrou's declarations and reports is a statement that a person skilled in the art would have believed that the reference to COB actually excluded COB technologies that use TAB or wire bonding. [35]

[35]The Court notes that Dr. Garrou states in his declaration that the reference to COB in the Stratakos 1994 Article "necessarily include[s] flip-chip packaging." Garrou Decl., ¶ 68. Plaintiff objects to this opinion on the basis that it is untimely. Although the Court overrules the objection, the

The circumstance in this case are distinguishable from those in *Petering* and *Gleave,* on which Defendants rely. In *Petering*, the prior art patent included not only a general formula, but also a number of specific limitations which, when considered with the formula, allowed a person of skill in the art to understand exactly what was claimed. Similarly, in *Gleave*, the prior art list included the exact compositions that were claimed in the rejected claims. Rather, the facts here are more akin to those in *Transclean*. In particular, although the prior art *could* include the missing limitation, it doesn't *necessarily* include it because, as opined by Defendants' own experts, COB included TAB and wire-bonding as well as flip chip.

In sum, because no reasonable jury could find by clear and convincing evidence, on the basis of the evidence produced by Defendants, that the Stratakos 1994 Article *necessarily* includes the flip chip feature, Volterra is entitled to summary judgment that the Stratakos 1994 Article does not anticipate the Flip-Chip Claims.

ii. Enablement

Volterra argues as an alternative ground for finding that the Stratakos 1994 Article does not anticipate the Flip-Chip Claims that even if flip chip is disclosed in that prior art, the disclosure is not enabling. Plaintiff's Anticipation SJ Motion at 17. In support of this assertion, Volterra cites to the testimony of Dr. Bravman, who describes the problems of solder joint thermal cycling fatigue and electromigration, both of which can lead to reliability problems in high currency and high temperature environments such as a power switch for a switching voltage regulator. *See* Bravman 7/14/10 Rebuttal Report on Validity, ¶¶ 59-73; *see also* Szepesi 7/14/10 Rebuttal Report on Invalidity, ¶¶ 123-124, 143. Because of these well-known problems, Dr. Bravman opines, at the time of the invention flip-chip packaging was not considered suitable for use in a high speed switching application such as a switching voltage regulator. Bravman 7/14/10 Rebuttal Report on Validity, ¶¶ 73. For these reasons, Plaintiff argues, the Stratakos 1994 Article would not have enabled a person skilled in the art to make a switching voltage regulator using flip chip without undue experimentation. Dr. Szepesi asserts that the best evidence of this is the long period of time it

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Court does not find this conclusory recitation of the legal standard to change the analysis.

took Defendants to produce their own integrated circuit with a power switch for a voltage regulator using flip chip. Szepesi 7/14/10 Rebuttal Expert Report on Validity, ¶ 124. Plaintiff cites to *Impax Labs., Inc. v. Aventis Pharms. Inc.*, 545 F.3d 1312, 1314 (Fed. Cir. 2008) and *Forest Laboratories, Inc. v. IVAX Pharmaceuticals, Inc.*, 501 F.3d 1263 (Fed. Cir. 2007) in support of its position that the Stratakos 1994 Article disclosure of flip chip is not enabling.

In *Impax*, the patent at issue related to the use of riluzole to treat Lou Gehrig's disease. 545 F.3d at 1314. A party seeking a declaratory judgment that the patent was invalid as anticipated cited to another patent which contained a formula that disclosed "hundreds or thousands of compounds and several diseases." *Id*. at 1315. Although there was a "mention of riluzole," the trial court found, following a bench trial, that this was not sufficient to put a person skilled in the art on notice that the inventor was in possession of the claimed invention. *Id*. Further, the court noted that there was no dosage information or working examples, supporting the conclusion that undue experimentation would have been required to link the use of riluzole with the treatment of Lou Gehrig's disease. *Id*. Because the prior art was not enabling, the trial court held that it did not anticipate the patent at issue and the Federal Circuit affirmed. *Id.* Agreeing with the reasoning of the trial court, the Federal Circuit noted that: 1) the dosage guidelines in the prior art were "broad and general without sufficient direction or guidance to prescribe a treatment regime;" 2) the prior art contained "no working examples;" and 3) nothing in the prior art would have led one of skill in the art to identify riluzole as a treatment for Lou Gehrig's disease. *Id*. at 1315-1316.

In *Forest Laboratories*, a manufacturer of generic drugs accused of infringement asserted that the asserted patent for an antidepressant drug was anticipated by a pharmacology paper. 501 F.3d at 1264. Following a bench trial, the trial court held that the paper did not anticipate the patent because it did not teach one of skill in the art how to make the compound at issue, rejecting the testimony presented by the accused infringer that a person skilled in the art would know how to make the compound. *Id*. The Federal Circuit affirmed, finding that there was no basis to overturn the district court's fact finding and noting that the evidence of the patentee "heavily outweighed the evidence" favorable to the accused infringer. *Id.* "Such evidence includes the failure of various scientists" to make the compound recited in the patent. *Id*.

Defendants counter that a person skilled in the art would have known how to implement the voltage regulator described in the Stratakos 1994 Article in a flip-chip package, citing to the "plethora" of evidence that at the time of the invention flip chip packaging was being used in a wide variety of consumer applications and had been described in widely recognized handbooks, such as the Lau Chip on Board Book and the Lau Flip Chip Book. In support of their assertion that the disclosure of flip chip in the Stratakos 1994 Article is enabled, Defendants cite to *In re Donohue*, 766 F.2d 531, 534 (Fed. Cir. 1985) and *Bristol-Myers Squibb Co. v. Ben Venue Laboratories*, 246 F.3d 1368 (Fed. Cir. 2001). In *In re Donohue*, the Federal Circuit affirmed a final rejection of a patent applicants' claims on the basis of anticipation, rejecting the applicants' assertion that a prior art reference disclosing a compound did not anticipate because the compound had not actually been made by the authors of the prior art. 766 F.2d at 533. In *Bristol-Myers Squibb Co.*, the patent involved a method for administering an anti-tumor drug to cancer patients following premedication to reduce hypersensitivity reaction. 246 F.3d at 1378. The Federal Circuit affirmed the district court's grant of summary judgment of anticipation even though the anticipating prior art did not describe the premedication process because numerous other references described how this was accomplished. *Id*. at 1379.

The Court finds that the facts of this case are akin to those of *Impax* and *Forest Laboratories*. In particular, nothing in the Stratakos 1994 Article or the extrinsic evidence cited by Defendants explains how the problems associated with use of flip chip in high currency/ high temperature applications, of which Plaintiff has presented extensive evidence, could be mitigated. Thus, this prior art, even considered in light of the extrinsic evidence cited by Defendants, fails to disclose "within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim." *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008). *Donohue* and *Bristol-Myers Squibb Co.* are distinguishable because in those cases, the extrinsic evidence described how the missing steps were accomplished. The mere fact that flip chip existed at the time of the invention is not sufficient to establish that the authors of the Stratakos 1994 Paper had possession of the invention or that a person skilled in the art would have been able to implement the invention without undue

experimentation. Therefore, the Court finds that the Stratakos 1994 Article does not anticipate the Flip-Chip Claims for the additional reason that it is not enabling.

4. Whether the Flip-Chip Claims are Anticipated by the Stratakos Thesis

a. Plaintiff's Position

Plaintiff seeks summary judgment as to the Stratakos Thesis on the basis that it, like the Stratakos 1994 Article, does not disclose each and every claim limitation. Plaintiff's Anticipation SJ Motion at 18 (citing Comb. Fisher Decl., Ex. 4 (Stratakos Thesis)). Even if it discloses every claim limitation, Plaintiff asserts, that disclosure is not enabling for the same reasons the Stratakos 1994 Article is not enabling. *Id*. In the Stratakos Thesis, there is a single reference to flip chip, which states as follows:

> New parallel power supply architectures, flip chip solder bump and micro-BGA assembly technologies and chip- and board-level interconnection techniques are required to properly address this problem.

Id. at PRIM 1817. Dr. Stratakos testified at his deposition that this statement was based on his awareness of the work of Drs. Burstein and Nickel, which had already been reduced to practice, but was merely a statement of an area to be explored. Plaintiff's Anticipation SJ Motion at 18 (citing Comb. Fisher Decl., Ex. 105 (Stratakos 8/26/09 Reply Preliminary Injunction Decl. at ¶¶ 4-5) & Ex. 25 (Stratakos Depo. Testimony at 135)). Plaintiff also points to the testimony of Defendants' former expert, Dr. Baker, who testified that the Stratakos Thesis "does not tell how to implement a flip-chip on an integrated circuit chip in a flip-chip package." Comb. Fisher Decl., Ex. 56 (Baker Depo.) at 203.

Plaintiff argues that the excerpts of the Stratakos Thesis that Defendants rely upon to show anticipation fail as a matter of law because Defendants have simply "cobbled together" an anticipation defense without showing that the Stratakos Thesis discloses how the claim limitations of the asserted claims are arranged or combined. Plaintiff's Anticipation SJ Motion at 19 (citing *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008), *Linear Tech. Corp. v. Int'l Trade Comm'n*, 556 F.3d 1049, 1066-67 (Fed. Cir. 2009)). In *Linear Tech. Corp*., the Federal Circuit held that there was no anticipation where the prior art did not disclose all of the claim limitations for a synchronous switching voltage regulator with two switching transistors, even

though the appendices described a device with two switches, because there was "no explanation as to how substituting the components in [the appendices] would necessarily result in the exact operational circuit as claimed." *Id*. at 1066-1067. Plaintiff notes that Defendants' experts never opine that any of the three prototype DC-DC circuits described in the Stratakos Thesis were implemented as flip-chip integrated circuit chips; nor do they rebut the uncontroverted evidence that the devices described in the Stratakos Thesis were wire-bonded devices. Plainitff's Anticipation SJ Motion at 20.

Finally, Plaintiff rejects Defendants' reliance on the Stratakos 1994 Article, which Defendants assert is incorporated by reference in the Stratakos Thesis, to establish disclosure in the Stratakos Thesis of certain claim limitations. First, in its summary judgment motion, Plaintiff argues that the single reference in Dr. Fair's claim chart to show incorporation by reference is insufficient because it simply refers to a long list of references that includes the Stratakos 1994 Article. Plaintiff's Anticipation SJ Motion at 20 (citing Fair 6/28/10 Opening Report on Invalidity, Appendix C-2 (anticipation claim chart for Stratakos Thesis) at 19 (citing page 235 of the Stratakos Thesis in support of incorporation by reference)). Plaintiff cites to *Commonwealth Sci. and Indus. Research Org. v. Buffalo Tech. (USA), Inc.*. 542 F.3d 1363, 1372 (Fed. Cir. 2008) ("To incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the various documents"). Second, in response to Defendants' reliance on another section of the Stratakos Thesis that was not included in Dr. Fair's earlier claim chart, Plaintiff argues that this reference should not be considered because it was not included in Defendants' invalidity contentions. Reply on Plaintiff's Anticipation SJ Motion at 14 (citing Defendants Opposition to Plaintiff's Anticipation SJ Motion at 23-24 (referencing pages 219, 224-226 of Stratakos Thesis and Fig. 6.72)).

b. Defendants' Position

Defendants argue that the Stratakos 1994 Article is incorporated by reference in the Stratakos Thesis and that when considered together, the Stratakos Thesis anticipates the Flip-Chip Claims. First, Defendants point to chapter 6.4 of the Stratakos Thesis, which states that "[i]n this section, the design techniques of Chapter 4 are applied to the 6V to 1.5V, 500mA buck converter presented in

[Stratakos 1994]." Defendants' Opposition to Plaintiff's Anticipation SJ Motion at 23 (citing Stratakos Thesis at 219)). According to Defendants, the statements in the body of the Stratakos Thesis referring to the Stratakos 1994 Article, as well its inclusion in the references at the end of the thesis, establish incorporation by reference as a matter of law. *Id*. (citing *Callaway Golf Co. v. Acushnet Co.*, 576 F.3d 1331, 1346 (Fed. Cir. 2009)).

Second, to show that the flip-chip limitation is disclosed and enabled by the Stratakos Thesis, Defendants point to the statement in the Stratakos Thesis that "dissipation from these mechanisms can be significantly reduced by using a smaller surface mount package soldered directly to a printed circuit board." Defendants' Opposition to Plaintiff's Anticipation SJ Motion at 24 (citing Stratakos Thesis at 226). Defendants also point to the statement quoted above, referring to "flip-chip solder bump and micro-BGA assembly technologies" to address problems associated with bonding and packaging and low efficiencies in low voltage and high currency applications. *Id*. (quoting Stratakos Thesis at 4).

Defendants reject Plaintiff's assertion that references cited by Dr. Fair are an attempt to "cobble together" an anticipation defense. They argue that even if the Stratakos Thesis does not disclose how to implement an integrated circuit chip in a flip-chip package, a person skilled in the art would have been able to do so based on the "wealth of flip-chip extrinsic evidence." *Id*. at 25. Defendants further point out that the subjective understanding of Dr. Stratakos regarding the disclosure in his thesis is not the relevant question in determining whether it anticipates the asserted claims. *Id.* (citing *Akamai Tech., Inc., v. Cable and Wireless Internet Servs.*, 344 F.3d 1186, 1192 (Fed. Cir. 2003)).

c. Analysis

Defendants' anticipation position as to the Stratakos Thesis is similar to the Stratakos 1994 Article: as to both, Defendants assert that flip chip is disclosed based on a brief statement in the text and that this statement would be enabling in view of extrinsic evidence showing that a person skilled in the art would have known how to implement the integrated circuit described in the prior art in a flip-chip package. Defendants' argument fails as a matter of law because, as discussed above, none of the prior art discussing the flip-chip technology addresses how to make a power switch for a

voltage regulator using flip chip or how the problems associated with using flip chip for high currency/ high temperature applications could be alleviated. Thus, no reasonable jury could find that the Stratakos Thesis anticipates the asserted claims based on the evidence in the record because the Stratakos Thesis does not disclose how the limitations of the asserted claims – even if each limitation is disclosed – would be combined to make the invention. Further, no reasonable jury could conclude, based on the present record, that the authors of the Stratakos 1994 Paper had possession of the invention or that a person skilled in the art would have been able to implement the invention without undue experimentation.

5. Whether The Metalized Pad Claims Are Obvious

a. Defendants' Position

Defendants seeks summary judgment that the Metalized Pad Claims are obvious, as a matter of law, based on Sicard in view of: 1) the knowledge of a person of skill in the art at the time of the invention; 2) the 1994 Stratakos Article; and 3) the 1994 Stratakos Article, the prior art references cited during the prosecution of the Burstein Patents and other prior art disclosing doped regions in alternating patterns.

With regard to Defendants' assertion that the Metalized Pad Claims are obvious in light Sicard and the knowledge of a person skilled in the art, Defendants contend that a person skilled in the art would have known of the use of a power switch in a voltage regulator with a first plurality of pads connected to a first terminal and a second plurality of pads connected to a second terminal; the remaining elements of the metalized pad claims, according to Defendants, are disclosed by Sicard. *See* Fair 8/20/10 Sicard Decl., ¶¶ 117-119 & Claim Chart 2 (claims 26 and 34 of '264 Patent) & Claim Chart 4 (claims 22 and 24 of '522 Patent).[36]

According to Defendants, the combination of Sicard and the Stratakos 1994 Article render the Metalized Pad Claims obvious because the Stratakos 1994 Article discloses a first plurality of

[36]As discussed above, Volterra objects to Claim Chart 4 to the extent that Defendants use it in support of their obviousness defense, arguing that it is a new opinion that was untimely disclosed. Volterra concedes, however, that the same chart was attached as Appendix C-3 to Fair 6/28/10 Opening Report on Invalidity. Because the substantive content of the claim chart is not new, the Court overrules Volterra's objection.

pads connected to a first terminal of the voltage regulator and a second plurality of pads connected to a second terminal of a voltage regulator, while Sicard discloses the remaining limitations of the Metalized Pad Claims. Fair 8/20/10 Sicard Decl., ¶¶ 120-124, 127-130 & Claim Charts 3, 5.

Next, Defendants point to the prior art cited by the Examiner when the PTO initially rejected the claims of the '264 application, namely, Hallberg, Stager and Hon. According to Defendants, the Examiner found that these prior art references disclosed all of the elements of the Metalized Pad Claims except the alternating pattern of doped regions. Fair 8/20/10 Sicard Decl., ¶ 31. In support of this position, Defendants' expert points out that it was only after the applicants amended claim 1 to include this limitation and highlighted this feature of the remaining claims that the Examiner allowed the claims. *Id*., ¶ 38.[37] Defendants further assert that because the layout of the doped regions and their connections to the terminals was well-known in the prior art, including Sicard, the Stratakos 1994 Article and a number of other prior art references, the Metalized Pad Claims were obvious. *Id*., ¶ 39.

Finally, Defendants assert that Volterra has not presented any legally relevant evidence of secondary considerations to establish nonobviousness. In particular, Defendants argue that Volterra has presented no credible evidence either that its power stage products practice the invention of the Burstein Patents or that any commercial success enjoyed by Volterra was due to a feature of these products claimed in the Burstein Patents. Defendants further assert that Primarion's cancellation of its past power stage products does not support nonobviousness because Volterra has not cited to any missing claim limitation due to which the products failed; rather, Defendants assert that because they chose not to pursue the products for business reasons, this evidence is irrelevant.

b. Plaintiff's Position

Volterra contends that Defendants are not entitled to summary judgment as to the obviousness combinations discussed above. First, as to the combination of Sicard and the knowledge of a person skilled in the art, Volterra asserts that this combination fails because Defendants rely on Sicard to show every element of the Metalized Pad Claims except "a power

[37]Volterra objects to paragraph 38 of the Fair Decl. in Support of Defendants' Sicard SJ Motion on the ground that it expresses a new opinion. For the reasons stated above, the objection is sustained.

switch for a voltage regulator;" however Sicard is missing other features of the metalized pad claims as well, including metalized pads, solder balls, and a first and second plurality of doped regions. Volterra further asserts that this argument fails because Defendants have cited to no evidence showing motivation to combine Sicard with the knowledge of a person skilled in the art to create a device that included all of the elements of the Metalized Pad Claims.

Second, as to the combination of Sicard and the Stratakos 1994 Article, Volterra argues that this combination fails because the Stratakos 1994 Article does not disclose metalized pads or flip chip. In support of this argument, Volterra cites to the evidence discussed above that it asserts shows that the COB reference meant wire bonding and not flip chip. Even if Sicard and the Stratakos 1994 Article did include all the limitations of the Metalized Pad Claims, Volterra argues, Defendants have pointed to no evidence that there would have been a motivation to combine the two references.

Third, Volterra rejects Defendants' reliance on Sicard, the Stratakos 1994 Article and the prior art cited by the Examiner to show obviousness because: 1) this theory was not included in Defendants' amended invalidity contentions; 2) it is premised on a theory that the Examiner would have rejected the claims if the "alternating pattern" references had been before him, which is inconsistent with the de novo review that is required of the Court; and 3) Defendants fail to point to the disclosure in these references of an alternating pattern of metalized pads or the use of a first plurality of solder balls interleaved with a second plurality of solder balls; nor do Defendants explain why these elements would have been obvious in light of the prior art cited.

Volterra further asserts that as to all of these combinations, there is strong evidence of secondary considerations that points to a finding of nonobviousness, creating at least a fact question as to obviousness. In particular, Volterra points to evidence that: 1) there was a long felt need for better, more efficient voltage regulators; 2) there was widespread skepticism that flip-chip packaging could be used in high current applications such as switching voltage regulators due to concerns about reliability, testability and workability; 3) the inventions described in the Burstein Patents yielded significant unexpected advantages, including reducing overall inductance, allowing efficient operation of the power stage at very high frequencies and without incurring significant supply voltage and ground bounce, leading to reduction in system size and cost and increase in reliability; 4)

Volterra's products have enjoyed commercial success and displaced the prior art solutions; and 5) Defendants' accused products were developed by copying Volterra's products and all of Defendants' attempts to develop a compact, highly efficient voltage regulator prior to the accused products failed. *See* Volterra Opposition to Defendants' Sicard SJ Motion at 23-25.

In addition to contending that Defendants are not entitled to summary judgment with respect to the prior art combinations discussed above, Volterra asserts that summary judgment should be entered in its favor as to obviousness combinations that rely on Sicard to teach or disclose "metalized pads," a "power switch for a voltage regulator," or "solder balls" in an attempt to invalidate the metalized pad claims. In support of this position, Volterra cites to its arguments regarding anticipation.

c. Analysis

Defendants seek summary judgment of obviousness on the basis of three combinations, all including Sicard. For the reasons stated below, the Court concludes that Defendants have not met their burden on summary judgment as to any of these combinations. The Court further finds that Plaintiff is entitled to summary judgment as to all of the combination that rely on Sicard for the disclosure of "metalized pads," a "power switch for a voltage regulator" and "solder balls."

First, for the reasons stated in connection with the question of anticipation, discussed above, the Court finds, as a matter of law, that Sicard does not disclose a "power switch for a voltage regulator," "metalized pads" or "solder balls." Therefore, Volterra is entitled to summary judgment of nonobviousness as to all combinations that rely on Sicard to show that these elements would have been disclosed in the prior art. *See* Plaintiff's Obviousness SJ Motion at 15-16 & Proposed Order.

Second, the Court denies Defendants' request for summary judgment of obviousness based on the combination that relies on the prior art cited by the Examiner because this combination was not included in Defendants' amended invalidity contentions. While Defendants argue that this theory *was* disclosed in a supplemental interrogatory response, they do not offer any reason for failing to amend their invalidity contentions, as required under the Patent Local Rules. While citation to previously undisclosed references may be permissible where these references are used to *support* a theory of invalidity that has been disclosed in a party's invalidity contentions, it is not permissible

when a party evades the Patent Local Rules to articulate an entirely new obviousness combination without seeking leave of Court. Given that Defendants were aware of the prior art in the file history from the outset of this case, their failure to include this theory in their invalidity contentions precludes them from proceeding on this obviousness combination.

Finally, as to the two remaining combinations with respect to which Defendants seek summary judgment of obviousness – Sicard in light of the knowledge of a person skilled in the art and Sicard in combination with the Stratakos 1994 Article – the Court finds that factual disputes remain regarding: 1) the scope of this prior art; 2) secondary considerations of nonobviousness; and 3) motivation to combine. The Court notes that in the face of Volterra's evidence of secondary considerations, Defendants have produced extensive evidence of their own to show that there is no nexus between the invention and the secondary considerations cited by Volterra; however, the Court is not persuaded that this evidence is sufficient to establish that the secondary considerations cited by Volterra are irrelevant *as a matter of law.* Similarly, the Court concludes that material disputes of fact exist as to whether there was a motivation to combine. In particular, in the face of Defendants' evidence on this question, Plaintiffs have pointed to extensive evidence that there would not have been a motivation to combine.

6. Whether Flip-Chip Claims Are Obvious

a. Defendants' Position

Defendants assert that they are entitled to summary judgment that claims 9, 11 and 16-19 of the '522 Patent are obvious in light of the Stratakos 1994 Article and the knowledge of a person skilled in the art in light of the Lau Chip On Board Book. In particular, to the extent the Stratakos 1994 Article does not disclose flip chip, Defendants assert, a person skilled in the art would understand, based on the Lau prior art, that COB technology included flip chip. Fair 8/20/10 Stratakos Decl., ¶¶ 87-90; *see also id.*, Appendix 2.[38] Defendants further assert that the Stratakos 1994 Article reveals a motivation to package the voltage regulator in a flip-chip package,

[38]Volterra objects to the discussion of flip chip contained in the claim chart of Appendix 2, arguing that it is entirely rewritten. As discussed above, the Court overrules Volterra's objection because substantially similar opinions were set forth in Appendix C-1 to Dr. Fair's 6/28/10 Opening Report on Invalidity.

acknowledging the problems of conduction loss and inefficiency in the wire-bonded prototype developed by the authors. *Id*., ¶ 89. Defendants also argue that Stager teaches use of a flip-chip package. *Id*., ¶¶ 80-82.

b. Plaintiff's Position

Plaintiff argues that Defendants are not entitled to summary judgment of obviousness based on Stratakos and Lau because a person skilled in the art would have understood that the reference to COB in the Stratakos 1994 Article meant a wire-bonded solution rather than flip chip and further, there is extensive evidence in the record that a person skilled in the art would *not* have been motivated to develop a flip-chip type integrated circuit chip including a power switch for a voltage regulator. [39] In particular, Plaintiff's experts opine that at the time of the invention, flip-chip packaging was known to be susceptible to significant problems, including cracking and failure of the solder ball metallurgical and electrical connections caused by thermal cycling fatigue due to the differing coefficients of thermal expansion. *See* Bravman Report, ¶¶ 60-63, 65; Szepesi Validity Report, ¶¶ 162-163, Garrou Reply Invalidity Report, ¶¶ 48-53. According to Plaintiff's experts, these problems are particularly acute in high-current and high-temperature environments, such as a power switch for a voltage regulator. Bravman Report, ¶¶ 60,64, 70, 73; Szepesi validity Report, ¶ 162. Volterra further cites to evidence that prior art at the time of the invention, including Stager, taught away from use of flip chip with a power switch for a voltage regulator. *See* Volterra Obviousness SJ Motion at 11-14. Finally, Plaintiff argues that it is entitled to summary judgment on one obviousness combination, set forth in Section VI.C.13 of Dr. Fair's 6/28/10 Opening Report on Invalidity, that relies on the Stratakos 1994 Paper for the disclosure of flip-chip packaging on the basis that the Stratakos 1994 Paper, as a matter of law, does not teach flip chip. *Id*. at 14.

c. Analysis

The Court finds that material issues of fact preclude summary judgment as to either Volterra or Defendants on the question of whether the Stratakos 1994 Article and Lau, or the Stratakos 1994

[39]Plaintiff also asserts that summary judgment should be denied because Defendants did not disclose the Stratakos/ Lau combination in its invalidity contentions. The Court rejects this argument because this combination was included in Exhibit D-1 of Defendants' First Amended Invalidity Contentions served on December 22, 2009. *See* Gargano Decl., Ex. 191.

Article in combination with the knowledge of one skilled in the art, render claims 9, 11and 16-19 of the '522 Patent obvious. While the Court has found, for the purposes of anticipation, that the Stratakos 1994 Article does not *necessarily* include flip chip, this prior art does address problems relating to energy loss that might support a finding of a motivation to combine. While Volterra has countered Defendants' evidence of motivation to combine with extensive evidence that there would not have been a motivation to combine, the Court finds that there are material factual disputes and therefore, that neither party is entitled to summary judgment on this question.

VI. ENABLEMENT/ WRITTEN DESCRIPTION AND INDEFINITENESS

A. Background

Defendants assert invalidity defenses based on lack of written description, lack of enablement and indefiniteness under 35 U.S.C. § 112 ¶¶ 1& 2. In particular, Defendants assert that three claim elements in the Burstein Patents are not enabled and/or lack a sufficient written description and that one claim limitation renders the asserted claims indefinite.

First, Defendants' expert opines that the terms "maintain the DC voltage substantially constant," "provide a substantially DC voltage at the output terminal" and "voltage regulator" (hereinafter, "the Voltage Regulator Limitations")[40] lack written description and enablement to the extent the Court broadly construed those terms to include voltage regulators that can be "programmed to dynamically alter the voltage on the fly during operation." Fair 6/28/10 Opening Report on Invalidity, ¶ 248. The parties bring cross-motions for summary judgment as to Defendants' invalidity defense based on the Voltage Regulator Limitations, as to both enablement and written description.

Second, Defendants' expert has opined that the claim limitations calling for electrical connection between a first or second plurality of metalized pads with a plurality of doped regions or a first or second plurality of doped regions with an input terminal (hereinafter, the "Electrical

[40]The claims at issue are: 1) claims 26 and 34 of the '264 Patent, which include the limitation "voltage regulator;" and 2) claims 9, 11, 16-19, 22 and 24 of the'522 Patent, which include the claim limitations "voltage regulator," "provide a substantially DC voltage at the output terminal" and "maintain the DC voltage substantially constant."

Connection Limitations")[41] lack both written description and enablement because the Burstein Patents "intentionally withhold" how these connections are to be accomplished. *See id.*, ¶¶ 244, 252 (citing the references in the Burstein Patent specifications to "*unillustrated* metalization layers"). Plaintiff seeks summary judgment as to Defendants' invalidity defense based on the Electrical Connection Limitations, both as to written description and enablement. Defendants concede that these limitations are enabled but assert that summary judgment should be denied as to the written description requirement because material issues of fact remain as to whether the claimed electrical connections were adequately disclosed.

Third, Defendants' expert has stated that the claim limitations calling for doped regions arranged in an alternating pattern (hereinafter, the "Doped Regions Limitations")[42] lack written description and enablement to the extent these limitations have been construed to include LDMOS transistors because the specification only describes PMOS and NMOS transistors. *Id.*, ¶¶ 246, 254. Plaintiff brings a summary judgment motion that the Doped Regions Limitations are enabled and described in the Burstein Patents sufficiently to meet the written description requirement. Defendants oppose the motion, arguing that the written description requirement is not met.[43]

[41]The claims at issue are: 1) claims 26 and 34 of the '264 Patent and claims 22 and 24 of the '522 Patent, which require "the first [/second] plurality of pads are electrically connected to the first [/second] plurality of doped regions" and 2) claims 9, 11 and 16-19 of the '522 Patent, which require "the first [/second] plurality of doped regions coupled to the input [/output] terminal."

[42]The claims at issue are: 1) claims 26 and 34 of the '264 Patent, which include the limitation "first and second pluralities of doped regions arranged in a first alternating pattern;" and 2) claims 9 and 22 of the '522 Patent, which include the limitation "the first plurality of doped regions and the second plurality of doped regions being arranged in an alternating pattern."

[43]In their Opposition in response to Volterra's Enablement SJ Motion, Defendants state that "not only should the Court deny Volterra's motion for summary judgment that the written description is satisfied [as to LDMOS devices], but should grant Primarion's parallel motion that the written description requirement is not met as a matter of law." Opposition to Plaintiff's Enablement SJ Motion at 2. However, Defendants' Enablement SJ Motion seeks summary judgment of non-enablement only on the basis of the Voltage Regulator Limitations; it does not seek summary judgment on the basis that the Doped Regions Limitations do not meet the written description requirement. Because Defendants did not bring a motion in accordance with the local rules seeking summary judgment on this defense, the Court does not consider Defendants' request for summary judgment that the asserted claims are invalid because the Doped Regions Limitations are not supported by written description in the disclosure.

In addition, Defendants assert that the term "power switch," which is used in all of the asserted claims of the Burstein Patents, is indefinite because it is used to refer both to a combination of high-side and low-side switches and a single high-side or low-side switch. *Id*., ¶ 256; *see also* 12/4/09 Supplemental Declaration of Dr. Richard Fair in Support of Defendants' Supplemental Claim Construction [Docket No. 650] at 1-14. Plaintiff seeks summary judgment that the power switch term is not indefinite, pointing to the Court's holding in its Claim Construction Order that the term is not indefinite. *See* Claim Construction Order at 61. Defendants oppose summary judgment on the basis that there is a split of authority as to whether this is an issue to be decided by the court or the jury, and there is a petition for rehearing *en banc* in a case currently pending before the Federal Circuit, *Telecordia Techs., Inc. v. Cisco Sys., Inc.*, Appeal Nos. 2009-1175, -1184, that may clarify this standard. Thus, Defendants seek to preserve this issue for appeal in case indefiniteness is found to be a question for the jury, as the Court has not found that no reasonable jury could return a verdict for Defendants on this issue.

B. The Voltage Regulator Limitations

1. Defendants' Position

Defendants' request for summary judgment based on lack of enablement and written description in connection with the Voltage Regulator Limitations arises out of the Court's construction of the term "maintain the DC voltage substantially constant," which is used in claims 9, 11, 16, 17, 18 and 19 of the '522 Patent. The Court construed that term to mean:

> maintain the output voltage within well-defined tolerance limits in the face of changing input voltage and load for a substantial period of time, where a substantial period of time is a period of time which is substantial relative to the switching period of the switching regulator

Claim Construction Order at 69. According to Defendants, because of the broad construction the Court gave this term – and by implication, the closely related (though not formally construed) terms "voltage regulator" and "substantially DC voltage at the output terminal" – the Burstein Patents are required, under 35 U.S.C. § 112 ¶ 1, to enable and include written description for what Defendants term "dynamic voltage regulators," that is, voltage regulators that "can be programmed to dynamically alter the voltage on the fly, during operation." Defendants' Enablement SJ Motion at 12. Defendants argue that the Burstein Patents describe and enable only "static voltage regulators" and

therefore, all of the claims that include these terms (in other words, all of the asserted claims) are invalid because: 1) the specification does not convey to a person skilled in the art that the inventors "had possession" of a dynamic voltage regulator as of the filing date; and 2) the specification does not describe how to make and use such a voltage regulator and "undue experimentation" would be required to practice the invention as to such a voltage regulator. *Id*. at 11-12; *see also* Defendants' Reply Memorandum in Support of their Motion for Summary Judgment that the Asserted Claims of U.S. Patent Nos. 6,278,264 and 6,462,522 are Invalid for Lack of Written Description and for Lack of Enablement ("Defendants' Reply on Enablement SJ Motion") at 6 (citing *Auto. Techs. Int'l v. BMW of N. Am.*, 501 F.3d 1204 (2007); *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336 (Fed. Cir. 2005), *reh'g den.*, 433 F.3d 1373 (Fed. Cir. 2006)).

Defendants cite to the Stratakos Thesis in support of the distinction between "static" and "dynamic" voltage regulators. *See* Declaration of Richard B. Fair in Support of Defendants' Motion for Partial Summary Judgment that the Asserted Claims of U.S. Patent Nos. 6,278,264 and 6,462,522 are Invalid for Lack of Written Description and for Lack of Enablement ("Fair Decl. in Support of Defendants' Enablement SJ Motion"), ¶¶ 34-35 (quoting Stratakos Thesis at PRIM 1937-1938 & Figs. 5.1, 5.2). In particular, Defendants' expert points to Figures 5.1 and 5.2 of the Stratakos Thesis. *Id*. Figure 5.1 is described in the text of the Stratakos Thesis as a "conventional 'static' low-voltage DC-DC converter." *Id*. Defendants' expert labels this figure as a "conventional static switching voltage regulator with fixed output voltage." *Id*. Figure 5.2 is described in the Stratakos Thesis as a "dynamic voltage scaling system" and is labeled by Defendants' expert as a "[d]ynamic regulator in which the regulator and the load must communicate to set proper voltage levels as a function of time." *Id*. A comparison of the two designs shows that Figure 5.2 discloses a connection between the Load and the Dynamic DC-DC converter that allows communication in order to set voltage levels as a function of time. *Id*. In contrast, in Figure 5.1, there is no such connection. *Id*. Rather, Stratakos explains that in that figure:

> The load and static converter do not communicate. The converter maintains regulation of Vo by comparing it to a known voltage reference and controlling the output via a pulse-width or pulse frequency modulation scheme.

Id., ¶ 34 (quoting Stratakos Thesis at PRIM 1938).

Turning to the Burstein Patents, Defendants' expert opines that while the claims cover both static and dynamic voltage regulators, the specification only describes "a voltage regulator that is designed to provide a fixed and stable direct current ('DC') output voltage," which, according to Dr. Fair, is a "static" voltage regulator. *Id.*, ¶ 31 (citing Burstein Patent Abstract ("[a] filter is disposed to provide a *substantially DC voltage* at the output terminal, and a control circuit controls the power switch to maintain the DC voltage *substantially constant*") (emphasis added); '264 Patent, 1: 9-10 ("[v]oltage regulators, such as DC-DC converters, are used to provide stable voltage sources for electronic systems")). In support of his reading of the specification, Dr. Fair notes:

> fixed DC output voltage would not be subject to change or fluctuation. Indeed, "direct current" means substantially constant in value for all time.

Id.

Dr. Fair also points to Figure 1 of the '264 Patent, which he asserts corresponds to the "static" switching voltage regulator that is depicted in Figure 5.1 of the Stratakos Thesis. *Id.*, ¶ 36. In particular, Figure 1 does not depict a communication path between load 14, which is outside of box 10 and therefore not part of the switching regulator. *Id.* Rather, the specification explains that the output voltage is "regulated, or maintained at a substantially constant level, by a feedback loop in the controller assembly that includes a feedback circuit 28." *Id.* (quoting '264 Patent, 5: 38-46).

Dr. Fair further opines that:

> [t]o provide an enabling disclosure of a dynamic switching regulator, the specification of the '264 Patent would have to specify how such a regulator would be designed to meet AC characteristics, including being able to respond to changing commands within a specified time, and to do so without jeopardizing the stability of the circuit control loop, while avoiding undesired (and potentially damaging transient output spikes/excursions). No such enabling disclosure is provided.

Id., ¶ 37. According to Dr. Fair, Plaintiff's expert essentially agreed with Dr. Fair when he testified in his deposition that there is nothing in the Burstein Patents that teaches one of ordinary skill in the art how to: 1) digitally program and digitally adjust the output voltage "on the fly;" 2) dynamically change the output voltage; and 3) adjust the output voltage. *Id.*, ¶ 32-33 (citing Szepesi 9/17/09 Depo. at 313-315, Szepesi 11/24/09 Depo. at 683-685).

2. Plaintiff's Position

Plaintiff asserts that, as a matter of law, the written description and enablement requirements are met as to the Voltage Regulator Limitations because the Burstein Patents disclose to a person skilled in the art: 1) how to build a voltage regulator that practices the claimed invention; and 2) that the inventors possessed the idea of a voltage regulator that maintains the output voltage within well-defined tolerance limits in the face of changing input voltage and load but where there may also be more than one substantially constant regulated output voltage. Plaintiff's Enablement SJ Motion at 12.

First, Plaintiff points to the Court's conclusion in its Claim Construction Order that the Burstein Patents use the term "voltage regulator" to refer to *any* voltage regulator, noting that the Court expressly rejected Defendants' argument that the Voltage Regulator Limitations excluded so-called dynamic voltage regulators. *Id*. at 13. Thus, Volterra argues, Defendants' expert is incorrect in asserting that the references in the specification to a voltage regulator are limited to a "static" voltage regulator. Similarly, to the extent that Dr. Fair attempts to bolster his argument that the specification discloses only a static voltage regulator through his definition of "direct current" ("DC") (defined by Dr. Fair as "substantially constant for all time"), that testimony has no weight, Volterra asserts, because Dr. Fair cites to no authority in support of the definition. *See* Szepesi 9/10/10 Opposition Decl., ¶ 62 (noting that Dr. Fair did not cite any authority in support of his definition of DC and quoting a dictionary definition previously cited by Dr. Szepesi during claim construction showing that DC ordinarily means that the current flows in one direction and is nonpulsating, *not*, that it is substantially constant for all time).

Second, Plaintiff rejects Defendants' classification of voltage regulators as "static" and "dynamic," asserting that the terms, as used by Dr. Fair, are not clearly defined and would not have been understood by a person skilled in the art at the time of the invention. Plaintiff's Enablement SJ Motion at 13 (citing Szepesi 7/14/10 Rebuttal Report on Invalidity, ¶ 367). Plaintiff points out that to the extent that Dr. Fair suggests that a *static* voltage regulator is one that maintains a constant output voltage, a dynamic voltage regulator, by implication, is a device that does not maintain a

constant output voltage and thus, is not, under the Court's claim construction, a voltage regulator at all. *Id*. (citing Claim Construction Order at 51 (construing "maintain the DC voltage substantially constant") and Comb. Fisher Decl., Ex. 57 (6/2/10 Depo. of Defendants' technical witness, Emil Todorov) at 182 (testifying that "[i]f you have a voltage regulator which doesn't maintain a constant output voltage at a particular level, this is not a regulator, this is a scientific experiment")). Plaintiff notes that Dr. Fair himself testified that he had never used "static" and "dynamic" to describe voltage regulators, prior to this litigation, and was not aware of anyone skilled in the art using these terms. *Id*. (citing Comb. Fisher Decl., Ex. 53 (Fair Depo.) at 13, 14, 16). Moreover, Plaintiff asserts, Defendants' classification of voltage regulators as either "static" or "dynamic" is inconsistent with the Stratakos Thesis itself. *Id*. at 14-15. In particular, it is recognized in the Stratakos Thesis that the "dynamic" DC-DC converter that Dr. Fair says is a dynamic voltage regulator must "maintain a precisely regulated DC output voltage" between changes in the target output voltage, just as is required of so-called "static voltage regulators." *Id*. at 14.

Third, Volterra argues that one of ordinary skill was aware at the time of the Burstein Patent application that the output voltage from a voltage regulator could be adjusted with commonly known techniques, such as programming by standard digital means. *Id*. In support of this position, Dr. Szepesi explains as follows:

> A [person of skill in the art] would understand that the substantially constant output voltage corresponds to a target value, set by the reference voltage, which may be (but need not be) programmable, as the [Claim Construction Order] clearly states. It is the controller, and the control signals from the controller circuitry to the first and second power switches which control the output voltage of the voltage regulator. [*See, e.g.*, '264 Patent at 5: 11-19, 5: 38-45; 6: 43-55]. A [person skilled in the art] would understand that a controller changes the output voltage by modulating the duty-cycles (ratio of on-time to the switching period) of high and low side switches (the first and second power switches). This is true for any PWM controller. The Burstein Patents relate to the arrangement of doped regions, metalized pads, solder balls and flip chip type packaging of integrated circuits with power switch for voltage regulator. The teachings and the inventions as expressed by the asserted claims do not relate to or specify what type of PWM controller is used to close the loop of the DC/DC converter.

Szepesi 7/14/10 Rebuttal Report on Invalidity, ¶ 366. Volterra also points to evidence that at the time of the invention, there were products on the market that featured the ability to control and adjust a substantially constant DC output voltage such that over time there may be more than one output voltage. Volterra Semiconductor Corporation's Opposition to Defendants' Motion for Summary

Judgment That The Asserted Claims Of U.S. Patent Nos. 6,278,264 And 6,462,522 Are Invalid For Lack Of Written Description And For Lack Of Enablement ("Plaintiff's Opposition to Defendants' Enablement SJ Motion") at 8 (citing 8/26/09 Expert Report of Plaintiff Volterra Semiconductor Corporation's Expert: Dr. Thomas Szepesi's Rebuttal on Infringement ("Szepesi 8/26/09 Rebuttal Expert Report on Infringement"), ¶ 11 (describing a switching regulator by Maxim Integrated Products, Inc. which allowed the output voltage to be digitally adjusted while the regulator was operating, with a datasheet date from 1995)).

Volterra rejects Defendants' reliance on Figure 1 of the Burstein Patents in support of their assertion that the inventors disclosed only static voltage regulators. Volterra's expert opines that a person skilled in the art would understand that Figure 1 is merely a simplified illustration of one embodiment of the Burstein Patents and does not include every possible connection or communication path:

> For instance, a [person skilled in the art] knew at the time the Burstein Patents were filed, for current mode controlled pulse width modulators (which were widely known and used in the late 1990s and also today), there has to be a connection/communication between the PWM control circuit (in feedback circuit 28) and the current of the inductor (element 34 in Figure 1). One cannot argue, and Dr. Fair does not argue, that because this connection is not shown in the particular embodiment depicted in Figure 1 of the '264 Patent, the Burstein Patents only enable switching voltage regulators with voltage mode control, with no connection between the inductor (and the inductor current) and feed back circuit 28. As methods and circuits were well-known in the prior art to implement current mode PWM control in switching voltage regulators, there was no need for the Burstein Patents to disclose or teach the implementation of these, or to show the details of the implementation of them, or to show the connections to control circuit 28 needed to implement them in disclosed embodiments (e.g. in Figure 1).

Szepesi 9/1/0/10 Opposition Decl., ¶ 64.[44] Volterra further asserts that an applicant is not required to describe in the specification "every conceivable and possible future embodiment of his invention." Plaintiff's Opposition to Defendants' Enablement SJ Motion at 11-12 (citing *Cordis Corp. v. Medtronic AVE, Inc.*, 339 F.3d 1352, 1364 (Fed. Cir. 2003)). Indeed, Volterra points out, it is well-established that "a patentee preferably omits from the disclosure any routine technology that is well known at the time of the application." *Id*. at 6-7 (citing *Chiron Corp. v. Genentech, Inc.*, 363 F.3d 1247, 1254 (Fed. Cir. 2004)).

[44]Defendants object to this testimony on the basis that it is untimely. For the reasons stated above, Defendants' objection is overruled.

Volterra also rejects Dr. Fair's statement that undue experimentation would be required to practice the invention of the Burstein Patents in a dynamic voltage regulator. *See* Plaintiff Volterra Semiconductor Corporation's Reply Memorandum in Support of Plaintiff's Enablement SJ Motion ("Plaintiff's Reply on Enablement SJ Motion") at 8 (citing Fair Decl. in Support of Defendants' Enablement SJ Motion, ¶ 40). Volterra argues that Dr. Fair's statement is entirely conclusory and therefore cannot create a material issue of fact on summary judgment. *Id*.

3. Analysis

To satisfy the written description requirement, "the description 'must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.'" *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010). Enablement requires that a person "skilled in the art, after reading the specification, could practice the claimed invention without undue experimentation." *Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 999 (Fed. Cir. 2008). The Court finds that both requirements are satisfied as to the Voltage Regulator Limitations in the Burstein Patents.

As an initial matter, the Court rejects the basic premise underlying Defendants' arguments, namely, that while the claims have been construed broadly to include both "static" and "dynamic" voltage regulators, the specification only describes "static" voltage regulators. In its Claim Construction Order, the Court expressly rejected Defendants' argument that language in the specification such as "substantially DC voltage," "stable voltage" and "maintained at a substantially constant level," described only what Defendants called "static" voltage regulators.[45] Rather, the Court concluded that the description in the specification covered any voltage regulator, regardless of whether or not the output voltage could be changed or adjusted. The Court's conclusion was based

[45]In the Claim Construction Order, the Court cited the following examples of language in the specification on which Defendants relied in support of their proposed claim construction: "voltage regulators . . .are used to provide *stable* voltage sources for electronic systems"('264 patent, 1: 9-10), "a filter is disposed to provide *a substantially DC voltage* at the output terminal, and a control circuit controls the power switch to maintain the DC voltage substantially constant"('264 Patent, 2: 5-8), "the output filter 26 converts the rectangular waveform of the intermediate voltage at the intermediate terminal into a *substantially DC output voltage*"('264 Patent, 5: 20-33), "[t]he output voltage is regulated, or *maintained at a substantially constant level*, by a feedback loop in the controller assembly . . . ." ('264 Patent, 5: 38-46). Claim Construction Order at 44.

upon its review of both the intrinsic and extrinsic evidence, including dictionary definitions and even the Stratakos Thesis itself. The Court reiterates that conclusion here.

Further, there is no evidence in the record from which a jury could reasonably conclude that a person skilled in the art would read the Burstein Patent specifications to apply *only* to what Defendants call a "static voltage regulator" and not to a so-called "dynamic voltage regulator." Rather, the evidence in the record indicates that a person skilled in the art would understand that the Burstein Patent specification describes both types of voltage regulators because *any* voltage regulator must be capable of maintaining a stable output voltage, or "substantially DC voltage," at least between adjustments. *See* Comb. Fisher Decl., Ex. 57 (6/2/10 Todorov Depo.) at 182; Comb. Fisher Decl., Ex. 4 (Stratakos Thesis) at 126-127.

Nor is Dr. Fair's unsupported definition of "direct current" sufficient to create an issue of fact. *See PowerOasis, Inc. v. T-Mobile USA*, 522 F.3d 1299, 1310 (Fed. Cir. 2008) (holding that conclusory expert declaration was not sufficient to create issue of fact on summary judgment). Dr. Fair does not point to any dictionary or prior art that supports his assertion that direct current means "substantially constant in value for all time." *See* Fair Decl. in Support of Defendants' Enablement SJ Motion, ¶ 31. In addition, this definition is contradicted by virtually all of the evidence in the record, including Defendants' evidence, which makes clear that the direct current output voltage of at least some types of voltage regulators (whether they are covered by the Burstein Patents or not) can be adjusted or changed.

The Court also rejects Defendants' reliance on Figure 1 to support a contrary result. Figure 1 is simply one embodiment of the invention and it is evident that the figure is simplified and does not depict every possible connection. For example, Dr. Szepesi has opined that to implement current mode PWM control, which was well-known in the prior art, there has to be a connection/ communication between the PWM control circuit (in feedback circuit 28) and the current of the inductor (element 34 in Figure 1), yet that connection also was not shown. Szepesi 9/1/0/10 Opposition Decl., ¶ 64.

In short, no reasonable jury could find by clear and convincing evidence that the invention lacked sufficient written description as to the Voltage Regulator Limitations; rather, viewing "the

four corners of the specification from the perspective of a person of ordinary skill in the art," it is clear that the inventors had "possession of the claimed subject matter," that is, that the invention disclosed in the Burstein Patents included devices for voltage regulators in which the output voltage can be changed while the device is in operation. *See Ariad Pharmaceuticals v. Eli Lilly and Co.*, 598 F.3d at 1351.

In reaching its conclusion as to the written description requirement, the Court finds persuasive the reasoning in *Cordis Corp. v. Medtronic AVE, Inc.*, 339 F.3d 1352 (Fed. Cir. 2003). In that case, the patent was for a coronary stent with a "plurality of slots." *Id.* at 1364. The claim term "slot" included complete and half slots, and the preferred embodiment described in the specification contained alternating complete and half slots. *Id*. at 1365. The claim term "plurality of slots," however, did not limit "the order or mixture of the slots." *Id*. The defendants argued that the asserted claims were invalid for lack of written description because the claims, as construed, included a device composed solely of half slots while the written description supported only a device with both complete slots and half slots. *Id*. at 1364. The Federal Circuit rejected the defendant's invalidity argument, however, on the basis that "an applicant is not required to describe in the specification every conceivable and possible future embodiment of his invention." *Id*. at 1365 (citation omitted). The court distinguished its holding in *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998), on which the defendants relied, on the basis that in that case, the specification "clearly indicate[d]" that the invention was of a much narrower scope than set forth in the claims. *Id*. The *Cordis* court went on to note that "the entirety of the specification does not reflect that the invention goes to the narrower scope of a mixture of half and complete slots. Such a mixture was not conveyed as critical to the invention nor was it described as the only feasible design in the disclosure." *Id*.

Here, as in *Cordis*, nothing in the specification indicates that the scope of the invention was narrower than the claims. The applicants did not convey in the specification that the ability to adjust the output voltage was critical to the invention; nor did they describe a voltage regulator that was limited to a single output voltage as the only feasible design. Further, whether the voltage regulator was one that was used to maintain a *single* output voltage or one that could be adjusted during

operation to achieve different output voltages was not addressed in the claims of the Burstein Patents. *See id*. at 1365. Therefore, the Court concludes that the Burstein Patents were not required to provide additional written description addressing the operation of their invention in what Defendants call "dynamic voltage regulators." *See also Spine Solutions, Inc. v. Medtronic Sofamor Danek U.S.Z., Inc.*, 2010 WL 3515467 (Fed. Cir. Sept. 9, 2010) (holding that where claim for implant called for a "single anchor . . . adapted to enter a groove," the specification was not required to provide any information about the grooves or how they should be formed or cut because "the claims at issue relate to the implant and do not cover the groove itself"); *Cornell University v. Hewlett-Packard Co*., 654 F. Supp. 2d 119 (N.D.N.Y. 2009) (holding that written description addressing register renaming was not required for claim involving techniques for detecting dependencies in computer processing context because a person skilled in the art would have recognized that register renaming was a prior art technique for eliminating non-essential dependencies).

PowerOasis, Inc. v. T-Mobile U.S.A., 522 F.3d 1299 (Fed. Cir. 2008), cited by Defendants, does not stand for a contrary result. In that case, the patent at issue was directed toward a vending machine that sold telecommunications access for a laptop. 522 F.3d at 1301. The original application described a vending machine with a customer interface as part of the vending machine, but as a result of disclosures made during the continuation-in- part application, the trial court construed the term "customer interface" to include a laptop computer. *Id*. at 1302. Because the original application did not disclose to one skilled in the art a customer interface located on a customer's laptop (as opposed to the vending machine), the Federal Circuit affirmed summary judgment that the asserted claim was invalid for lack of written description. *Id*. at 1310.

Here, in contrast to *PowerOasis*, the asserted claims refer generally to a power switch for a voltage regulator; the claims do not include limitations addressing the details of how the output voltage of the voltage regulator can be changed or adjusted. Similarly, as discussed above, the specification describes the applicants' invention in the context of a voltage regulator, even if it does not describe an embodiment in which the output voltage is adjustable. Thus, this is not a case in which limitations in the claims were not described at all in the specification. It is simply a case in

which the description in the specification does not include a specific embodiment disclosing features that were unclaimed and were not considered an important part of the invention.

The Court also finds that the enablement requirement has been met, as a matter of law, as to the Voltage Regulator Limitations. Volterra has presented specific testimony by its expert that programmable and adjustable voltage regulators were both known to those skilled in the art and available on the market. *See* Szepesi 7/14/10 Rebuttal Report on Invalidity, ¶ 366. In the face of this evidence, the conclusory statements by Dr. Fair that undue experimentation would be required to practice the invention in a so-called "dynamic" voltage regulator are insufficient, as a matter of law, to create a fact question. *See* Fair Decl. in Support of Defendants' Enablement SJ Motion., ¶¶ 30, 40. The only specific reasons offered by Dr. Fair that *might* support a conclusion of lack of enablement are that the Burstein Patents do not address how a dynamic voltage regulator practicing the invention "would be designed to meet AC characteristics, including being able to respond to changing commands within a specified time, and to do so without jeopardizing the stability of the circuit loop, while avoiding undesired (and potentially dangerous) transient output spikes/excursions." *Id*., ¶ 37. Dr. Fair does not specify what AC characteristics he is referring to, however, or explain how they are related to his definition of a "dynamic voltage regulator." Nor does he explain why these requirements would have required "undue experimentation" to implement in the context of the Burstein invention. Indeed, he does not expressly state that these requirements *would* require undue experimentation. In light of the uncontradicted testimony of Volterra's expert that adjustable and programmable voltage regulators were known to those skilled in the art at the time of the invention, Dr. Fair's vague and conclusory statements are insufficient to create a disputed issue of fact on summary judgment.

The Court rejects Defendants' reliance on *Automotive Technologies International, Inc. v. BMW of North America, Inc.*, 501 F.3d 1274 (Fed. Cir. 2007) to support a contrary result. In that case, the patent was directed toward side-impact vehicle airbag sensors. 501 F.3d at 1277. The asserted claims included a means-plus-function claim; the parties agreed the function was initiating an occupant protection apparatus but disagreed with respect to corresponding structure. *Id*. at 1278. The patentee argued in favor of a broad construction that included both mechanical and electronic

sensors, while the defendant argued that the claim covered only mechanical sensors. *Id*. The court construed the claim broadly, finding that the corresponding structure encompassed both mechanical and electronic sensors. *Id*. In support of its broad construction, the court pointed out that although the preferred embodiments were mechanical, one figure in the patent described "albeit in vague detail" an alternative approach that was electrical. *Id*. Subsequently, however, the district court granted summary judgment that the claim was invalid for lack of enablement because the patent did not provide sufficient written description as to electronic sensors. *Id*. at 1280. The Federal Circuit affirmed. *Id*. at 1282.

In support of its holding in *Automotive Technologies*, the Federal Circuit cited to the patent, which stated that "[s]ide impact sensing is a new field. The only prior art in the literature utilizes a crash sensing switch as a discriminating sensor to detect a side crash." *Id*. at 1284 (citation omitted). The court also noted that the patentee admitted that at the time the application was filed "it did not know of any electronic sensors used to sense side impact crashes." *Id*. Despite the fact that the field was so new, the single figure in the patent was merely "conceptual" and the specification contained no explanation of the circuitry that would be required to make an electronic side-impact sensor. *Id.* at 1183. The court concluded:

> Given that side impact sensing was a new field and that there were no electronic sensors in existence that would detect side-impact crashes, it was especially important for the specification to discuss how an electronic sensor would operate to detect side impacts and to provide details of its construction.

Id. at 1284. The court continued, "the specification provides only a starting point, a direction for further research on using electronic sensors for side impact crashes; it does not provide guidance to a person of ordinary skill in the art on how to make or use an electronic side impact sensor." *Id*. Because the "novel aspect" of the invention was not supported by an enabling description, the court held that the asserted claims were invalid. *Id*. at 1283.

The facts of this case are distinguishable. In *Automotive Technologies*, the claim required that a particular function be performed by particular structures. To the extent that this function was to be achieved through use of an electronic sensor, this was a novel aspect of the invention. Yet there was no explanation of how this could be achieved and indeed, it appeared that the inventors

themselves did not know how to make such a sensor. Under those circumstances, the asserted claims were not enabled. In contrast, as stated above, the features that Defendants assert are not enabled in the Burstein Patents are *not* the "novel aspect" of the invention and moreover, involve technology that would have been known to a person skilled in the art at the time of the invention. Therefore, *Automotive Technologies* is not on point.

The Court concludes that Volterra is entitled to summary judgment that the asserted claims do not fail for lack of written specification or enablement on the basis that the Burstein Patents fails to describe the operation of so-called "dynamic voltage regulators." Defendants' Enablement SJ Motion is DENIED and Plaintiff's Enablement SJ Motion is GRANTED with respect to the Voltage Regulator Limitations.

C. The Electrical Connection Limitations

1. Plaintiff's Summary Judgment Motion

Plaintiff seeks summary judgment that Defendants' invalidity defense based on the Electrical Connection Limitations fails, as a matter of law, because these limitations are supported by adequate written description and are enabled. Plaintiff's Enablement SJ Motion at 7. Citing to the rule that "a patent applicant does not need to include in the specification that which is already known to and available to one of ordinary skill in the art," *Koito Mfg. Co., Ltd. v. Turn-Key Tech, LLC*, 381 F.3d 1142 , 1156 (Fed. Cir. 2004), Plaintiff cites to the testimony of Defendants' expert that Dr. Fair understood both what connections were being claimed and how to make them. *Id*. For example, Volterra points to a diagram provided by Dr. Fair in support of Defendants' proposed claim constructions illustrating the "unillustrated metalization layers" in the Burstein Patents. *Id*. (citing Supplemental Declaration of Dr. Richard Fair in Support of Defendants' Supplemental Claim Construction Brief ("Fair 12/4/09 Supp. Claim Construction Decl."), ¶ 63). Describing this diagram, Dr. Fair states as follows:

> The specification of the '264 patent identifies an array of metalized pads (drain pads and source pads) in Fig. 3A "with alternating rows of the pads connected by the unillustrated metalization layers to the source regions 60 and drain regions 62, respectively." 6: 26-37.
>
> [DIAGRAM]

> One of ordinary skill reading the specification, and in particular column 6, would understand the patent to be describing the structure I illustrate above. The description at column 6 clearly differentiates the metalized pads from the unillustrated metalization layers that lie beneath the metalized pads. Column 6: 9-13 states that it is the function of the "metalization layers" to carry current "**to** the electrode pads": "The IC chip can include two or more metalization layers, e.g., three layers, formed over the semiconductor substrate **to carry current from the doped regions to the electrode pads** on the surface of the chip." 6: 9-13 (emphasis added). The metalization layers are above the semiconductor substrate but beneath the pads on the surface of the substrate, i.e., they are metal interconnect layers beneath the metalized pads.

Fair 12/4/09 Supp. Claim Construction Decl., ¶ 65.

Volterra further cites Dr. Fair's testimony in his deposition about the connection between pads and the source and drain regions shown in Figure 3A of the Burstein Patents. Plaintiff's Enablement SJ Motion at 7 (citing Comb. Fisher Decl., Ex. 53 (Fair Depo.) at 156). Specifically, Dr. Fair testified that "there would be an intermediate metal layer . . . which would then allow current to flow to the pad" and conceded that this would be clear to one of ordinary skill in the art. *Id*. Similarly, Dr. Fair stated as follows in connection with Defendants' anticipation defense:

> To the extent that Volterra contends that a prior art reference does not explicitly disclose how a doped region is coupled to a pad or to an input or output terminal, it is my opinion any method known to a person having ordinary skill in the art at the time of the alleged invention could be used to make such connection.

Fair 6/28/10 Opening Report on Invalidity, ¶ 67. Dr. Fair testified further that Sicard anticipated the Burstein Patents, even though it does not describe or illustrate how the drain regions of the disclosed LDMOS transistor is connected to the drain pads. *Id*., ¶¶ 82, 93 App. A (claim chart) at 6.

Finally, as to the written description requirement, Volterra argues that Dr. Fair's statement that one skilled in the art would not understand that the inventors had possession of how the pads are electrically connected are merely conclusory statements that have no persuasive value in light of the specific testimony of Dr. Fair cited above showing that the electrical connections are adequately described – an opinion, Volterra notes, that its expert shares. Plaintiff's Enablement SJ Motion at 9 (citing Fair 6/28/10 Opening Report on Invalidity, ¶¶243, 245 & 251); *see also* Szepesi 7/14/10 Rebuttal Report on Invalidity, ¶ 359 (stating that a person skilled in the art would know how to make the electrical connections described in the Burstein Patents because "the Burstein Patents provide a block diagram (Fig.1) and a detailed written description of the claimed connections which, among

others, refer to the metalization layers formed over the semiconductor substrate that 'can carry current from the doped regions to the electrode pads on the surface of the chip,' (see, e.g., 2:59-64; 3: 17-21; 6: 9-14, 6: 28-39, 6: 56-61)").

2. Defendants' Opposition

Defendants do not oppose Volterra's request for summary judgment as to enablement of the claimed electrical connections to the doped the regions. They argue that summary judgment should be denied, however, as to the written description requirement because fact questions remain as to whether the mere reference to "unillustrated metalization layers" in the specification of the Burstein Patents is sufficient. Defendants argue that the evidence cited by Volterra goes to enablement, not the separate written description requirement, and further, that the opinion of its expert that the written description requirement is not satisfied creates a fact question. *See* Fair 9/10/10 Opposition Decl., ¶¶ 45-46. Defendants reject Plaintiff's reliance on Figure 1 of the Burstein Patents to show that the electrical connections are sufficiently described, arguing that this figure is a "high level schematic for an entire voltage regulator and does not show any connections to doped regions." Defendants' Opposition to Plaintiff Volterra Semiconductor Corporation's Motion for Partial Summary Judgment of No Invalidity Based on Lack of Written Description, Non-Enablement, or Indefiniteness Under 35 U.S.C. §112 ("Defendants' Opposition to Plaintiff's Enablement SJ Motion") at 9 (addressing Volterra's reliance on Szepesi 7/14/10 Rebuttal Report on Invalidity, ¶ 359). As an example of an illustration that would be required to satisfy the written description requirement as to the Electrical Connection Limitations, Defendants point to a figure in the Nickel Patent, which provides a detailed schematic of these electrical connections. *Id*. at 9-10 (depicting Figure 4 of U.S. Patent No. 6,713,823 ("Nickel Patent"), filed March 8, 2002, issued March 30, 2004). Defendants also reject Dr. Szepesi's reliance on the written description, asserting that the only references that are actually relevant to the electrical connections between the doped regions and the pads – 6: 9-14 and 6: 28-39 of the '264 Patent – do nothing more than refer to the unillustrated metalization layers. *Id*. at 10.

3. Plaintiff's Reply

In its Reply, Plaintiff again points to Dr. Fair's testimony that a person skilled in the art would have understood from Figure 3A of the Burstein Patents that the claimed invention included the electrical connections to the doped regions. Plaintiff's Reply on Enablement SJ Motion at 12-13. In response to Defendants' argument that neither Figure 1 of the Burstein Patents nor the excerpts of the specification cited by Dr. Szepesi in his Rebuttal Report on Invalidity provide adequate description of these electrical connections, Volterra asserts that Defendants fail to take into consideration the additional disclosure of Figures 3A, B & C. Dr. Szepesi states in his Reply declaration:

> . . . I note that the specification discloses that metalization layers formed over the semiconductor substrate carry current from the doped regions to the pads on the surface of the chip. ['264 Patent] at 2: 59-64; 3: 17-21; 6: 9-14; 6: 28-39; 6: 56-61; Figs. 3A, 3B and 3C. Fig. 1 shows the location of the high side FET 30, and the low side FET 32. The Burstein Patents in Figs. 3A and 3B show details of doped regions for the FETS and the metalized pads and clearly shows the relative location of these elements to one another, as well as describe that there are three metal layers in-between these structures that carry the current between them, i.e. implement the connection. Accordingly, based on the Burstein Patents description of the electrical connections between the doped regions, the pads and the three metal layers relative to each other the Burstein Patents clearly disclose the connections between the doped regions and the metalized pads to [a person skilled in the art].

Szepesi 9/24/10 Reply Decl. ¶ 55. Volterra also points to passages in the specification of the Burstein Patents that it asserts show how the metalized source and drain pads were connected to the input, intermediate and ground terminals of the voltage regulator. Plaintiff's Reply on Enablement SJ Motion at 12 (citing '264 Patent col. 6: 55-61 and Figs. 1, 3A, 3B; Szepesi 9/24/10 Reply Decl., ¶ 60 (opining that Figure 6 and '522 , 7: 34-49 provide detailed description of electrical connections between metalized pads and input, intermediate and ground terminals)).

4. Analysis

As discussed above, the written description requirement is distinct from the enablement requirement, but the two "often rise and fall together." *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d at 1352. The relevant inquiry with respect to the written description requirement is whether the description would "'allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.'" *Id*. at 1351 (quoting *In re Gosteli*, 872 F.2d 1008, 1012 (Fed.

Cir. 1989)). The enablement requirement is met if a person "skilled in the art, after reading the specification, could practice the claimed invention without undue experimentation." *Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 999 (Fed. Cir. 2008) (citation omitted). Here, Defendants do not dispute that a person skilled in the art would understand how to practice the invention with respect to the electrical connections without undue experimentation. Nonetheless, because the Burstein Patents do not include detailed schematics like those in the Nickel Patent, Defendants assert that a person skilled in the art would not understand that the Burstein Patent applicants were in possession of how these connections were to be made. The Court concludes that Defendants have not established a fact question and therefore, that Volterra is entitled to summary judgment on this defense.

The Burstein Patents describe the electrical connections between the pads and the doped regions using metalization layers. *See, e.g.,* '264 Patent, 6: 9-14 and 6: 28-39 of the '264 Patent. These descriptions are supported by Figures 1, 3A, 3B & 3C which, while not detailed, disclose the relative locations of the doped regions for the FETS and the metalized pads. This disclosure provided a sufficient basis for Dr. Fair to provide a diagram that he said depicted the details of the electrical connections between doped regions and the pads, as described in the specification of the Burstein Patents. Dr. Fair further testified that a person skilled in the art would have understood this. In the face of this evidence, Dr. Fair's conclusory statements that a person skilled in the art would not believe the inventors possessed the invention as to the Electrical Connection Limitations are not sufficient to establish a fact question. Nor does the Court find that the more detailed description and diagram in the Nickel Patent support a contrary result. The fact that a different patent describes a feature of an invention in greater detail is not the relevant test. Therefore, Volterra's request for summary judgment on this defense is GRANTED.

D. The Doped Regions Limitations

1. Plaintiff's Position

Plaintiff seeks summary judgment on Defendants' invalidity defense based on the Doped Regions Limitations, arguing that the applicants were not required to recite every type of MOSFET transistor and therefore, the absence of any discussion in the Burstein Patents of LDMOS transistors does not render the asserted claims that include the Doped Regions Limitations invalid. Plaintiff's

Enablement SJ Motion at 10. According to Volterra, "there can be no dispute that one skilled in the art understood that 'doped regions' can form (or be connected to) the source and drain regions of many types of MOSFET transistors, including the LDMOS transistors." *Id*.

In support of its position, Volterra points to the fact that at claim construction, the Court rejected Defendants' arguments attempting to limit the scope of the term "doped regions." *Id*. at 11. In particular, Defendants' proposed construction – "either p+ regions fabricated in an n-type region where the p+ regions form the source regions (or drain regions) of the transistor, or n+ regions fabricated in a p-type region where the n+ regions form the source regions (or drain regions) of the transistor" – would have limited the claims to PMOS and NMOS transistors. *See* Claim Construction Order at 21-22.

In addition, Plaintiff points to evidence that at the time of the invention, LDMOS transistors were a well-known technology; for example, Defendants' former expert, Dr. Baker, called LDMOS a "mature technology." Plaintiff's Enablement SJ Motion at 11 (citing Comb. Fisher Decl., Ex. 56 (Baker Depo.) at 151). Dr. Fair also conceded that may different kinds of transistors, including the LDMOS, were well-known at the time of the invention. *Id*. (citing Comb. Fisher Decl., Ex. 53 (Fair Depo.) at 136).

Plaintiff further cites to Dr. Fair's anticipation arguments in support of its position, arguing that to the extent that Defendants assert that the LDMOS device in Sicard discloses the doped regions of the Burstein Patents, this amounts to a concession that a person of skill in the art would understand "doped regions" in the Burstein Patents to adequately describe LDMOS transistors. *Id*. at 12.

Plaintiff asserts that *In re Hayes*, 982 F.2d 1527 (Fed. Cir. 1992) and *Kao Corp v. Unilever U.S., Inc.*, 441 F.3d 963 (Fed. Cir. 2006) are on point and support the conclusion that the applicants were not required to describe LDMOS transistors to meet the written description requirement.

2. Defendants' Position

Defendants oppose Plaintiff's request for summary judgment on this defense, asserting that because the Burstein Patents describe only two types of transistors that can be used in voltage regulators – a PMOS device and an NMOS device – and do not describe a voltage regulator that uses

an LDMOS transistor (as Volterra's expert has conceded), a person skilled in the art would not have known that the inventors had possession of the claimed subject matter to the extent the claims cover LDMOS devices. Further, Defendants contend, Volterra's interrogatory responses show that the applicants *did not* possess this subject matter. In particular, Defendants point to Volterra's interrogatory responses revealing that: 1) [REDACTED]

; and 2) Volterra itself did not decide to develop a voltage regulator that used LDMOS transistors until 2001 and implementation of Volterra's LDMOS approach required extensive development effort. Defendants' Opposition to Plaintiff's Enablement SJ Motion at 12 (citing Gargano Decl., Ex. 112 (Volterra's Supplemental Responses to Defendants' Interrogatories, served 8/18/10)) at 218-222).

Defendants reject Volterra's reliance on the Court's broad construction of the term "doped regions," arguing that Volterra's reasoning is circular; the fact that the Court adopted a broad construction of the term does not mean that the written description requirement is met as to LDMOS transistors. *Id.* at 13. Further, Defendants argue that evidence cited by Volterra that LDMOS transistors were widely known only establishes, at best, that devices that use LDMOS transistors would be obvious, but obviousness is not enough to meet the written description requirement. *Id*. Defendants also reject Volterra's reliance on Dr. Fair's opinions relating to anticipation, arguing that Dr. Fair's statements that Sicard anticipates the Burstein Patents are based on the Court's broad construction of the "doped region" claim term and do not have any bearing on whether the written description requirement is met. *Id*.

In support of their assertion that a person skilled in the art would not know that the applicants possessed the disclosed invention as to voltage regulators that use LDMOS transistors, Defendants cite to Dr. Szepesi's deposition testimony. *Id*. at 11-12. Dr. Szepesi testified that "LDMOS is not in the specification." Gargano Decl., Ex. 122 (Szepesi 7/30/09 Depo.) at 153. He explained,

> The LDMOS transistor is one kind of a MOS transistor, NMOS or PMOS. So if the patent talks about NMOS transistors in general, that might include the N-channel LDMOS transistor as a subclass. Whether that was the intent of the inventors or not, I cannot know.

Id.

Finally, Defendants argue that *In re Hayes* and *Kao* are distinguishable and therefore do not support Volterra's request for summary judgment. Defendants' Opposition to Plaintiff;s Enablement SJ Motion. Rather, they assert that *PowerOasis*, 522 F.3d 1299, 1310 (Fed. Cir. 2008) is on point and requires that the Court deny Plaintiff's request for summary judgment on this issue. *Id*. at 11.

3. Analysis

The Court finds that Volterra has not established that no reasonable jury could find in favor of Defendants on this defense and therefore denies Volterra's request for summary judgment. It is undisputed that the claims, as construed by the Court, encompass LDMOS transistors, while all the embodiments described in the specification of the Burstein Patents describe voltage regulators that use PMOS and NMOS transistors. The fact that the Court construed the claims broadly – or that Defendants' expert opined that Sicard met those broadly construed claims – does not establish as a matter of law that the Doped Regions Limitations are adequately disclosed as to LDMOS transistors. Therefore, summary judgment that the written description requirement is met as to LDMOS transistors is not appropriate.

Neither *Kao* nor *In re Hayes*, cited by Volterra, stand for a contrary result. In *Hayes*, the district court denied the defendants' motion for judgment notwithstanding verdict (JNOV) following a jury trial in which the jury found the patent was not invalid, rejecting the defendants' assertion that the written description requirement was not met. 982 F.2d at 1530. The Federal Circuit affirmed. *Id*. The invention in that case related to a mechanism for controlling the operation of a modem. *Id*. at 1531. It included a limitation calling for a "timing means," which the accused infringer argued was not adequately disclosed in the specification. *Id*. at 1533. The Federal Circuit found that substantial evidence supported the jury's verdict that the written description requirement was satisfied, pointing to several statements in the specification from which a person skilled in the art would understand that the timing means of the invention was incorporated into the structure of the microprocessor, as well as expert testimony that a person skilled in the art would know how to implement every detail of the invention from the patent disclosure. *Id*. at 1534.

In *Kao*, the patent at issue involved a cosmetic skin care product used to remove "keratotic plugs," or blackheads. 441 F.3d at 965. The asserted claim included a step of wetting a dried

preparation before applying it to the skin, which the defendants asserted was not supported by written description that would have shown a person skilled in the art that the applicants were in possession of the invention. *Id*. at 967. The district court, following a bench trial, ruled in favor of the patentee on this defense, citing two grounds for its conclusion: 1) the "words of the claim itself 'plainly and directly satisf[ied] the standard employed by the Federal Circuit in assessing written description,' because 'the phrase "wetting the skin or said cosmetic article" fairly appraises persons of ordinary skill in the cosmetics field that either the cosmetic article or the skin . . . must be wet prior to application.'" *Id*. at 968 (quoting district court opinion, 334 F. Supp. 2d 527, 550 (D.Del. 2004)); 2) based on the sequence of events described in the specification, the wetting step, which was necessary to aid in the claimed adhesion of the cosmetic article, was so straightforward that a detailed description of it in the specification was not necessary. *Id*.; *see also* 334 F. Supp. 2d at 550 (pointing to language in the specification elaborating on what was meant by the "manner of using ordinary packs and poultice," in particular, the statement that "when a pack preparation is used, it is first applied to the part of the skin which has keratotic plugs . . .and *after dried*, it is peeled off" (emphasis added)).

On appeal, the defendants in *Kao* challenged the second ground, pointing out that the embodiments described in the specification all involved "packs" and "poultices," which are already wet and therefore, the process described in the specification would *not* have alerted a person of ordinary skill in the art of the wetting step. 441 F.3d at 968. The Federal Circuit rejected this argument, pointing to the clear error standard that applies to the district court's findings of fact and concluding that it was "poorly positioned, relative to the finder of fact, to draw a contrary conclusion." *Id*. The court noted, however, that the defendant's arguments were "not without force." *Id*.

While the Federal Circuit affirmed the district courts' findings of no invalidity in both *In re Hayes* and *Kao*, in both cases, this question was resolved by the fact-finder and not on summary judgment. While a jury in this case may likewise conclude that the written description requirement is met here, nothing in *Hayes* or *Kao* persuades the Court that this question can be resolved as a matter of law at the summary judgment stage of the case.

E. Whether the Power Switch Term is Indefinite

In its Claim Construction Order, the Court held that the "power switch" term was not indefinite. The Court declines to revisit this issue. Therefore, for the reasons stated in the Court's Claim Construction Order, Plaintiff's request for summary judgment as to this defense is granted.

VII. UNDISCLOSED REFERENCES

A. Background

Volterra seeks summary judgment of no invalidity based on 48 prior art references cited by Drs. Richard Fair and Philip Garrou in their expert reports and two obviousness combinations[46] that were not included in Defendants' invalidity contentions. Plaintiff's Undisclosed References SJ Motion at 1 & Appendix (listing references and obviousness combinations). Volterra also seeks summary judgment of no invalidity as to any defense based on the allegation that Volterra sold or offered to sell its invention to Amkor Technology or Smartflex Technology – a defense that was raised for the first time in supplemental interrogatory responses that were served on the last day of discovery, and which was not disclosed in Defendants' invalidity contentions. *Id.* at 1.

Defendants do not oppose the motion as to the on-sale bar defense. They assert, however, that as to the undisclosed references and obviousness combinations, the motion should be denied on several grounds. First, Defendants argue that to the extent Volterra's motion is based on Defendants' alleged failure to meet their discovery obligations, the motion should have been brought at the close of discovery as a motion to preclude or a motion for sanctions under Rule 37 of the Federal Rules of Civil Procedure. Defendants' Opposition to Plaintiff's Undisclosed References SJ Motion at 1.

Second, while conceding that the references and obviousness combinations were not included in Defendants' invalidity contentions, Defendants assert that they should be allowed to present them to the jury in order to provide it with "a complete picture of the state of the prior art at the time of the

[46]Although Plaintiff stated in the motion that it was seeking summary judgment as to *three* new obviousness combinations, Plaintiff conceded in its reply brief that one of those combinations had, in fact, been disclosed by Defendants in their First Amended Invalidity Contentions. Plaintiff's Reply on Undisclosed References SJ Motion at 2 n. 1. In particular, Plaintiff acknowledged that Defendants disclosed the obviousness combination of the Stratakos 1994 Article in view of the knowledge of one of ordinary skill in the art of CMOS design and process, as set forth in Dr. Fair's Opening Report on Invalidity in Appendix B-12. *Id.*

alleged invention claimed in the Burstein Patents." *Id*. at 2. According to Defendants, allowing them to present this prior art to the jury will not prejudice Plaintiff because the additional references were cited in the reports of Defendants' experts and these references simply "bolster invalidity theories that have been advanced from the very beginning of this litigation." *Id*. at 2-3. Moreover, Defendants argue, Plaintiff will not suffer any prejudice because it will have an opportunity to depose Drs. Fair and Garrou as to these new references and combinations and in any event, its experts have already addressed in their rebuttal reports the new references and obviousness combinations that Defendants' experts included in their opening reports. *Id*. at 3.

Third, Defendants assert that their experts rely on "certain of the additional references" to "rebut opinions and arguments raised for the first time by Volterra's experts in their rebuttal reports." *Id*. at 3. Defendants do not identify which of the new references they are referring to, though they cite to numerous sections of their experts' reports in support of this point. *See id*. at 8 (citing Garrou Reply Report, ¶¶ 18-30, 38-43, 53-59, 76-77,81-115 and Fair Reply Report, ¶ 39-40). However, Defendants do provide a list of 22 references that were disclosed for the first time in rebuttal expert reports by *Volterra*, arguing that because Volterra's experts cited previously undisclosed prior art, its own experts were required to do the same. *Id*. at 8.

Finally, Defendants assert that the Patent Local Rules do not require disclosure of the new references because they are not being used by Defendants to establish anticipation but rather "as evidence that one of ordinary skill in the art would have understood the reference to COB in the Stratakos 1994 article to include flip chip." *Id*. at 6. According to Defendants, "[t]here is no requirement under L.P.R., [sic] to disclose evidence as to the meaning of a term of art that is used in an identified reference." *Id*.

B. Analysis

Patent Local Rule 3-3 requires that invalidity contentions be served no later than 45 days after service of infringement contentions and that the invalidity contentions include "[t]he identity of each item of prior art that allegedly anticipates each asserted claim or renders it obvious" and "[w]hether each item of prior art anticipates each asserted claim or renders it obvious." Patent L.R. 3-3(a) & (b).

Patent Local Rule 3-6 provides for amendment of invalidity contentions "only by order of the Court upon a timely showing of good cause." That rule further states:

> Nonexhaustive examples of circumstances that may, absent undue prejudice to the nonmoving party, support a finding of good cause include: (a) a claim construction by the Court different from that proposed by the party seeking amendment; (b) recent discovery of material, prior art despite earlier diligent search; and (c) recent discovery of nonpublic information about the Accused Instrumentality which was not discovered, despite diligent efforts, before the service of the Infringement Contentions. The duty to supplement discovery responses does not excuse the need to obtain leave of court to amend contentions.

Patent L.R. 3-6. Defendants do not dispute that they failed to include the new prior art references and obviousness combinations in their invalidity contentions but assert that they should nonetheless be permitted to rely on them at trial to support their anticipation and obviousness defenses. The Court disagrees.

First, Defendants' assertion that they are not required under Rule 3-3 to include in their invalidity contentions prior art that is used to establish "the meaning of a term of art that is used in an identified reference" is not supported by any authority. Further, in light of the broad formulation of Rule 3-3(a), which requires disclosure of any prior art that "anticipates each asserted claim or renders it obvious," the Court concludes that such an interpretation is incorrect. Indeed, such an exception would substantially undermine the purpose of the Patent Local Rules of the Northern District of California, namely, to ensure that parties provide "early notice of . . . invalidity contentions, and . . . proceed with diligence in amending those contentions when new information comes to light in the course of discovery [in order] to balance the right to develop new information in discovery with the need for certainty as to the legal theories." *O2 Micro Int'l Ltd. v. Monolithic Power Sys., Inc.*, 467 F.3d 1355, 1365 (Fed. Cir. 2006). Given that Defendants framed many of their obviousness contentions in terms of the knowledge of a person skilled in the art without identifying the specific prior art that reflects the knowledge of such a person, the need for timely disclosure of the specific prior art references on which Defendants intend to rely is particularly striking in this case. *See, e.g.*, Comb. Fisher Decl., Ex. 111 at B-7 (pp. 78-93) and at B-8 (pp. 95-111) (Fair Opening Expert Report, Appendix B).

Second, the fact that Defendants may have produced some of the prior art references in discovery or disclosed them in expert reports does not excuse Defendants from their obligation to

amend their invalidity contentions under the Patent Local Rules. Rather, Rule 3-6 expressly states that "[t]he duty to supplement discovery responses does not excuse the need to obtain leave of court to amend contentions."

Third, Defendants have not demonstrated good cause for failing to amend their invalidity contentions and therefore may not evade the requirements of Rule 3-3 by relying on the new prior art at trial. The only factor cited by Defendants that might constitute good cause is the reliance by Volterra's experts on previously undisclosed prior art in their own expert reports; in particular, according to Defendants, some of the new references cited by Defendants' experts were offered only to rebut Volterra's new references and arguments and thus Defendants should be allowed to present this evidence to the jury to ensure that the state of the prior art is not misrepresented. While this argument might have some weight if properly supported, Defendants have not identified which new references offered by their experts were offered in rebuttal or explained how any of the new references relate to any specific reference offered by Volterra. Rather, Defendants have simply made vague, conclusory assertions on this question. Accordingly, the Court does not find good cause that would permit Defendants to amend their invalidity contentions at this stage of the case such that they can rely on the new prior art at trial.

Plaintiff's Undisclosed References SJ Motion is GRANTED in its entirety.

VIII. ON-SALE BAR

A. Background

In their First Amended Invalidity Contentions, Defendants contend that Volterra's "demonstration and delivery of prototypes embodying the Asserted Claims more than one year before the February 4, 2000 filing date of the Burstein Patents constitutes a public use that renders the asserted claims invalid under 35 U.S.C. § 102(b)." Comb. Fisher Decl., Ex. 39 (First Amended Invalidity Contentions ("FAIC") at 6. In particular, Defendants point to a December 1998 demonstration by Volterra of a prototype of the invention, the Copperhead 5v chip, to Intel's Enterprise Server Group ("ESG") in Washington state. *Id*. at 6-7. According to Defendants, this demonstration was not covered by an existing non-disclosure agreement (the "Corporate Non-Disclosure Agreement" or "CNDA") between Intel and Volterra because that agreement only

protected information for which a Confidential Information Tracking Record ("CITR") was executed and no CITR was executed for the prototype that was demonstrated by Volterra in December 1998. *Id*. Defendants further contend that Volterra delivered the prototype to Intel, leaving it with ESG following the demonstration. *Id*. According to Defendants, the delivery of the prototype also supports their invalidity defense, especially in light of the fact that Volterra has not produced a Prototype Tracking Documents ("PTD") in connection with delivery, even though Volterra has conceded that it used PTDs to track delivery of prototypes. *Id*.[47]

Volterra and Intel began discussions relating to the development of more efficient and smaller voltage regulators in 1996 or 1997. Declaration of Michael O'Connor in Support of Motion for Partial Summary Judgment of No Invalidity Based on Alleged Prior Public Use or On-Sale Bar Pursuant to 35 U.S.C. § 102(b) ("O'Connor Decl."), ¶ 3. Eventually, the parties entered into a joint development agreement. *Id.*; *see also* Gargano Decl., Ex. 106 (document entitled "Intel Mobile Power Supply Development Project," carrying handwritten notation "12/17/97 Final Agreement," hereinafter, the "Joint Development Agreement"). The Joint Development Agreement states in the Overview section that Volterra will "develop a prototype power supply, using Volterra's proprietary technology, targeted for use in Intel's next-generation microprocessor applications." Gargano Decl., Ex. 106. The "Project Deliverables" listed in the agreement include "[e]ight test boards with working silicon and all external components for evaluation." *Id*. at 3.

On July 10, 1997, Intel and Volterra entered into the CNDA. O'Connor Decl., ¶ 8 & Ex. A. That agreement defines confidential information as follows:

> **Confidential Information Transmittal Form**. The confidential, proprietary and trade secret information of the disclosing party (hereinafter "Confidential Information") provided hereunder is that information described in the Confidential Information Transmittal Record (CITR) executed from time to time hereafter. CITRs are subject to the terms of this Agreement. CITRs will be executed to the parties prior to the disclosure of confidential

[47]Defendants' prior public use and on-sale bar defenses under § 102(b) are based on the assumption that the prototype that was demonstrated in December 1998 embodied the claimed invention. As discussed above, Defendants in fact take the position that the prototype *did not* embody all the limitations of the invention. *See* Defendants' Opposition to Plaintiff's Prior Art SJ Motion at 18-19 (asserting that Tut prototype did not include features of the claimed invention and therefore was not a reduction to practice of the invention). Thus, these defenses are asserted by Defendants only if the Court or a jury rejects that position and finds that the prototype was an actual reduction to practice of the invention. Defendants' Opposition to Plaintiff's On-Sale Bar SJ Motion at 1.

> information. All information described in a CITR and marked with a "confidential", "proprietary", or similar legend, will be deemed Confidential Information. All Confidential Information received from the disclosing party will be in a tangible form. To be considered Confidential Information, verbal disclosures must be reduced to writing, marked "Confidential" and delivered to the receiving party within thirty (30) days. The CITR will indicate the disclosing party, a description of the Confidential Information disclosed, the names of the representatives of the parties and the date when the disclosure covered by the CITR commenced.

Id., Ex. A, Section 1. Under Section 2 of the CNDA, Confidential Information may not be disclosed to "any third party without the prior written approval of the disclosing party." *Id*., Section 2. The CNDA also contains the following provision:

> **General**.
>
> . . .
>
> (d) This Agreement, any accompanying CITR and CITRs executed from time to time hereafter which incorporate the terms of this Agreement, constitutes the entire agreement, written or verbal, between the parties with respect to the disclosure(s) of Confidential Information described in each CITR. This Agreement will not be amended except in writing by a duly authorized representative of the respective parties. Any other agreements between the parties including non-disclosure agreements, will not be affected by this Agreement.

Id. (Section 8).

On December 9, 1997, Volterra and Intel executed a CITR ("the December 9, 1997 CITR") under the CNDA describing the following information disclosed by Volterra to Intel: "Volterra Power IC Technology." *See* O'Connor Decl., Ex. C. The confidential Intel information to be disclosed was described as "Future Intel CPUs Power Requirements." *Id*. The location of disclosure is listed as "Intel -JF1, Hillsboro OR." *Id*. The CITR is signed by Michael O'Connor for Intel and by Alan King, as president and CEO, for Volterra. *Id*. The December 9, 1997 CITR was reviewed by Gary Pinelli, Volterra's Vice President of Sales and Marketing and Vice President of Sales at that time. *See* Declaration of Gary Pinelli in Support of Motion for Partial Summary Judgment of No Invalidity Based on Alleged Prior Public Use or On-Sale Bar Pursuant to 35 U.S.C. § 102(b) ("Pinelli Decl."), ¶¶ 1,4. Pinelli was responsible for making sure that "Volterra's confidential technical and business information, including information relating to Volterra's technology and development efforts, was maintained confidentially and if disclosed to others outside the company,

was only disclosed subject to agreements that would protect and preserve the confidentiality of Volterra's information." *Id.*, ¶ 1.

> According to Pinelli, he understood that the December 9, 1997 CITR:
>
> covered and extended to all of the technical information Volterra would provide to Intel relating to the power technology Volterra was developing, including all of Volterra's future anticipated demonstrations and disclosures to Intel regarding the prototypes of IC power technology Volterra was developing.

Id., ¶ 5. Pinelli explains that his understanding of the parties' intentions as to the December 9, 1997 CITR was:

> based on [his] discussions with Intel's Michael O'Connor who was Intel's primary contact for Volterra, about the mutual desire of both Intel and Volterra to ensure that all confidential information that would in the future be disclosed by either side to the other in connection with the joint development project would be subject to confidentiality restrictions and not shared outside of Intel and Volterra, as well as based on [his] review of the December 9, 1997 CITR form including the use of the broad and general term "Volterra power IC technology." Mr. O'Connor explained Intel's practices to me regarding confidentiality agreements, including the CNDA and Intel's CITR forms. I understood from what Mr. O'Connor explained to me that in filling out and executing the Intel CITR forms that all that was required was a general high level description of the category or type of information that was to be covered under the CNDA and that this would cover all future disclosures of such information.

Pinelli Decl., ¶6.

Similarly, Intel's Michael O'Connor, who prepared the December 9, 1997 CITR in connection with a meeting on the same date between Volterra and Intel's Platform Architecture Lab group ("PAL") in Hillsboro Oregon, states as follows:

> when I prepared and executed the CITR dated December 9, 1997 . . . on behalf of Intel, Intel and Volterra both anticipated at that time in connection with the joint development effort there would be a series of future meetings between the parties in which they would continue to exchange information and discuss Volterra's development efforts, and which would include demonstrations made by Volterra to Intel of Volterra's technology and prototypes as Volterra's development efforts progressed. It was also understood and anticipated that these meetings, and the anticipated exchanges and disclosures of information including demonstrations at such meetings, would occur at multiple locations, including Volterra's facilities as well as likely multiple different Intel facilities in different states, as there were multiple groups within Intel that were interested in learning about and evaluating Volterra's anticipated future development efforts.

Reply Declaration of Michael O'Connor in Support of Motion for Partial Summary Judgment of No Invalidity Based on Alleged Prior Public Use of On-Sale Bar Pursuant to 35 U.S.C. § 102(b) ("O'Connor Reply Decl."), ¶ 2.

O'Connor states that the broad description of the technology covered under the December 9, 1997 CITR was consistent with his practice "and the standard practice at Intel to use short, general, high-level descriptions" – a practice that was "necessitated in part by the small amount of space on the CITR form in which to describe confidential information." O'Connor Decl., ¶ 14. O'Connor further states that he used the brief description "because it was the desire and intention of both Intel and Volterra at the time that this CITR and the CNDA would cover all technical information that would be exchanged in the future during the project." *Id.*, ¶ 15. According to O'Connor, the broad description was intended to "eliminate the need for any future CITRs to cover disclosure by one side or the other during the joint development project." *Id.*, ¶ 16. O'Connor further states that "[t]here was no verbal or written information, demonstrations, or prototypes disclosed by Volterra to Intel at any point during the joint development project which continued beyond February 4, 1999 that I did not consider to be covered [by] the agreement of confidentiality between Intel and Volterra and by the CNDA and CITR executed by the parties." *Id.* ¶ 20. Finally, O'Connor states that to his knowledge, "no Volterra confidential information or prototype was ever shared by Intel to anyone outside of Intel." *Id.* ¶ 21; *see also* Comb. Fisher Decl., Ex. 43 (Deposition of Michael Sugg) at 172-180 (testimony of Volterra board observer from Intel ESG group that he attended approximately 8 meetings between Volterra and Intel in connection with joint development project, that he believed all information and prototypes provided to Intel at these meetings was covered by the CNDA and CITRs and that he was not aware of anyone from Intel ever disclosing information or prototypes obtained in these meetings to individuals outside of Intel); Ex. 45 (Deposition of James Dinh) at 164-167) (testimony of Intel technologist that he visited Volterra many times to learn about its new technology, that he found Volterra's packaging technology promising due to its performance and small size and that he understood that all Volterra information and prototypes provided to Intel were to remain confidential under the CNDA and CITRs).

According to Volterra, its "first physical demonstration to Intel of the prototype of the power technology Volterra was developing pursuant to the joint development agreement occurred in November 1998 at Volterra's facilities in Fremont, California." Pinelli Decl., ¶ 8. This demonstration was made to "a few representatives of Intel's ESG . . . that had only shortly before this

been introduced to us by Intel's Michael O'Connor." *Id*. At this time, another CITR was executed between Intel and Volterra ("the November 17, 1998 CITR"). Pinelli Decl., ¶ 9 & Ex. C. Pinelli states that he believed that the existing CITR was sufficient to protect the confidentiality of any information that would be exchanged at this meeting but nonetheless executed another CITR at the request of Intel's ESG group. *Id*. ¶ 9. He recalls the circumstances as follows:

> the ESG group had only recently been introduced to us and I believe they may not have been aware of the prior CITRs, such as the December 9, 1997 CITR signed by Michael O'Connor who was with another group at Intel. As I recall, the reason the ESG group said they wanted a CITR form to be executed was that they were going to disclose certain technical information to us which was related specifically to the ESG group's development and power requirements and they wanted to make doubly sure their information was covered by a CITR.

Id.

The November 17, 1998 CITR lists the location of disclosure as "Intel Corporation, DuPont, WA" and describes the Volterra confidential information to be covered as "AVRM project development status; first silicon demonstration; Volterra architecture overview." Pinelli Decl., Ex. C. Pinelli states that he filled out the form:

> consistent with Mr. O'Connor's prior explanations to [him] that in filling out and executing the Intel CITR forms all that was required was a general high level description of the category or type of information that was to be covered under the CNDA and that this would cover all future disclosures.

Id., ¶ 10. Pinelli further states that he "used the term 'first silicon demonstration' to refer in shorthand to the demonstration of Volterra's 'first silicon' which referred to the prototype of the IC power switch that Volterra had been working on developing." *Id*., ¶ 11. According to Pinelli, he "intended and understood" that the term would cover "not just the demonstration that we were going to make to the small group of ESG representatives that came to Fremont, but also to the follow-on demonstrations of the prototype power switch we had developed and anticipated we would soon be demonstrating to a number of others at Intel, including a larger group of people in Intel's ESG group [as] well as to several other groups within Intel." *Id*.

In December 1998, as anticipated, Volterra demonstrated its prototype to a larger group of ESG group representatives at Intel's facility in Washington State. Pinelli Decl., ¶ 12. Pinelli states that "to the best of [his] recollection, Volterra did not provide a prototype to Intel's ESG group at the

December 17, 1998 meeting." Reply Declaration of Gary Pinelli in Support of Motion for Partial Summary Judgment of No Invalidity Based on Alleged Prior Public Use or On-Sale Bar Pursuant to 35 U.S.C. § 102(b) "Pinelli Reply Decl."), ¶ 5. He acknowledges, however, that Volterra thought that it might deliver a prototype at the December demonstration and that in anticipation of doing so, Pinelli sent an unexecuted PTD to the ESG group prior to that demonstration, stating that Volterra would "bring a filled out version . . . next week." *Id*., ¶ 4 & Ex. A (December 11, 1998 email from Gary Pinelli to Intel representatives). According to Pinelli, the PTD "was a form agreement created by Volterra for the purpose of confirming that the Volterra prototype being provided to Intel for evaluation was and would remain Volterra's property, was only being loaned to Intel, and would be returned to Volterra upon request." *Id.*, ¶ 2.

According to Pinelli, a prototype *was* delivered to Intel on January 6, 1999, at which time a PTD was executed. Pinelli Reply Decl., ¶ 6 & Ex. B ("January 6, 1999 PTD"). The January 6, 1999 PTD reflects that an "AVRM PCP Proto" was hand delivered to Intel by Volterra on that date. *Id*.

A draft communication from then-CEO Alan King to Volterra shareholders, dated January 20, 1999, states that Volterra "delivered and demonstrated working prototype advanced voltage regulator modules (AVRMs) to multiple groups inside our customer partner beginning in December." Dolkas Preliminary Injunction Opposition Decl., Ex. 100 (erroneously cited by Defendants as Gargano Decl., Ex. 110).

B. Plaintiff's Motion

Plaintiff seeks summary judgment dismissing Defendants' defenses under § 102(b) based on either prior public use or offer for sale of the invention more than one year before the patent application was filed. According to Plaintiff, summary judgment should be entered as to these defenses both because Defendants failed to identify any documents that supported these claims in response to Plaintiff's supplemental interrogatories and because the undisputed evidence shows that the demonstration and alleged delivery in December 1998 were covered by the CNDA and CITR's that were executed between Intel and Volterra. Plaintiffs' On-Sale Bar SJ Motion at 1. Further, Volterra disputes that there was a delivery of the prototype in December 1998 and asserts that it is entitled to summary judgment on the additional ground that Defendants cannot prove that a delivery

occurred at that time by clear and convincing evidence. *Id*. at 14. As to the alleged offer for sale, Volterra seeks summary judgment on the additional ground that this defense was not set forth in Defendants' amended invalidity contentions, as required under Patent Local Rule 3-3. *Id*.

C. Defendants' Opposition

Defendants argue that to the extent Volterra seeks summary judgment on the basis of what it asserts are incomplete responses to its supplemental interrogatories, its motion should have been brought at the close of discovery, either as a motion to preclude or a Rule 37 Motion. Defendants' Opposition to Plaintiff's On-Sale Bar SJ Motion at 5-6. Further, Defendants assert that however styled, the motion should be denied to the extent it is based on lack of notice as Volterra was well aware of the facts and documents on which Defendants were relying in support of these defenses. *Id* at 7-8. On the merits, Defendants argue that the clear language of the CNDA and CITRs show that the demonstration of the Tut prototype in December 1998 was *not* covered by the CNDA. *Id*. at 9-10, 12-14. Further, Defendants assert, the testimony of those involved offered by Volterra should not be considered because it is parole evidence that contradicts the clear language of the CNDA and is barred under the clause of the CNDA that prohibits oral modification of the agreement. *Id*. at 14-16. With respect to the alleged delivery of the prototype to Intel in December 1998, Defendants argue that Volterra is not entitled to summary judgment because there is evidence sufficient to create a fact question that such a delivery occurred and moreover, Volterra's failure to produce a PTD covering the alleged December delivery provides a further basis for finding the delivery renders the Burstein Patents invalid under § 102(b). *Id*. at 11-12-14. Finally, Defendants do not contest Volterra's summary judgment motion as to its on-sale bar defense, stipulating that "Primarion withdraws the on-sale bar defense as to the proposals between Volterra, on the one hand, and Intel, Smartflex and/or Amkor, on the other hand." *Id*. at 1 n. 1.

D. Plaintiff's Reply

Plaintiff reiterates in its Reply brief its position that the undisputed evidence establishes that all information and prototypes provided to Intel at the December 1998 demonstration were understood to be confidential under the CNDA and CITRs. Reply in Support of Plaintiff's Motion for Partial Summary Judgment of No Invalidity Based on Alleged Prior Public Use of On-Sale Bar

Pursuant to 35 U.S.C. § 102(b) (MSJ No. 8) ("Reply on Plaintiff's On-Sale Bar SJ Motion") at 1-5. Plaintiff rejects Defendants' reliance on the merger clause of the CNDA in support of their argument that the testimony of O'Connor, Pinelli and others at Intel cannot be considered, arguing that this testimony is not offered to show that the CNDA was amended but rather, to establish the intentions of the parties to the agreement. *Id*. at 3-5. Volterra argues further that Defendants have mischaracterized California law in asserting that this testimony may not be considered, pointing to California authority holding that extrinsic evidence is admissible to prove a meaning to which a contract is reasonably susceptible. *Id*. In light of the uncontradicted testimony of O'Connor, Pinelli and others at Intel, Volterra asserts, it is clear that the CNDA and CITR were intended and understood to cover all information and prototypes demonstrated or delivered to Intel by Volterra in December 1998. *Id*. Volterra points out that the subsequent conduct of the parties also supports this conclusion to the extent that all of the evidence shows that Intel believed itself to be bound by the CNDA and CITRs and maintained the confidentiality of all of the information provided to it by Volterra. *Id*. at 9. Finally, with respect to the alleged *delivery* of the prototype in December 1998, Volterra argues that the evidence offered by Defendants is insufficient to create a fact question for the jury in light of the clear and convincing evidence standard that applies to this defense. *Id*. at 9-11.

E. Analysis

The key issue raised in Volterra's On-Sale Bar SJ Motion is whether Volterra's demonstration of its prototype to Intel in December 1998 constituted a "public use" under § 102(b).[48] Volterra argues that it is entitled to summary judgment because the uncontradicted evidence shows

[48]As noted above, Defendants assert this defense contingent upon a finding by the Court that the prototype that was demonstrated to Intel embodied the invention, even though Defendants take the position that the prototype, in fact, lacked certain claimed features of the invention. Therefore, for the purposes of deciding Plaintiff's On-Sale Bar SJ Motion, the Court assumes without deciding that the prototype that was demonstrated in December 1998 embodied the invention.

that the disclosures made during the December 1998 demonstration were protected by the CNDA and CITRs that had been executed by Volterra and Intel. The Court agrees.[49]

"An invention is in public use if it is shown to or used by an individual other than the inventor under no limitation, restriction, or obligation of confidentiality." *American Seating Co.*, 514 F.3d at 1267 (citations omitted). "The presence or absence of a confidentiality agreement is not dispositive of the public use issue, but 'is one factor to be considered in assessing all the evidence.'" *Bernhardt, L.L.C. v. Collezione Europa USA, Inc.*, 386 F.3d 1371, 1381 (Fed. Cir. 2004). Thus, while "a binding agreement of confidentiality may defeat a finding of public accessibility. . . such a binding legal obligation is not essential" to find that there was an obligation of confidentiality. *Cordis Corp v. Boston Scientific Corp*., 561 F.3d 1319, 1333 (Fed. Cir. 2009).

In *Cordis*, the Federal Circuit affirmed summary judgment of no invalidity based on public use where a doctor distributed monographs disclosing his invention to two companies in an effort to interest them in development of his invention, even though one entity's disclosure agreement expressly disclaimed any confidentiality obligation and the disclosure agreement of the other company did not include a confidentiality provision. *Id*. In support of its holding, the court cited to evidence that the doctor had requested that the information in the monographs be kept confidential and noted there was no evidence suggesting that his belief that the information would remain confidential was unreasonable. *Id*. Similarly, in *American Seating*, the Federal Circuit affirmed the district court's judgment of no public use following a jury trial where an inventor revealed a prototype to a select group of individuals without a written confidentiality agreement. *American Seating Co*., 514 F.3d at 1268. The court reasoned that confidentiality may be implied from the relationships between the observers and the inventor where the inventor maintains control over the device and information relating to it. *Id*.

Here, the parties entered into a CNDA that defined the information to be protected in terms of CITRs that were to be executed in connection with disclosures of confidential information. Intel and

[49]Because the Court concludes that Volterra is entitled to summary judgment on the merits, it does not reach the question of whether summary judgment might also be warranted on the basis of Defendants' failure to identify in its supplemental interrogatory responses the documents on which they relied in support of this defense.

Volterra subsequently executed a CITR, the December 1997 CITR, that covered "Volterra power IC technology," as well as a second CITR, the November 1998 CITR, covering the "first silicon demonstration." Defendants, however, assert that summary judgment should be denied because these CITRs, on their face, do not cover the December 1998 demonstration and argue further that the Court may not consider the extrinsic evidence offered by Plaintiff to determine the intentions of the parties because the language of the CITRs is clear. The Court rejects both assertions.

First, Defendants are incorrect in their assertion that courts may not consider extrinsic evidence in determining the intentions of parties to a written agreement. Rather, it is well-established that "[i]f . . . the language of a contract, in the light of all the circumstances, is fairly susceptible of either one of the two interpretations contended for, extrinsic evidence relevant to prove either such meaning is admissible." *See PG&E v. G.W. Thomas Drayage & Rigging Co., Inc.*, 69 Cal. 2d 33, 40 (1968).

Second, the Court finds both CITRs to be ambiguous as to the scope of the information that is covered under them. As to the December 1997 CITR, although the location of the disclosure is listed as Hillsboro Oregon, the description of the technology is extremely broad, lending support to Mr. O'Connell's statement in his declaration that the CITR was intended to cover not only the initial meeting in Hillsboro but also all follow-up meetings and information involving technology that fell within this broad subject area.[50] As the CITR is reasonably susceptible to this reading, it is appropriate for the Court to consider the extrinsic evidence offered by Plaintiff as to the scope of the December 1997 CITR. *See Morey v. Vannucci*, 64 Cal. App. 4th 904, 912 (1998) (holding that it is reversible error for a trial court to refuse to consider extrinsic evidence in support of a meaning to which contract language is reasonably susceptible). Similarly, the November 1998 CITR is ambiguous to the extent that the word "first" in the phrase "first silicon demonstration" could modify

[50]The Court notes that although Defendants place great weight on the Hillsboro Oregon location listed on the December 1997 CITR to show that it could not have covered the December 1998 demonstration in Washington state, they implicitly recognize that the location listed on a CITR may not limit the information covered under the CITR to that which was disclosed at the listed location. In particular, the November 1998 CITR – which the parties agree covered *at least* the information disclosed at a demonstration in Fremont, California – listed Intel's facility in Dupont Washington as the place of disclosure.

either "silicon" or "demonstration." Therefore, it is appropriate for the Court to consider the testimony of Mr. Pinelli, who filled in the November 1998 CITR, as well as other extrinsic evidence, such as the subsequent conduct of the parties, to determine the scope of the November 1998 CITR.

Having concluded that the extrinsic evidence is relevant to determining the scope of the CITRs and should be considered, the Court further concludes that Volterra is entitled to summary judgment on the ground that Defendants have introduced no evidence that contradicts the extensive testimony offered by Volterra that both Volterra and Intel understood that the disclosures at the December 1998 demonstration were to be confidential under the CNDA and the CITRs. The fact that all of the evidence in the record indicates that Intel did not, in fact, disclose to anyone outside Intel any information disclosed at the December 1998 meeting lends further support to Volterra's contention that the parties intended that this information would be protected under the CNDA and CITRs.

Further, even if the Court were to find that for the purposes of a breach of contract claim, the written agreement between Volterra and Intel did not cover the December 1998 demonstration by Volterra of its prototype, the Court would nonetheless conclude that Volterra was entitled to summary judgment on Defendants' public use defense. As the Federal Circuit made clear in *American Seating*, even where there is no written confidentiality agreement, confidentiality can be implied from the circumstances. Where, as here, there is no evidence that *anyone* to whom the information was disclosed believed that it could be disclosed to the public, much less, that anyone actually disclosed any of the information provided by Volterra at the demonstration, no reasonable juror could conclude, by clear and convincing evidence, that a public use had occurred.

Finally, the Court rejects Defendants' assertion that summary judgment should be denied on the basis of evidence that a delivery occurred following the December 1998 demonstration. First, nothing in the CNDA suggests that delivery of a prototype embodying confidential information covered by a CITR would not be covered by the CNDA. To the extent that there is any ambiguity on this question, the extrinsic evidence offered by Volterra indicates that all involved believed that prototypes, like documents containing confidential information, were covered, and Defendants have offered no evidence to the contrary. Therefore, Plaintiff is entitled to summary judgment on this

ground alone, even assuming a prototype was left with the ESG group in December 1998. Second, and as an alternative ground for granting summary judgment in favor of Plaintiff as to Defendants' defense based on an alleged delivery of the prototype to Intel, the evidence offered by Defendants in support of their contention that a delivery even occurred is extremely scant. In particular, the only admissible evidence offered by Defendants is an email dated January 20, 1999 by Volterra CEO Alan King stating that "demonstration and delivery" began in December 1998. Given its ambiguous phrasing, no reasonable jury could find *by clear and convincing evidence* on the basis of this email alone that a delivery occurred in December 1998.

IX. INEQUITABLE CONDUCT

A. Background

In their supplemental interrogatory responses, Defendants state that their inequitable conduct affirmative defense is based on two theories, the first based on alleged failure to disclose material references during the prosecution of the asserted patents, and the second based on positions taken during the reexamination that Defendants assert are inconsistent with positions that have been taken by Plaintiffs in this litigation.[51] *See* Comb. Fisher Decl., Ex. 28 (Primarion 6/18/10 Supp. Interr. Responses) at 22-25; Ex. 29 (Infineon 6/18/10 Supp. Interr. Responses) at 419-422; Ex. 30 (Defendant Infineon AG's 6/18/10 Supp. Interr. Responses) at 422-424. With respect to Defendants' defense based on the first theory, that is, inequitable conduct committed during the prosecution of the asserted patents, Defendants state that Anthony Stratakos, David Lidsky, Andrew Burnstein and David Goren were substantially involved in the prosecution of the asserted patents and were aware of information that was material to the patentability of the claims of those patents but withheld or failed to submit that information to the PTO, in violation of the duty of disclosure set forth in 37 C.F.R. § 1.56. *Id*. Defendants cite to ten specific references that they assert were withheld from the PTO

[51]The Court addresses only the first theory in this Order, even though Plaintiff has requested summary judgment of no invalidity as to both theories because the alleged inconsistent positions taken in the reexamination proceeding are also the subject of Defendants' sanctions motion (docket no. 1196). Accordingly, the Court will address Plaintiffs' request for summary judgment and Defendants' request for sanctions based on the reexamination proceedings in a separate order.

during the prosecution of the asserted patents.[52] *Id*. Defendants do not provide specific facts or identify any particular documents or testimony linking the allegedly withheld references to the particular individuals; nor do Defendants provide any facts or identify any specific documents or testimony showing specific intent to deceive the PTO on the part of any of these individuals. *Id.* They state only that the four named individuals are "likely to have information relating to the inequitable conduct which occurred during the prosecution" of the asserted patents. *Id*.

B. Plaintiff's Inequitable Conduct SJ Motion

Volterra seeks summary judgment of no invalidity based on both of Defendants' theories of inequitable conduct, that is, the alleged withholding of material information during the prosecution of the asserted patents and the alleged misconduct committed by Volterra during the reexamination proceeding. As noted above, the Court addresses only the first theory in this Order.

Volterra argues that it is entitled to summary judgment of no invalidity based on alleged misconduct during the prosecution of the asserted patents because Defendants' supplemental interrogatory responses are entirely conclusory and fail to disclose any specific facts, testimony or documents showing that Defendants will be able to prove by clear and convincing evidence that Volterra engaged in inequitable conduct. In particular, Volterra asserts that Defendants have cited to no facts showing that: 1) Anthony Stratakos was substantively involved in the prosecution of the Burstein Patents such that he owed a duty of candor to the PTO (Plaintiff's Inequitable Conduct SJ Motion at 1-2, 10); 2) the individuals named in Defendants' interrogatory responses knew of the existence of the specific references listed by Defendants or that these references were material (*id*. at 11-15); and 3) the references that were not disclosed were, in fact, material to patentability (*id*. at 15-16).

[52]The references that Defendants assert were not withheld are as follows: 1) U.S. Patent No. 6,020,729 ("the '729 patent"); 2) International Application No. PCT/US98/26710 (published as International Publication No. WO 99/31790 (the "foreign counterpart" of the '729 patent); 3) U.S. Patent No. 6,225,795; 4) co-pending U.S. Patent Application No. 09/481,744 (which led to U.S. Patent No. 6,225,795); 5) Stratakos 1994 Article; 6) 1995 article entitled "DC Power Supply Design in Portable Systems," published by Electronics Research Laboratory College of Engineering University of California Berkeley, by Anthony Stratakos and others; 7) the Stratakos Thesis; 8) U.S. Patent No. 6,198,261; 9) co-pending U.S. Patent Application No. 09/183,337; and 10) a bit-Buck voltage regulator developed by Volterra. *See* Comb. Fisher Decl., Ex. 29 (Defendant Infineon Technologies) at 420.

With respect to the question of whether Anthony Stratakos owed a duty of candor to the PTO, Volterra points to the standard set forth in *Avid*, which defines the phrase "substantively involved," as used in 37 C.F.R. § 1.56 to mean "that the involvement relates to the content of the application or decision related thereto, and that the involvement is not wholly administrative or secretarial in nature." *Id*. at 10 (citing *Avid*, 603 F.3d at 974). Plaintiff asserts that Stratakos' own deposition testimony shows that he was not "substantively involved" in the prosecution of the asserted patents. *Id*. In particular, Dr. Stratakos testified that it was *not* part of his job responsibility "to be involved in patent prosecution of other inventors' patents within Volterra." *Id*. (quoting Comb. Fisher Decl., Ex. 25 (7/28/09 Stratakos Depo.) at 202-203). Dr. Stratakos further testified that he was not involved in "drafting, reviewing, or corresponding with the PTO or the attorneys for the Burstein Patents." *Id*. (quoting Fisher Comb. Decl., Ex. 25 (Stratakos Depo.) at 197 (testimony that Dr. Stratakos did not "remember any involvement in drafting, reviewing, corresponding with the Patent Office, corresponding with the attorneys" and that the only involvement he had was that he "apparently . . . signed the document claiming that [Volterra is] a small entity"). Finally, Volterra points to Dr. Stratakos' testimony that although he was aware of the existence of the Burstein Patent applications, he was not aware of their content. *Id*. at 11 (citing Comb. Fisher Decl., Ex. 25 (Stratakos Depo.) at 200-201).

Volterra also asserts that the evidence is insufficient as to any of the named individuals to show by clear and convincing evidence that they were aware of the ten references cited by Defendants, or that they knew that any of them were material. Moreover, Volterra argues, the Federal Circuit has made clear that inequitable conduct cannot be established on the basis of collective knowledge but rather, must be demonstrated individually. *Id*. at 12 (citing *Nordberg, Inc. v. Telsmith,Inc*., 82 F.3d 394, 396-97 (Fed. Cir. 1996) and *B.F. Goodrich Co. v. Aircraft Braking Sys. Co.*, 72 F.3d 1577, 1584-85) (Fed. Cir. 1996)). As an example of the insufficiency of the facts supporting Defendants' inequitable conduct defense, Volterra points to Defendants' reliance on the alleged failure to disclose a BIT-Buck voltage regulator during the prosecution of the Burstein Patents, without providing any specific facts showing that: 1) at the time of the prosecution there *was* a BIT-buck voltage regulator developed by Voltera that was material to the claims of the Burstein

Patents and not cumulative of the information of record; or 2) anyone with a duty of disclosure knew that the alleged BIT-buck voltage regulator was material to patentability of the claims in the Burstein Patents. *Id*.

Next, Volterra argues that Defendants' inequitable conduct defense fails because they have failed to identify any facts showing by clear and convincing evidence that an individual with a duty of candor had deceptive intent. *Id*. at 13-16. Volterra points out that while intent to deceive may be inferred on the basis of circumstantial evidence, the inference of deceptive intent must not only be based on sufficient evidence and be reasonable but also must be "the single most reasonable inference able to be drawn from the evidence to meet the clear and convincing standard." *Id*. at 14 (citing *Star Scientific, Inc. v. R.J.Reynolds Tobacco Co*., 537 F.3d 1357, 1366 (Fed. Cir. 2008)). Here, Volterra asserts, the *only* evidence of deceptive intent identified by Defendants is the fact of non-disclosure, which the Federal Circuit has expressly held is insufficient to show deceptive intent. *Id*. (citing *M. Eagles Tool Warehouse, Inc. v. Fisher Tooling Co.*, 439 F.3d 1335, 1341 (Fed. Cir. 2006)).

With respect to materiality, Volterra points out that an alleged infringer asserting inequitable conduct on the basis of failure to disclose a reference during prosecution is required to show both how the reference pertains to the patentability of the invention and why the reference is not cumulative of other information of record. *Id*. at 15-16 (citing *Honeywell Int'l, Inc. v. Franklin Corp.*, 488 F.3d 982, 1000 (Fed. Cir. 2007)). According to Volterra, Defendants have not pointed to specific facts as to either of these requirements. *Id*.

C. Defendants' Opposition

In their Opposition, Defendants argue that: 1) the evidence is sufficient to establish, as a matter of law, that Dr. Stratakos had a duty of candor to the PTO or at least, that questions of fact remain on this issue; Defendants' Memorandum in Opposition to Plaintiff's Motion for Partial Summary Judgment of No Inequitable Conduct ("Defendants' Opposition to Plaintiff's Inequitable Conduct SJ Motion") at 1, 13-15; 2) there is evidence to show that the undisclosed references are material, namely, claim charts showing materiality of the undisclosed references and the preliminary decisions of the PTO finding that some of the references anticipated or rendered obvious some of the

claims of the asserted patents; *id*. at 16-18; and 3) there are material issues of fact regarding whether any of the named individuals had an intent to deceive, especially in light of the high level of materiality of some of the references, the individuals' lack of a credible explanation for their failure to disclose the references, and the fact that the individuals allegedly made arguments to the PTO that they could not have made had they disclosed the prior art references; *id*. at 19-23.

In support of their assertion that Dr. Stratakos owed a duty of candor to the PTO, Defendants argue that the facts of this case are similar to the facts in *Avid Identification Sys., Inc. v. Crystal Import Corp.*, 603 F.3d 967, 976 (Fed. Cir. 2010), in which the Federal Circuit held that the district court's finding of substantive involvement on the part of the president and founder of a small company was not clearly erroneous. Defendants cite Dr. Stratakos' testimony that he was the only Volterra employee with "any experience developing any kind of power chips" and that the experience he gained from developing the chips disclosed in his PhD thesis was the starting point for Volterra to know how to develop a DC-DC converter. *Id*. at 7 (citing Gargano Decl., Ex. 93 (Stratakos Depo.) at 137-141). Defendants further cite to testimony by Drs. Stratakos and Burstein that Dr. Stratakos was co-lead with David Lidsky on a project to design a chip called VT100, that he was Chief Technologist on a project referred to as the VT1000 project with Intel for which Andrew Burstein was lead designer, and that the subject matter developed for the Intel project lead to the subject matter disclosed in the Burstein Patents. *Id*. at 7-8 (citing Gargano Decl., Ex. 93 (Stratakos Depo.) at 59-62 & Ex. 102 (Burstein Depo.) at 43-45, 53-54).[53] In addition, Defendants cite deposition testimony by Dr. Lidsky that Dr. Stratakos likely was involved in the decision to file the Burstein Patent applications. *Id*. at 8 (citing Gargano Decl., Ex. 117 (Lidsky Depo.) at 71). Finally, Defendants point out that Dr. Stratakos signed the Small Entity Status Declarations for the Burstein Patent applications certifying that Volterra was entitled to pay a reduced filing fee and that Volterra had exclusive rights with respect to the invention disclosed in the Burstein Patent applications. *Id*. at 8 (citing Gargano Decl., Exs. 94-95 (Small Entity Status Declarations signed by Dr. Stratakos)).

[53]Defendants also cite Gargano Decl., Ex. 118. Although that exhibit purportedly contains Stratakos Deposition Ex. 28, no document was provided. As stated above, the Court sustains Volterra's objection to Ex. 118 to the extent Defendants intend to rely on the document identified in their opposition brief.

With respect to the question of whether any of the named individuals had knowledge of the undisclosed references or their materiality, Defendants point out that seven of the undisclosed references were references on which Dr. Stratakos was either the author or inventor and therefore, Dr. Stratakos must have been aware of this prior art. *Id*. at 9. Defendants further point out that one of the references, the Stratakos 1994 Article, was a key piece of prior art on which the PTO based its rejections of all the asserted claims pending reexamination. *Id*. at 9. According to Defendants, the PTO's rejection on the basis of this prior art establishes, as a matter of law, that at least the Stratakos 1994 Article is material to patentability. *Id*. at 8-9. Similarly, Defendants assert, the PTO rejected claims of the asserted patents based on U.S. Patent No. 6,020,729, one of the undisclosed references named by Defendants and therefore, that references also is material. *Id*. at 16. Further, because U.S. Patent No. 6,225,795, co-pending U.S. Patent Application No. 09/481,744 and International Publication No. W099/31790 are, respectively, a U.S. patent (continuation of the '729 patent with the same written description), the co-pending continuation application (also with the same written description) and a publication of a corresponding European patent application (also with "the same or similar written description"), these references also are material to patentability and should have been disclosed during the prosecution of the Burstein Patents. *Id*. at 18.

In support of their assertion that the undisclosed references are material, Defendants also cite to the opinion of their expert, Dr. Fair, as well as the alleged facts contained in their First Answer, Affirmative Defenses and Counterclaims, which were incorporated into Defendants' interrogatory responses. *Id*. at 18 (citing Fair 9/10/10 Opposition Decl. & Docket No. 92). With respect to the BIT-Buck voltage regulator, Defendants cite to the deposition testimony of Drs. Stratakos and Lidsky that this device was the "starting point" of Volterra, that it was designed by Drs. Stratakos and Lidsky and fabricated in 1997, and that it included all the claim elements of claims 9, 11 and 16-19 of the '522 patent except flip-chip packaging. *Id*. at 18-19 (citing Garagano Decl., Exs. 93 (Stratakos Depo.) at 42, 44-45, 48, 49-53 & 117 (Lidsky Depo.) at 283-284, 370-371, 381-385).

Defendants also assert that there are material issues of fact as to whether the named individuals knew or should have known the materiality of the undisclosed references. As to Dr. Stratakos, Defendants point to the fact that he was author or named inventor on seven of the ten

references and was involved in the design of the BIT-Buck voltage regulator. *Id*. at 20. Defendants further point to the fact that Dr. Stratakos was the "Principal Technologist" on the project that led to the subject matter of the Burstein Patents, arguing that Dr. Stratakos knew or should have known of the materiality of all of the undisclosed references except U.S. Patent No. 6,198,261 and co-pending U.S. Patent Application No. 09/183,337.

Similarly, Defendants argue that Dr. Lidsky knew or shown have known of the materiality of four of the undisclosed references[54] because he was named as co-inventor on them. *Id*. In addition, as noted above, Drs. Stratakos and Lidsky testified that they designed and built the BIT-Buck voltage regulator prototype, which had all the elements of claims 9, 11, and 16-19 of the '522 patent except flip-chip packaging. *Id*. Dr. Lidsky also testified that he "may have" seen the Stratakos 1994 Article around the time it was published and "may have" or "probably" saw the article before the Burstein application was filed in 2000. *Id*. (citing Gargano Decl., Ex. 117 (Lidsky Depo.) at 358-359). Finally, Defendants assert, Dr. Lidsky should have known that these six prior art references were material because he was Volterra's manager of patents and liaison with outside patent counsel, and the one who made the decision, along with the inventors, as to what prior art would be submitted to the PTO. *Id*. at 20-21 (citing Gargano Decl., Ex. 117 (Lidsky Depo.) at 364-365).

Defendants assert that there is evidence that David Goren knew about the materiality of the undisclosed references as well. *Id*. at 21. In particular, Defendants cite to Mr. Goren's deposition testimony that he was primarily responsible for the preparation and prosecution of the Burstein Patents, that he understood that he had an obligation to disclose to the PTO co-pending patent applications if those applications were material and not cumulative of prior art of record and that he was a licensed patent attorney who had prosecuted 150-200 patent applications by the filing date of the Burstein Patents. *Id*. (citing Gargano Decl., Ex. 121 (Goren Depo.) at 10, 12, 20-21, 23, 25, 71-72, 78-80, 82-83, 88, 96-97).

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[54]According to Defendants, Dr. Lidsky was co-inventor on the following undisclosed references: 1) U.S. Patent No. 6,020,729 ("the '729 patent"); 2) International Application No. PCT/US98/26710 (published as International Publication No. WO 99/31790 (the "foreign counterpart" of the '729 patent); 3) U.S. Patent No. 6,225,795; 4) co-pending U.S. Patent Application No. 09/481,744.

In support of the contention that Dr. Burstein knew of the materiality of the undisclosed references, Defendants note that Dr. Burstein is "listed as co-inventor on U.S. Patent No. 6,198,261 and co-pending U.S. Patent Application 09/183,337 (application that led to the '261 patent)," and that he is also the first named inventor on the Burstein Patents. *Id*.

Addressing deceptive intent, Defendants assert that in light of the high level of materiality of the undisclosed references, a lower level of deceptive intent is required to establish inequitable conduct. *Id*. at 21 (citing *Star Scientific*, 537 F.3d at 1367). According to Defendants, given the "pattern of misconduct by those owing a duty of candor to the PTO . . . and the large number of Withheld References known by multiple individuals who owed a duty of candor to the PTO, there is ample evidence to conclude that those individuals had the specific intent to deceive the Patent Office during the prosecution of the Burstein Patents." *Id*. Defendants assert that deceptive intent is further demonstrated by the fact that "Volterra has provided no credible explanation as to why the highly material Withheld References were not produced." *Id*. at 22 (citing *Praxair*, 543 F.3d at 1313). Defendants also argue that deceptive intent can be inferred from the fact that the applicants made an argument in support of patentability that could not have been made had the Stratakos 1994 Article been disclosed, namely, the argument made to distinguish the invention from prior art that "Hallberg, Stager and Honn do not teach or suggest the . . . limitations relating to [1] the layout of the doped regions and [2] pads and their connections to the terminals." *Id*. at 19 (quoting Gargano Decl., Ex. 2 (file history) at PRIM00004214). According to Defendants, this argument could not have been made if the Stratakos 1994 Article had been disclosed because that prior art disclosed alternating patterns of doped regions. *Id*. Because there is evidence that Dr. Stratakos knew about the 1994 Stratakos Article and allowed Volterra's prosecuting attorney to make arguments that could not have been made if that article had been disclosed, an inference of deceptive intent arises. *Id*.

D. Plaintiffs' Reply

Plaintiff argues that Defendants cannot defeat its summary judgment motion on the basis of the evidence cited in their Opposition brief for several reasons. First, Volterra reiterates its position (also stated in its evidentiary objections, discussed above) that the evidence cited in Defendants' opposition should not be considered because it was not set forth in Defendants' interrogatory

responses. Plaintiff Volterra Semiconductor Corporation's Reply Memorandum in Support of its Motion for Partial Summary Judgment of No Inequitable Conduct ("Reply on Plaintiff's Inequitable Conduct SJ Motion") at 1-3.

Volterra argues further that even if the Court considers that evidence, it is insufficient to support a finding of inequitable conduct under the clear and convincing evidence standard that applies to that defense. *Id*. at 1. In particular, Volterra argues that the evidence cited is not sufficient to establish specific intent to deceive the PTO because materiality and lack of a credible explanation are not sufficient to establish intent to deceive. *Id*. at 3-6. Further, Plaintiff argues, to the extent that Defendants attempt to show materiality based on an argument made to the PTO that could not, otherwise, have been made, the only example offered by Defendants is based on the Stratakos 1994 Article. *Id*. at 6. However, there is no evidence that Burstein or Goren knew about that reference and similarly, as to Lidsky, the only evidence that he was aware of the reference is his testimony that he "may have" seen the reference as much as 6 years before the Burstein Patent applications. *Id*. at 6-7. As to Stratakos, Volterra argues, this evidence is not sufficient to show inequitable conduct because Stratakos did not owe a duty of candor to the PTO. *Id*. at 6. In particular, Volterra argues that Defendants' reliance on *Avid* to show that Stratakos was substantively involved in the prosecution of the Burstein Patents is misplaced and that the facts in that case are distinguishable from the facts here. *Id*. at 10-13.

Finally, Volterra contends that Defendants have not demonstrated the existence of a triable issue of fact that the withheld references are material or that any of the named individuals knew that they were material. *Id*. at 7-10. Volterra points out that Defendants failed to address in their Opposition brief the question of whether the undisclosed references were cumulative of other record evidence, even though it is Defendants' burden to establish that they are not. *Id*. at 8. Volterra argues that in light of the fact that the applicants disclosed in the Background section of the Burstein Patents that switching voltage regulators being fabricated using integrated circuit techniques were known in the prior art, and identified four pieces of prior art that disclosed both switching voltage regulators and flip chip (though not in combination), Defendants have failed to establish a fact question that the undisclosed references are not cumulative.

E. Analysis

The Court concludes that Volterra is entitled to summary judgment on Defendants' inequitable conduct defense because Defendants have failed to point to evidence sufficient to carry their burden that: 1) Dr. Stratakos owed a duty of candor to the PTO; and 2) that the remaining individuals named in Defendants' interrogatory responses were aware of the undisclosed references or that they were material, or that the named individuals acted with deceptive intent. Because Defendants' inequitable conduct defense fails on these grounds, the Court does not reach the question of whether Defendants have pointed to sufficient evidence to create a fact question on the materiality of the undisclosed references.

1. Whether Dr. Stratakos Owed a Duty of Candor to the PTO

Defendants assert that Dr. Stratakos owed a duty of candor to the PTO because his involvement in the prosecution of the Burstein Patents was comparable to that of an individual in *Avid* who was found to have a duty of candor. As noted above, Defendants point to evidence that Dr. Stratakos was a founder of Volterra and at one time its president, that he was involved in a project that led to the Burstein invention and that he may have been involved in the decision to file the patent application. They also point to Dr. Stratakos' signature on the Small Entity Status Declarations that were filed with the PTO in the applications for both the '522 and '264 patents. In light of Dr. Stratakos' uncontradicted testimony that he was not involved with the prosecution of the Burstein applications, however, and that he was not even familiar with the content of those applications, this evidence is not sufficient to establish that Dr. Stratakos was "substantively involved" in the prosecution of the Burstein Patents.

As noted above, the phrase "substantively involved, " as used in 37 C.F.R. § 1.56, means "that the involvement relates to the *content* of the application or decisions related thereto, and that the involvement is not wholly administrative or secretarial in nature." *Avid*, 603 F.3d at 974. Here, the only direct evidence that Dr. Stratakos was involved in the prosecution of the asserted patents was his signature on the Small Entity Statuts Declarations that attested to the small size of Volterra for the purposes of paying a reduced filing fee to the PTO. But those documents do not relate to the content of the patent applications or reflect any substantive decision-making on Dr. Stratakos' part;

rather, his signing of these documents is more in the nature of an administrative task. Although there is circumstantial evidence that *might* support an inference of substantive involvement on Dr. Stratakos' part, such as his position as the founder and former president of Volterra, his involvement in the project that led to the invention, or even his possible involvement in the decision to file the applications, that inference is weak and cannot meet the clear and convincing evidence standard where Dr. Stratakos testified that he was not involved in the substantive decision-making of the prosecution.

The Court rejects Defendants' reliance on *Avid* to show that Dr. Stratakos owed a duty of candor to the PTO. In *Avid*, the court addressed whether Dr. Stoddard, the founder and president of a small, closely held company (Avid Identification Systems), owed a duty of candor to the PTO in connection with a patent for an encrypted chip used to identify lost animals. 603 F.3d at 973. Although Dr. Stoddard was not the inventor on the asserted patent, he had developed the underlying concept and had hired the inventors to reduce his concept to practice. *Id*. at 974. The district court found that Dr. Stoddard was "substantively involved" in the patent prosecution because he was the founder and president of Avid and was involved in "all aspects" of Avid, including its research and development. *Id*. Further, the district court reasoned, the inference that Dr. Stoddard was substantively involved in the prosecution of the patent was especially reasonable because the invention disclosed in the patent fulfilled his "personal mission and [was] the purpose for which his company was created." *Id*. The district court also cited two communications showing Dr. Stoddard's substantive involvement in the patent prosecution, described as follows:

> One communication was from an inventor named in the ' 326 patent and contained content for a European patent application. Dr. Stoddard was one of two recipients of this communication, the other being the European prosecuting attorney. The European patent application was the international phase of the '326 patent application. The other communication was a note from the same inventor to Dr. Stoddard advising him to check with Avid's European patent attorney before demonstrating any of Avid's technology, as it might affect Avid's patent rights in Europe. The district court discussed these documents and found that they also contributed to an inference that Dr. Stoddard was substantively involved in patent matters related to the identification chip system. The documents related to the European filing refer to the same subject matter as the '326 patent, and preparations for both patent applications were underway at roughly the same time.

Id. The Federal Circuit continued, "[g]iven the nature and content of these communications, and the district court's findings with respect to Dr. Stoddard's role in the company, the inference that Dr.

Stoddard was similarly involved in the '326 patent application is reasonable and the finding of substantive involvement is not clearly erroneous." *Id*.

In contrast to *Avid*, where evidence was introduced to show that Dr. Stoddard was aware of the *content* of the patent application, in this case, Defendants have cited to *no* evidence that Dr. Stratakos was aware of the substantive content of the Burstein Patent applications or involved in the prosecution in any substantive way. Given the clear and convincing evidence standard that applies to Defendants' inequitable conduct affirmative defense, Defendants have not demonstrated a material issue of fact as to whether Dr. Stratakos owed a duty of candor to the PTO in connection with the prosecution of the Burstein Patents.

2. Whether there is Sufficient Evidence to Survive Summary Judgment That Goren, Lidsky and Burstein Were Aware of the Undisclosed References, that the References Were Material, or that they Had Deceptive Intent,

Defendants' inequitable conduct defense based on alleged inequitable conduct during the prosecution of the Burstein Patents also fails because as to all of the Withheld References except the Stratakos 1994 Article, the only evidence of deceptive intent cited by Defendants is the failure by Volterra to disclose them to the PTO or to offer an explanation for their non-disclosure, along with the fact that they are, according to Defendants, highly material to patentability. The Federal Circuit has held that such evidence, by itself, is insufficient to establish deceptive intent by clear and convincing evidence, as is required to prevail on an inequitable conduct affirmative defense. *See M. Eagles Tool Warehouse, Inc. v. Fisher Tooling Co., Inc.*, 439 F.3d 1335, 1341 (Fed. Cir. 2006). Thus, even assuming the Withheld References are highly material to patentability (a question the Court need not reach here), this evidence is insufficient to survive summary judgment on the question of deceptive intent. Further, with respect to the Stratakos 1994 Article, there is no evidence that either Dr. Burnstein or Mr. Goren were aware of it, and, as discussed above, Dr. Stratakos did not owe a duty of candor to the PTO. In fact, the only evidence that any one of these individuals was aware of the undisclosed references is the testimony by Dr. Lidsky that he *may* have seen the Stratakos 1994 Article. This testimony falls far short, however, of the type of evidence that would be required to show deceptive intent on the part of Dr. Lidsky because there is no evidence that he

was aware of its content or understood that it might be material, much less, that he made the argument cited above with deceptive intent, knowing that he could not have made it had the Stratakos 1994 Article been disclosed to the PTO.

Accordingly, the Court finds that Volterra is entitled to summary judgment that the asserted patents are not invalid on the basis of inequitable conduct committed during the prosecution of the Burstein Patents.

X. CONCLUSION

For the reasons stated above, the Court holds as follows:

Plaintiff's SJ Motions

- **MSJ No. 1 (Plaintiff's Infringement SJ Motion)**: GRANTED.
- **MSJ No. 2 (Plaintiff's Prior Art SJ Motion)**: GRANTED in part, DENIED in part.
- **MSJ No. 3 (Plaintiff's Undisclosed Refs. SJ Motion)**: GRANTED.
- **MSJ No. 4 (Plaintiff's Anticipation SJ Motion)**: GRANTED.
- **MSJ No. 5 (Plaintiff's Obviousness SJ Motion)**: GRANTED in part, DENIED in part.
- **MSJ No. 6 (Plaintiff's Enablement SJ Motion)**: GRANTED in part, DENIED in part.
- **MSJ No. 7 (Plaintiff's Inequitable Conduct SJ Motion)**: GRANTED as to patent prosecution; ruling deferred as to reexamination.
- **MSJ No. 8 (Plaintiff's On-Sale Bar SJ Motion)**: GRANTED.
- **MSJ No. 9 (Plaintiff's Standing SJ Motion)** – UNOPPOSED.

Defendants' SJ Motions

- **Defendants' Sicard SJ Motion**: DENIED.
- **Defendants' Enablement SJ Motion**: DENIED.
- **Defendants' Stratakos SJ Motion**: DENIED.

IT IS SO ORDERED.

Dated: March 8, 2011

JOSEPH C. SPERO
United States Magistrate Judge