

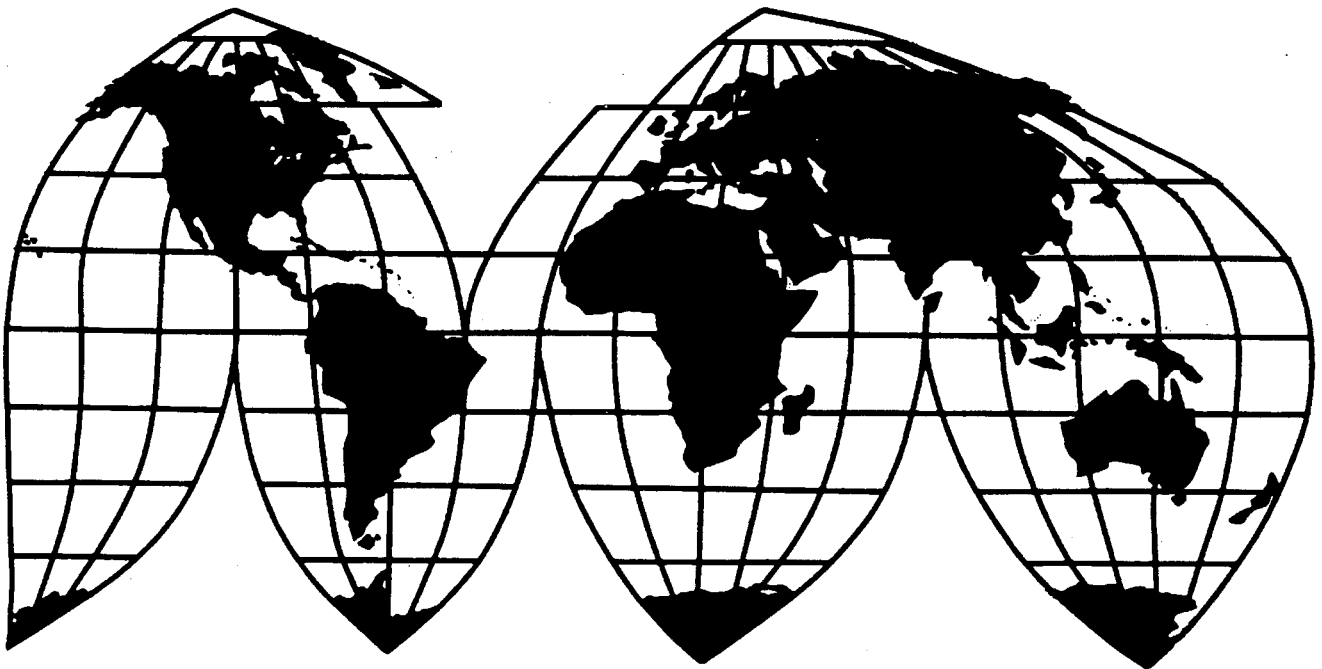
In the Matter of
**Certain EPROM, EEPROM, Flash Memory,
and Flash Microcontroller Semiconductor
Devices and Products Containing Same**

Investigation No. 337-TA-395

Publication 3392

February 2001

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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Washington, DC 20436**

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In the Matter of

CERTAIN EPROM, EEPROM,
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MICROCONTROLLER
SEMICONDUCTOR DEVICES,
AND PRODUCTS
CONTAINING SAME

Investigation No. 337-TA-395

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NOTICE OF FINAL DETERMINATION AND
ISSUANCE OF LIMITED EXCLUSION ORDER; NOTICE OF DENIAL OF MOTIONS FOR
SANCTIONS, FOR ATTORNEY'S FEES, AND FOR DISMISSAL OF COMPLAINT

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has found a violation of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) and has issued a limited exclusion order in the above-captioned investigation. The Commission has also determined to deny a motion for dismissal of Atmel's complaint for unclean hands and motions for sanctions and attorney's fees.

FOR FURTHER INFORMATION CONTACT: Timothy P. Monaghan, Esq., Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone 202-205-3152.

SUPPLEMENTARY INFORMATION: The Commission instituted this investigation on March 18, 1997, based upon a complaint filed by Atmel Corporation alleging that Sanyo Electric Co., Ltd. ("Sanyo"), Winbond Electronics Corporation of Taiwan and Winbond Electronics North America Corporation of California (collectively "Winbond"), and Macronix International Co.,

Ltd. and Macronix America, Inc. (collectively "Macronix") had violated section 337 in the sale for importation, the importation, and the sale within the United States after importation of certain erasable programmable read only memory ("EPROM"), electrically erasable programmable read only memory ("EEPROM"), flash memory, and flash microcontroller semiconductor devices, by reason of infringement of one or more claims of U.S. Letters Patent 4,511,811 ("the '811 patent"), U.S. Letters Patent 4,673,829 ("the '829 patent"), and U.S. Letters Patent 4,451,903 ("the '903 patent") assigned to Atmel. 62 Fed. Reg. 13706 (March 21, 1997). Silicon Storage Technology, Inc. ("SST") was permitted to intervene in the investigation.

On March 19, 1998, the presiding administrative law judge ("ALJ") issued his final initial determination ("ID") finding that respondents had not violated section 337, based on his finding that neither the '811 patent, the '829 patent, nor the '903 patent was infringed by any product imported and sold by respondents or intervenor. He also found, that the '903 patent is unenforceable because of waiver and implied license by legal estoppel, that claims 2-8 of that patent are invalid for indefiniteness, but that the '903 patent is not unenforceable for failure to name a co-inventor. Complainant Atmel petitioned for review of the ALJ's final ID, and on May 6, 1998 the Commission determined to review most of the ALJ's findings and requested written submissions on the issues of remedy, the public interest, and bonding. 63 Fed. Reg. 25867 (May 11, 1998).

On review, the Commission determined that the '811 patent and the '829 patent were invalid on the basis of collateral estoppel in light of a U.S. district court decision (*Atmel Corp. v. Information Storage Devices, Inc.*, No. C-95-1987-FMS, 1998 WL 184274 (N.D. Cal. April 14, 1998)), and that the '903 patent was unenforceable for failure to name a co-inventor. The investigation was terminated with a finding of no violation of section 337. 63 Fed. Reg. 37133 (July 9, 1998).

On August 11, 1998, after issuance of the Commission opinion, Atmel filed a petition with the U.S. Patent and Trademark Office ("PTO") to correct the inventorship of the '903 patent. The PTO granted Atmel's petition on August 18, 1998, and issued a certificate of correction on October 6, 1998.

On September 8, 1998, Atmel filed with the Commission a "Petition For Relief From Final Determination Finding U.S. Patent No. 4,451,903 Unenforceable." Respondents and the Commission's Office of Unfair Import Investigations ("OUII") filed responses to the petition. The Commission ruled on Atmel's petition on January 25, 1999. It determined to treat Atmel's petition as a petition for reconsideration, granted the petition, and reopened the record of the investigation for the limited purpose of resolving the issues arising from the PTO's issuance of the certificate of correction for the '903 patent. The investigation was remanded to the ALJ who issued an ID on May 17, 2000, finding that complainant Atmel had committed inequitable conduct at the PTO in the procurement of the certificate of correction for the '903 patent; that the inventors listed on the PTO certificate of correction are not the correct inventors; and that no inequitable conduct was shown to have taken place at the PTO in the prosecution of the original

patent application that matured into the '903 patent.

On May 30, 2000, Atmel petitioned for review of the ID of May 17, 2000, and certain orders issued by the ALJ. Respondents, intervenor, and the Commission investigative attorney ("IA") filed responses to Atmel's petition. On July 17, 2000, the Commission determined to review the ALJ's determination that the PTO certificate of correction for the '903 patent was procured inequitably; the ALJ's determination that the inventors named on the PTO certificate of correction are incorrect; the ALJ's ruling in Order No. 50 that Atmel had waived the attorney-client and attorney work product privileges; and the ALJ's ruling in Order No. 69 that Atmel bore the burden of proof by clear and convincing evidence that the inventors shown on the PTO certificate of correction are the correct inventors. The Commission requested briefs on the issues under review, and posed briefing questions for the parties to answer. The Commission also requested written submissions on remedy, the public interest, and bonding. 65 Fed. Reg. 45406 (July 21, 2000).

On August 28, 1998, Atmel appealed the Commission's "no violation" determination of July 2, 1998, to the U.S. Court of Appeals for the Federal Circuit. Sanyo, Winbond, Macronix, and SST intervened in support of the Commission. On November 6, 1998, Sanyo and Winbond moved to dismiss the portion of the appeal concerning the '903 patent. On December 8, 1998, the Federal Circuit stayed the appeal pending a ruling from the Commission on Atmel's then pending motion for the Commission to reconsider its prior determination on inventorship.

On February 10, 1999, Winbond filed a petition for a writ of mandamus with the Federal Circuit. Winbond asked the Federal Circuit to direct the Commission to vacate its January 25, 1999, order remanding the inventorship issue to the ALJ. Winbond argued that the Commission was without authority to grant relief from its final determination of "no violation" because the case had been appealed to the Federal Circuit.

The Federal Circuit denied Winbond's petition for a writ of mandamus on April 16, 1999, and remanded Atmel's appeal to the Commission, stating that "[a]fter its proceedings are complete, the ITC shall issue a final determination encompassing Atmel's complaint regarding all three patents so that the parties may seek [judicial] review at that time." *In Re Winbond Electronics Corporation and Winbond Electronics North America Corporation*, Appeal No. 98-1580, Miscellaneous Docket No. 579 (Fed. Cir. April 16, 1999) (Mandate issued on June 7, 1999) at p. 4. As a result of this ruling, and the Federal Circuit's subsequent reversal of the U.S. district court decision in *Atmel Corp. v. Information Storage Devices, Inc.*, all three Atmel patents at issue were before the Commission for final determination.

The U.S. district court decision (*Atmel Corp. v. Information Storage Devices, Inc.*, No. C-95-1987-FMS, 1998 WL 184274 (N.D. Cal. April 14, 1998)) was appealed by Atmel to the Federal Circuit. On December 28, 1999, the Federal Circuit reversed and remanded the case to the district court. *Atmel Corp. v. Information Storage Devices, Inc.*, 198 F.3d 1374 (Fed. Cir.

1999).

On April 3, 2000, the Commission issued an order allowing the parties to file main briefs and reply briefs setting forth their views on intervening developments in the law as they relate to the remaining issues in investigation concerning the '811 patent, the '829 patent, and the '903 patent (all issues other than inventorship).

Having examined the record in this investigation, including the briefs and the responses thereto, the Commission determined, as noted, that there is a violation of section 337. More specifically, the Commission found that the claims in issue of the '903 patent are valid, enforceable (no incorrect inventorship), and infringed by the imports from intervenor SST and respondents Sanyo and Winbond (but not respondent Macronix), and found a violation of section 337 with regard to the '903 patent as to SST, Sanyo, and Winbond. As to the '811 and '829 patents, the Commission found that the claims in issue of those patents are valid and enforceable, but not infringed by the imports of intervenor SST or respondents Sanyo and Winbond (Atmel did not allege that Macronix infringed the claims in issue of the '811 or '829 patents), and thus found no violation of section 337 with regard to the '811 and '829 patents. The Commission also determined to affirm the result of ALJ Order No. 50, which ordered the production of certain Atmel documents. The Commission also reversed Order No. 69 to the extent that it placed the burden of proving that the certificate of correction of the '903 patent listed the correct inventors on Atmel and vacated the ALJ's determination in Order No. 69 that PTO rule 324 does not comport with its enabling statute.

The Commission also made determinations on the issues of remedy, the public interest, and bonding. The Commission determined that the appropriate form of relief is a limited exclusion order prohibiting the importation of EPROMs, EEPROMs, flash memories, and flash microcontroller semiconductor devices, and circuit boards containing such devices, that infringe claims 1 or 9 of the '903 patent manufactured by or on behalf of Sanyo and Winbond.

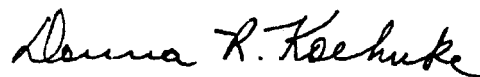
The Commission also determined that the public interest factors enumerated in 19 U.S.C. § 1337(d) do not preclude the issuance of the limited exclusion and that the bond during the Presidential review period should be set at \$0.78 per device.

The authority for the Commission's determinations is contained in section 337 of the Tariff Act of 1930, as amended (19 U.S.C. §1337), and in sections 210.45 - 210.51 of the Commission's Rules of Practice and Procedure (19 C.F.R. §§210.45 - 210.51).

Copies of the Commission order, the Commission opinion in support thereof, and all other nonconfidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone 202-205-2000. Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on 202-205-1810.

General information concerning the Commission may also be obtained by accessing its Internet server (<http://www.usitc.gov>).

By order of the Commission.



Donna R. Koehnke

Secretary

Issued: October 16, 2000

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C. 20436

In the Matter of

CERTAIN EPROM, EEPROM, FLASH
MEMORY, AND FLASH
MICROCONTROLLER
SEMICONDUCTOR DEVICES AND
PRODUCTS CONTAINING SAME

Inv. No. 337-TA-395

LIMITED EXCLUSION ORDER

The Commission has determined that there is a violation of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) in the unlawful importation and sale of certain erasable programmable read only memory ("EPROM"), electrically erasable programmable read only memory ("EEPROM"), flash memory, and flash microcontroller semiconductor devices that infringe claims 1 or 9 of U. S. Letters Patent 4,451,903.

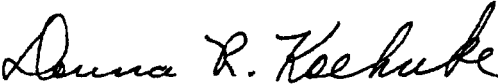
Having reviewed the record in this investigation, including the written submissions of the parties, the Commission has made its determination on the issues of remedy, the public interest, and bonding. The Commission has determined that the appropriate relief is a limited exclusion order prohibiting the unlicensed entry for consumption of infringing EPROM, EEPROM, flash memory, and flash microcontroller semiconductor devices, and circuit boards containing such devices.

Accordingly, the Commission hereby ORDERS that:

1. EPROM, EEPROM, flash memory, and flash microcontroller semiconductor devices, and circuit boards containing such devices, covered by claims 1 or 9 of U.S. Letters Patent 4,451,903 and manufactured abroad by Winbond Electronics Corporation of Taiwan ("Winbond") or Sanyo Electric Co., Ltd. of Japan ("Sanyo") or any of their affiliated companies, parents, subsidiaries, contractors, or other related business entities, or their successors or assigns, are excluded from entry for consumption into the United States for the remaining term of the patent, except under license of the patent owner or as provided by law.
2. The EPROM, EEPROM, flash memory, and flash microcontroller semiconductor devices, and circuit boards containing such devices, that are excluded from entry under paragraph 1 of this Order are entitled to entry for consumption into the United States under bond in the amount of \$0.78 per device, pursuant to subsection (j) of section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337(j)), from the day after this Order is received by the President until such time as the President notifies the Commission that he approves or disapproves this action but, in any event, not later than sixty (60) days after the date of receipt of this action.
3. Pursuant to procedures to be specified by the U.S. Customs Service, as the Customs Service deems necessary, persons seeking to import EPROM, EEPROM, flash memory, or flash microcontroller semiconductor devices, or circuit boards containing such devices, subject to this Order shall certify that they are familiar with the terms of this Order, that they have made appropriate inquiry, and thereupon state that, to the best of their knowledge and belief, the products being imported are not excluded from entry under paragraph 1 of this Order. At its discretion, the Customs Service may require persons who have provided the certification described in this paragraph to furnish such records or analyses as are necessary to substantiate the certification.
4. In accordance with 19 U.S.C. § 1337(l), the provisions of this Order shall not apply to EPROM, EEPROM, flash memory, or flash microcontroller devices, or circuit boards containing such devices, that are imported by and for the use of the United States, or imported for, and to be used for, the United States with the authorization or consent of the Government.
5. The motion (Motion Docket No. 395-116) of intervenor Silicon Storage Technology, Inc. ("SST") for dismissal of Atmel's complaint for unclean hands is denied.

6. The motion (Motion Docket No. 395-119) of intervenor SST for sanctions and the motion (Motion Docket No. 395-120) of respondents Sanyo, Winbond, Macronix International Co., Ltd. and Macronix America, Inc. (collectively "Macronix"), and intervenor SST for sanctions and attorney fees are denied.
7. The motion (Motion Docket No. 395-122C) of intervenor SST that preclusive effect be accorded to a recent U.S. district court's claim construction of the claim in issue of the '811 patent is denied.
8. The contingent request by respondents Winbond, Macronix, and Sanyo, and intervenor SST for a stay of any remedial order issued pending appeal is denied.
9. The motion (Motion Docket No. 395-113C) of complainant Atmel pursuant to Commission rule 210.50 to supplement the record and/or for the Commission to take judicial notice regarding certain information of intervenor SST relative to remedy is denied.
10. The Commission may modify this Order in accordance with the procedures described in section 210.76 of the Commission's Rules of Practice and Procedure, (19 C.F.R. § 210.76).
11. The Secretary shall serve copies of this Order upon each party of record in this investigation and upon the Department of Health and Human Services, the Department of Justice, the Federal Trade Commission, and the U.S. Customs Service.
12. Notice of this Order shall be published in the *Federal Register*.

By order of the Commission.


Donna R. Koehnke

Secretary

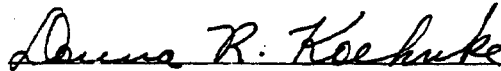
Issued: October 16, 2000

**CERTAIN EPROM, EEPROM, FLASH
MEMORY AND FLASH MICROCONTROLLER
SEMICONDUCTOR DEVICES AND PRODUCTS
CONTAINING SAME**

337-TA-395

CERTIFICATE OF SERVICE

I, Donna R. Koehnke, hereby certify that the attached NOTICE OF FINAL DETERMINATION AND ISSUANCE OF LIMITED EXCLUSION ORDER; NOTICE OF DENIAL OF MOTIONS FOR SANCTIONS, FOR ATTORNEY'S FEES, AND FOR DISMISSAL OF COMPLAINT, was served upon all parties via first class mail and air mail where necessary on October 16, 2000.



Donna R. Koehnke, Secretary
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**CERTAIN EPROM, EEPROM, FLASH
MEMORY AND FLASH MICROCONTROLLER
SEMICONDUCTOR DEVICES AND PRODUCTS
CONTAINING SAME**

337-TA-395

CERTIFICATE OF SERVICE

Page Two

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PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

In the Matter of)	
)	
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CERTAIN EPROM, EEPROM, FLASH)	Investigation No. 337-TA-395
MEMORY, AND FLASH)	
MICROCONTROLLER SEMICONDUCTOR)	
DEVICES AND PRODUCTS CONTAINING)	
SAME)	

COMMISSION OPINION

PROCEDURAL HISTORY

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OFFICE OF THE SECRETARY

I. The Original Investigation

Inv. No. 337-TA-395, *Certain EPROM, EEPROM, Flash Memory, and Flash Microcontroller Semiconductor Devices, and Products Containing Same ("EPROMs")*, was instituted in March 1997 based on a complaint filed by Atmel Corporation. The complaint named five respondents: Sanyo Electric Co., Ltd. ("Sanyo"); Winbond Electronics Corp. and Winbond Electronics North America Corp. (collectively "Winbond"); and Macronix International Co., Ltd. and Macronix America, Inc. (collectively "Macronix"). Silicon Storage Technology, Inc. ("SST") was subsequently permitted to intervene. Atmel alleged that respondents violated section 337 by importing and selling certain electronic products and/or components that infringed one or more claims of four U.S. patents owned by Atmel: U.S. Letters Patents Nos. 4,511,811 ('811 patent), 4,673,829 ('829 patent), 4,974,565 ('565 patent), and 4,451,903 ('903 patent). The '565 patent was subsequently withdrawn from the investigation by complainant Atmel.

The *EPROMs* investigation was assigned to an ALJ (Judge Luckern) who issued his final initial determination ("ID") on March 19, 1998. Judge Luckern concluded that there was no violation of section 337 based on his findings that neither the '811 patent, the '829 patent, nor the '903 patent was infringed by any product imported and sold by respondents or intervenor. He also found, *inter alia*, that the '903 patent was unenforceable because of waiver and implied license by legal estoppel, and that claims 2-8 of that patent were invalid for indefiniteness. However, the ALJ found that the '903 patent was not unenforceable for failure to name a co-inventor. Complainant Atmel petitioned for review of the ALJ's final ID, and the Commission determined to review most of the ALJ's findings.

PUBLIC VERSION

On April 14, 1998, after the ALJ issued his final ID, but before Commission disposition of the investigation, the U.S. District Court for the Northern District of California rendered a decision (the "California decision") invalidating the '811 patent on a basis not raised before the ALJ. *Atmel Corp. v. Information Storage Devices, Inc.*, No. C-95-1987-FMS, 1998 WL 184274 (N.D. Cal. April 14, 1998). The district court held the '811 patent invalid because it found that its specification improperly attempted to incorporate by reference an article in an electronics industry trade magazine. Accordingly, the court concluded that the '811 patent was invalid for indefiniteness under 35 U.S.C. § 112, ¶2. *Id.*

On final disposition of the *EPROMs* investigation, the Commission made the following findings:¹

- The '811 patent and the '829 patent (which has the same specification as the '811 patent) were invalid on the basis of collateral estoppel in light of the California decision.
- The '903 patent was unenforceable for failure to name a co-inventor.²
- The Commission took no position on the ALJ's findings regarding claim construction, patent validity, patent infringement, and domestic industry with respect to the '811, '829, and '903 patents.
- The investigation was terminated with a finding of no violation of section 337.

The Commission's 7/9/98 opinion (issued by Chairman Bragg and Commissioner Crawford) discussed the collateral estoppel effect of the California decision regarding the '811 and '829 patents and the unenforceability of the '903 patent for failure to name a co-inventor. Chairman Bragg issued

¹ At that time (July 2, 1998) there were only three Commissioners in office: Chairman Bragg, Vice Chairman Miller, and Commissioner Crawford. Since Vice Chairman Miller did not participate in the investigation, the Commission's decision was made by Chairman Bragg and Commissioner Crawford. Commissioner Crawford subsequently issued a statement wherein she concluded that her decision on inventorship "would have been different had the General Counsel provided me accurate information." Statement of Commissioner Crawford issued on Sept. 28, 1998.

² More specifically, the Commission, citing *Ethicon, Inc. v. United States Surgical Corp.*, 135 F. 3d 1456 (Fed. Cir. 1998), found that Larry Jordan, the only named inventor of the '903 patent, could not be the sole inventor of the patent because "he did not conceive of the circuitry by which the elements of the patent claims at issue were realized." Rather, "the person(s) who selected particular circuit structures for each of the means plus function claim elements (presumably [engineer Anil] Gupta) is a co-inventor." Commission Opinion, dated July 9, 1998 (7/9/98 Opinion) at pp. 12-13.

PUBLIC VERSION

supplemental views in which she made further findings on the issues of claim construction, validity, infringement, and domestic industry with regard to the '903 patent.³

II. The Reconsideration Proceeding

On August 12, 1998, after issuance of the Commission opinion, Atmel filed a petition with the U.S. Patent and Trademark Office (PTO) to correct the inventorship of the '903 patent pursuant to PTO rule 324, 37 C.F.R § 1.324. Atmel sought to correct the inventorship of the '903 patent by adding Anil Gupta as a co-inventor along with Larry Jordan. The PTO granted Atmel's petition on August 18, 1998, and issued a certificate of correction on October 6, 1998.

On September 8, 1998, Atmel filed with the Commission a "Petition For Relief From Final Determination Finding U.S. Patent No. 4,451,903 Unenforceable." Respondents and the Commission investigative attorney (IA) filed responses to the petition. The Commission ruled on Atmel's petition on January 25, 1999. It determined to treat Atmel's petition as a petition for reconsideration, granted the petition, and reopened the record of the investigation for the limited purpose of resolving the issues arising from the PTO's issuance of the certificate of correction for the '903 patent. The *EPROMs* investigation was remanded to Judge Luckern with instructions to issue an ID addressing the issues presented.

Complainant Atmel, respondents Sanyo, Winbond, Macronix, intervenor SST, and the Commission investigative attorney ("IA") participated in the reconsideration proceeding before the ALJ, who issued his ID on May 17, 2000. In it he made the following principal findings:

- Complainant Atmel committed inequitable conduct at the PTO in the procurement of the certificate of correction for the '903 patent.
- The inventors listed on the PTO certificate of correction (Larry Jordan and Anil Gupta) are not the correct inventors.
- No inequitable conduct was shown to have taken place at the PTO in the prosecution of the original patent application that matured into the '903 patent.

Atmel petitioned for review of the following findings made in the reconsideration ID: (1) that respondents and intervenor were not judicially estopped from challenging that Anil Gupta was a co-inventor of the '903 patent, (2) that Atmel committed inequitable conduct in the PTO correction proceeding, and (3) that the inventors listed on the PTO certificate of correction (Jordan and Gupta) were not the correct inventors. Atmel also alleged that the ALJ exhibited such bias against it that Atmel was denied a fair hearing. Finally, Atmel appealed ALJ Orders Nos. 50 and 69, which were

³ Supplemental Views of Chairman Bragg, dated July 9, 1998 (attached as an Appendix to this Opinion).

PUBLIC VERSION

issued during the course of the reconsideration proceeding. In Order No. 50, the ALJ ordered Atmel to produce documents, for which Atmel had claimed attorney-client privilege or protection under the work product doctrine, concerning the subject of the "proper inventorship" of the '903 patent, and to provide substantive answers to interrogatories requesting the substance of oral communications between Atmel employees and Atmel's attorneys on the subject of the "proper inventorship" of the '903 patent. In Order No. 69, the ALJ ruled, *inter alia*, that Atmel bore the burden of proof by clear and convincing evidence that the inventors shown on the PTO certificate of correction (Jordan and Gupta) were the correct inventors, and also ruled that PTO rule 324 did not comply with its enabling statute, 35 U.S.C. § 256. The IA opposed Atmel's petition in part, but also petitioned for review of ALJ Order No. 69 and the ALJ's rulings on inequitable conduct and inventorship. Respondents and intervenor filed a joint response in opposition to the petitions for review.

On July 17, 2000, the Commission determined to review the following issues:

- The ALJ's determination that the PTO certificate of correction for the '903 patent was procured inequitably.
- The ALJ's determination that the inventors named on the PTO certificate of correction (Jordan and Gupta) are incorrect.
- The ALJ's ruling in Order No. 50 that Atmel had waived the attorney-client privilege and protections under the work product doctrines.
- The ALJ's ruling in Order No. 69 that Atmel bore the burden of proof by clear and convincing evidence that the inventors shown on the PTO certificate of correction are the correct inventors.
- The ALJ's ruling in Order No. 69 that PTO rule 324 did not comply with its enabling statute.

65 *Fed. Reg.* 45406 -08 (July 21, 2000).

The Commission requested briefs on the issues under review, and posed briefing questions for the parties to answer. *Id.* The Commission also requested and received written submissions on remedy, the public interest, and bonding. *Id.* It received briefs from Atmel, the IA, and respondents and intervenor.

III. Atmel's Appeal to the Federal Circuit of the Commission's Determination of No Violation of Section 337 in the Original Investigation

On August 28, 1998, Atmel appealed the Commission's "no violation" determination of July 2, 1998, to the U.S. Court of Appeals for the Federal Circuit. *Atmel Corporation v. United States International Trade Commission*, Appeal No. 98-1580 (Fed. Cir.). Sanyo, Winbond, Macronix, and SST intervened in support of the Commission. On November 6, 1998, Sanyo and Winbond moved to

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dismiss the portion of the appeal concerning the '903 patent. They argued that the inventorship issue involving the '903 patent was moot in light of the PTO's subsequent correction of the '903 patent to include Anil Gupta as a co-inventor. In replying to the Sanyo/Winbond motion to dismiss, Atmel conceded the mootness of its appeal concerning the inventorship of the '903 patent, and proposed that that portion of its appeal be vacated and remanded to the Commission. On December 8, 1998, the Federal Circuit stayed the appeal pending a ruling from the Commission on Atmel's then pending motion for the Commission to reconsider its prior determination on inventorship.

On February 10, 1999, Winbond filed a petition for a writ of mandamus with the Federal Circuit. Winbond asked the Federal Circuit to direct the Commission to vacate its January 25, 1999, order remanding the inventorship issue to the ALJ. Winbond argued that the Commission was without authority to grant relief from its final determination of "no violation" because the case had been appealed to the Federal Circuit. The Federal Circuit denied Winbond's petition for a writ of mandamus on April 16, 1999, and remanded Atmel's appeal to the Commission, stating that "[a]fter its proceedings are complete, the ITC shall issue a final determination encompassing Atmel's complaint regarding all three patents so that the parties may seek [judicial] review at that time." *In Re Winbond Electronics Corporation and Winbond Electronics North America Corporation*, Appeal No. 98-1580, Miscellaneous Docket No. 579 (Fed. Cir. April 16, 1999) (Mandate issued on June 7, 1999) at p. 4. As a result of this ruling, and the Federal Circuit's subsequent reversal of the California decision (discussed below), all three Atmel patents at issue are currently before the Commission for final decision.

IV. Atmel's Appeal of the California Decision to the Federal Circuit

The California decision, *Atmel Corp. v. Information Storage Devices, Inc.*, No. C-95-1987-FMS, 1998 WL 184274 (N.D. Cal. April 14, 1998) was appealed by Atmel to the Federal Circuit. On December 28, 1999, the Federal Circuit in a split decision reversed and remanded the case to the district court. *Atmel Corp. v. Information Storage Devices, Inc.*, 53 USPQ 2d 1225 (Fed. Cir. 1999). As noted above, the district court had held the '811 patent invalid for indefiniteness under 35 U.S.C. § 112, ¶2, because the patent specification incorporated a journal article by reference. The district court had found the incorporation by reference to be improper and held that, unless the article were itself incorporated, the specification of the '811 patent did not enable a person of ordinary skill in the art to practice the patent, and that therefore the patent was invalid as indefinite. The Federal Circuit (per Judge Lourie; Chief Judge Mayer dissenting) reversed the district court, stating that "the district court erred by failing to consider the knowledge of one skilled in the art that indicated that the specification [of the '811 patent] disclosed sufficient structure to satisfy 35 U.S.C. § 112, ¶2." *Atmel Corp.*, 53 USPQ 1225, 1227. The court noted that an Atmel expert gave unrebutted testimony that the title alone of the journal article incorporated by reference was sufficient to indicate to one skilled in the art the precise structure of the high voltage generating means recited in the specification. *Id.* at 1228.⁴

⁴ The article was entitled, "On-Chip High Voltage Generation in NMOS Integrated Circuits Using an Improved Voltage Multiplier Technique" and was published in IEEE Journal of Solid State Circuits, vol. SC-11, No. 3, June 1976.

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ISSUES UNDER REVIEW

I. Standards on Review

This investigation is before us on review of the ALJ's original final initial determination on violation, which issued on March 19, 1998 (the 3/19/98 ID), and the ALJ's final initial determination on reconsideration, which issued on May 17, 2000 (the 5/17/00 ID). Commission rule 210.45 (c), 19 C.F.R. § 210.45 (c) states:

On review, the Commission may affirm, reverse, modify, set aside or remand for further proceedings, in whole or in part, the initial determination of the administrative law judge. The Commission also may make any findings or conclusions that in its judgment are proper based on the record in the proceeding.

Once the Commission determines to review an initial determination, it reviews the determination under a *de novo* standard. *Certain Acid-Washed Denim Garments and Accessories*, Inv. No. 337-TA-324, Commission Opinion at 4-5 (August 28, 1992)(the Commission examines for itself the record on the issues under review); *accord*, *Certain Flash Memory Circuits and Products Containing Same*, Inv. No. 337-TA-382, Commission Opinion at 14 (January 9, 1997). Commission practice is consistent with the Administrative Procedure Act, 5 U.S.C. § 1 et seq. (APA). The APA provides that once an initial agency decision is taken up for review, "the agency has all the powers which it would have in making the initial decision except as it may limit the issues on notice or by rule." 5 U.S.C. §557(b). This provision and Commission rule 210.45(c) reflect the fact that the Commission is not an appellate court, but the body responsible for making the final agency decision. On appeal, only the Commission's final decision is at issue. *Fischer & Porter v. USITC*, 831 F.2d 1574, 1576-77 (Fed. Cir. 1987).

Factual findings made by the ALJ in either his 3/19/98 ID or his 5/17/2000 ID that are not inconsistent with this opinion are adopted by the Commission. Factual findings that are inconsistent with this opinion are rejected.

II. The '903 Patent

A. Inventorship and Inequitable Conduct Issues

Our principal determinations concerning the '903 inventorship and inequitable conduct issues are: (1) Atmel waived its attorney-client privilege and work product protections. Therefore, its internal documents concerning the proper inventorship of the '903 patent were properly ordered produced, interrogatories about them were properly allowed, and testimony about them was properly compelled under ALJ Order No. 50. (2) Atmel did not commit inequitable conduct before the PTO during the correction proceedings. (3) ALJ Order No. 69 is reversed with respect to the finding that Atmel bore the burden of proof on the inventorship issue, and is vacated with respect to the ALJ's determination that PTO rule 324 does not comply with its enabling statute. (4) The correct inventors are listed on the certificate of correction of the '903 patent.

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B. Background of the Dispute Involving the Inventorship of the '903 Patent.

In early 1981, Seeq Technology, Inc. ("Seeq"), the former assignee of the '903 patent, began operations as a memory chip maker. George Perlegos was in charge of engineering and Larry Jordan was head of marketing. Anil Gupta and George Smarandoiu began working as engineers for Seeq in 1981.⁵

Jordan came up with the idea of having each memory chip hold its own identifying information (including identification of the manufacturer) so that the devices used to program the chips would automatically use the proper programming algorithms and voltages. He called his idea "Silicon Signature," which became a Seeq trademark. Jordan's idea included the use of a super high voltage which would disable the normal functions of the chip in order to avoid confusion between the product identification information and the information from the normal memory array. A high voltage input detection circuit to recognize the super high voltage would disable the normal functions of the chip and access the manufacturer's identification information. However, because Jordan could not design circuits himself, someone else implemented his idea.

The first product that Seeq planned to sell was an erasable programmable read only memory ("EPROM"). Perlegos worked on this first EPROM, which bore the product number 5133, in early 1981, and Smarandoiu also began working on it when he arrived at Seeq. Also in 1981, Gupta began work on the design of another Seeq product, the 5213 EEPROM (electrically erasable read only memory). The ALJ found that the first EPROM was designed beginning in March of 1981 by Perlegos, and that the design work by Perlegos and Smarandoiu continued from April 1981 until its completion on August 18, 1981. 5/17/200 ID at 89. The ALJ found that Gupta's design of the 5213 EEPROM circuitry could not have been completed any earlier than the end of August 1981, and that the layout of the 5213 EEPROM was completed at the end of September 1981. 5/17/00 ID at 91.

On September 18, 1981, Seeq filed the patent application that matured into the '903 patent, listing Jordan as the sole inventor. The Commission's Opinion of July 9, 1998, Confidential Version (7/9/98 Opinion), which is law of the case, held that the '903 patent was unenforceable for failure to name a co-inventor or co-inventors, finding that "the person(s) who selected particular circuit structures for each of the means plus function elements . . . is a co-inventor [of the '903 patent]." 7/9/98 Opinion, at 13-14.

It is undisputed that Perlegos and Smarandoiu worked on the circuitry for the 5133 EPROM and that Gupta worked on the circuitry for the 5213 EEPROM. Respondents and intervenor maintain that Silicon Signature was in the first version of the 5133 EPROM, and therefore was first implemented by Perlegos and Smarandoiu. Atmel does not dispute that a version of the 5133 EPROM was completed before the 5213 EEPROM was completed, and concedes that at some point in time the 5133 EPROM contained Silicon Signature. The inventorship dispute centers on whether the first

⁵ Gupta and Smarandoiu are current employees of Atmel and were employees in 1998. Jordan worked for Seeq when the '903 patent application was originally filed, but was not employed by Atmel in 1998.

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version of the 5133 EPROM actually contained the circuitry for Silicon Signature or whether that circuitry was instead selected by Gupta and implemented for the first time in the 5213 EEPROM.

C. ALJ Order No. 50.

ALJ Order No. 50 denied Atmel's claims of attorney-client privilege and work product protection and compelled Atmel to produce privileged documents, answer interrogatories about the "proper inventorship" of the '903 patent, and offer its attorneys for testimony on the issue of "proper inventorship" of the '903 patent. The ALJ found that Atmel had waived the attorney client privilege and protections afforded under the work product doctrine by placing at issue the advice of counsel and counsel's work product regarding the correct inventorship of the '903 patent. He based his finding of waiver on Atmel's affirmative act of petitioning the Commission for reconsideration of the inventorship issue based on a certificate of correction of the '903 patent issued by the PTO. Order No. 50 at 15. That certificate of correction was issued as a result of a petition for correction of inventorship that Atmel filed which was supported by Anil Gupta's statement of August 11, 1998. That statement represented that:

the standard for inventorship as it relates to the '903 patent has been explained to me. Based on my understanding of that standard, I hereby state that I have made an inventive contribution to the subject matter claimed in the '903 patent, whereby I am a co-inventor of the claimed subject matter of the '903 patent.

Id. at 8, citing Statement of Anil Gupta, Aug. 11, 1998, JX-38.

The ALJ also appears to have based his finding of waiver on his finding that Gupta's and Jordan's statements filed in support of the PTO petition for correction were inconsistent with sworn testimony given before him in the original Commission investigation. *Id.* at 19.

Having considered Atmel's petition for review, the responses thereto and the briefing by the parties in response to the Commission's notice of review, we determine to affirm the result of ALJ Order No. 50 on the basis that Atmel placed at issue the advice of counsel by its affirmative act of petitioning the Commission for reconsideration of the inventorship issue based on a certificate of correction of the '903 patent issued by the PTO. We do not base our decision on the ALJ's finding that Gupta's and Jordan's statements in support of the PTO petition were inconsistent with sworn testimony given in the original Commission investigation.

Attorney-client privilege and the protections under the work-product doctrine are vital to the legal system, and we take seriously our responsibility to preserve those protections. We find, however, that the unique facts and circumstances surrounding Atmel's actions in the reconsideration proceedings present a clear and compelling case of waiver of the attorney-client privilege and work product protections.

The ALJ relied on the test for waiver set forth in *Hearn v. Rhay*, 68 F.R.D. 574 (E.D. Wash. 1975), which was applied by the Federal Circuit in *Zenith Radio Corp. v. United States*, 764 F.2d

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1577, 1759 (Fed. Cir. 1985).⁶ Under the *Hearn* test, waiver is found under the following conditions:

(1) assertion of the privilege was the result of some affirmative act, such as filing suit, by the asserting party; (2) through this affirmative act, the asserting party put the protected information at issue by making it relevant to the case; and (3) application of the privilege would have denied the opposing party access to information vital to his [case].

Hearn, 68 F.R.D. at 581.

Upon applying the *Hearn* criteria, the ALJ found waiver in Atmel's reliance upon the certificate of correction of the '903 patent in filing its petition for reconsideration with the Commission. The ALJ explained that in asking for reconsideration of the Commission's decision in the original investigation, Atmel changed its position and gave as a reason for its change in position the certificate of correction of the '903 patent which Atmel obtained from the PTO on the basis of Gupta's statement that he was an inventor based on an explanation of inventorship that he had received. Atmel also made the following argument to the Commission in pressing its motion for reconsideration:

Thus, both Mr. Jordan and Mr. Gupta testified that Jordan conceived of the overall invention of the '903 patent, while Mr. Gupta implemented that invention with particular circuitry. At the time they testified, the law as they, and Atmel, understood it was that the inventor of a patent is the person who conceives the elements of an invention, and not the person who designs the specific circuitry involved. Based on their testimony and this understanding of the law, Messrs. Jordan and Gupta testified at the hearing that Jordan was the sole inventor of the '903 patent.

The ultimate question of inventorship, however, is a question of law, and, after Messrs. Jordan and Gupta testified in the ITC proceedings, the applicable law changed. . . . Indeed, Mr. Gupta addressed the change in inventorship law in his statement to the PTO when he said, "The standard for inventorship as it relates to the '903 patent has been explained to me. Based on my understanding of that standard, I hereby state that I have made an inventive contribution to the subject matter claimed in the '903 patent."

Complainant Atmel Corp. Reply Petition for Relief from Final Determination, filed Oct. 14, 1998, at pp. 13-15 .

We find that, by expressly relying on Gupta's statement as a central part of its efforts to obtain a

⁶ The Federal Circuit in *Zenith* denied the claim that the attorney-client privilege had been waived on the ground that a sufficient showing of need for the privileged information had not been made, and therefore held that there could be no waiver under either the *Hearn* test or a more protective balancing test also considered by the court. *Zenith*, 764 F.2d at 1759. The *Zenith* court did not discuss the *Hearn* criterion of whether "the asserting party put the protected information at issue by making it relevant to the case."

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certificate of correction and then using that certificate to convince the Commission to reconsider the enforceability of the '903 patent, Atmel explicitly placed the legal advice to Gupta -- and the fact that Gupta had obtained that advice -- "at issue" in these proceedings.

Gupta was reluctant to sign a statement to the PTO claiming that he had made an inventive contribution to the subject matter claimed in the '903 patent, and was therefore a coinventor, because of the contradiction with the earlier depositions, where he said "I am not an inventor." IX-295 at 061534D, IX-273, Tr. 4220-4222. Apparently to accommodate his concerns, Gupta's statement was redrafted to state: "The standard for inventorship as it relates to the '903 patent has been explained to me. Based on my understanding of that standard, I hereby state that I have made an inventive contribution to the subject matter claimed in the '903 patent, whereby I am a co-inventor of the claimed subject matter of the '903 patent." JX-38. Atmel does not seriously dispute that the explanation referred to in Gupta's statement to the PTO was given by counsel. Rather, Atmel contends that because Gupta's statement to the PTO did not specifically state that he was relying on counsel's advice, it did not place that advice in issue. We are not persuaded by Atmel's argument that particular language is necessary to place counsel's advice at issue. The circumstances of this case allow for no interpretation other than that Gupta relied on the advice of counsel in coming to his conclusion that he was an inventor of the '903 patent. In deposition testimony taken in related district court litigation between Atmel and Macronix, Gupta expressly admitted that his statement to the PTO, as well as his change of position on the inventorship issue, was based solely on his reliance on advice provided by Atmel's attorneys. See Order No. 50 at pp. 12-13. Moreover, the Commission's 7/9/98 Opinion, which contained the Commission's statement on inventorship and its interpretation of *Ethicon*, was available only to counsel who had signed the administrative protective order at the time that Atmel filed its petition for correction with the PTO on August 12, 1998, and its petition for reconsideration with the Commission on September 12, 1998. The Commission's views were not available to Gupta or Atmel until a public version of the Commission Opinion issued on September 28, 1998. Thus, any change in Gupta's and Atmel's conclusions concerning inventorship based on the Commission's statement on inventorship and its interpretation of *Ethicon* was necessarily the result of advice Gupta and Atmel received from their counsel who had reviewed the Commission's opinion.⁷

Our decision to find waiver here is not based simply on the fact that Atmel's attorneys explained the inventorship issue to Gupta and that Gupta acted upon that explanation, *cf. United States v. White*, 887 F.2d 267, 270-271 (D.C. Cir. 1989)("[a] general assertion lacking substantive content that one's attorney has examined a certain matter is not sufficient to waive the attorney-client privilege."), or on the fact that inequitable conduct on the part of Atmel was alleged, *cf. In Re Spalding Sports Worldwide, Inc.*, 203 F.3d 800, 808 (Fed. Cir. 2000) (mere allegation of inequitable conduct, without evidence of fraudulent intent, insufficient to pierce attorney-client privilege). Rather, Atmel argued throughout the original investigation that Jordan was the sole inventor of the '903 patent. In explaining the reason for its change in position in petitioning the Commission for reconsideration, Atmel expressly relied on Gupta's statement to the PTO that the inventorship standard had been

⁷ No party has alleged a breach of the administrative protective order. The information disclosed by Atmel concerned only the Commission's legal conclusions on inventorship, not confidential business information.

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explained to him, and the PTO's issuance of a certificate of correction based on that statement, as part of its efforts to convince the Commission to reconsider the enforceability of the '903 patent. Moreover, Gupta admitted that the explanation was received from Atmel's counsel. Under these circumstances, we find that Atmel placed its counsels' advice to Gupta -- and the fact that Gupta had obtained that advice -- at issue in these proceedings.

Once attorney-client communications or the state of mind of an attorney is put at issue by the proponent, it may not withhold any information that the opponent may need to challenge fairly and fully the evidence. *Glenmede Trust Co. v. Thompson*, 56 F.3d 476, 486-87 (3d Cir. 1995); *Worthington v. Endee*, 177 F.R.D. 113 (N.D.N.Y. 1998); *Handgards, Inc. v. Johnson & Johnson*, 413 F. Supp. 926, 192 USPQ 316 (N.D. Cal. 1976); and *Bio-Rad Laboratories, Inc. v. Pharmacia, Inc.*, 130 F.R.D. 116, 14 USPQ2d 1924 (N.D. Cal. 1990). Where there has been a waiver because attorney advice has been placed in issue, work product is discoverable "whether styled as a showing of a sufficiently compelling need or as a waiver of the work-product privilege," *Panter v. Marshall Field Co.*, 80 F.R.D. 715, 725 (F.R.D. N.D. Ill. 1978) (opinion work product found discoverable based on the defendant's reliance upon the advice of counsel as a justification for its actions).

Zenith established that a showing of strong need for withheld documents is necessary to support a finding of waiver. *Zenith*, 764 F.2d at 1759. In this case, the ALJ found that respondents and intervenor had a strong need for the privileged documents because the good faith of Atmel and its counsel were central issues in the remand proceeding. He found that Atmel made good faith central by relying on the advice of counsel in filing Gupta's statement to the PTO and by asking the Commission to reconsider its determination of no violation based on the unenforceability of the '903 patent in view of the certificate of correction. Order No. 50 at 10. The ALJ found that, since proof of Atmel's purported "good faith" rested entirely in the hands of Atmel's counsel, intervenor and respondents would be deprived of information vital to their claim of inequitable conduct if Atmel was permitted to assert its privileges. *Id.* at 10, 15. We agree with the ALJ's reasoning supporting his finding that respondents and intervenor had a vital need for the documents withheld by Atmel, and we adopt his finding and analysis that Atmel's waiver also extended to the work product documents.

We conclude that the three prongs of the *Hearn/Zenith* test for waiver have been met here, and we accordingly determine that Atmel waived its attorney-client privilege and work product protections as to the withheld documents.

Atmel argued that the ALJ should have applied the test in *Rhone-Poulenc Rorer, Inc. v. Home Indem. Co.*, 32 F.3d 851, 863 (3d Cir. 1994), to determine whether Atmel had placed the advice of counsel in issue. The court in *Rhone-Poulenc Rorer, Inc.* held:

Advice is not in issue merely because it is relevant, and does not necessarily become in issue merely because the attorney's advice might affect the client's state of mind in a relevant manner. The advice of counsel is placed in issue when the client asserts a claim or defense, and attempts to prove that claim or defense by disclosing or describing an attorney-client communication." *North River Insurance Company v. Philadelphia Reinsurance Corporation*, 797 F.Supp. 363,370 (D.N.J. 1992); *Pittston*

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Company v. Allianz Insurance Co., 143 F.R.D. 66, 71 (D.N.J. 1992).

Rhone-Poulenc, 32 F.3d 851 at 863.

We find that application of the test in *Rhone-Poulenc Rorer* to this case would not lead to a different result here. Atmel premised its claim for reconsideration of the Commission's original determination on enforceability of the '903 patent on the certificate of correction of the '903 patent which, in turn, was based on the statement of Gupta to the PTO, which undisputedly relied on the advice of counsel. Applying the *Rhone-Poulenc Rorer* test to these facts, we find that Atmel relied on the advice of counsel to prove its claim and, in the process, described its attorney-client communication.

Atmel also challenged the scope of the subject matter of the waiver found by the ALJ. However, Atmel presented no valid grounds, legal or factual, for questioning the ALJ's decision to define the scope of Atmel's waiver as communications and work product relating to "proper inventorship of the '903 patent." We find that the scope of the waiver found by the ALJ is appropriate in view of the fact that the statement by Gupta giving rise to the waiver specifically referred to the advice of counsel concerning the standard of inventorship "as it relates to the '903 patent."

We also find unpersuasive Atmel's argument that the ALJ failed to place appropriate temporal limits on the information that Atmel had to produce. In ALJ Order No. 54, the ALJ clarified that Atmel was not required to produce any documents generated prior to January 1997. Later, he clarified that Atmel was not required to produce documents reflecting attorney-client communications pertaining to preparation for the reconsideration hearing, or any attorney work product relating to preparation for that hearing, or counsel's present views on the issues raised on the reconsideration hearing. Tr. of November 15, 1999, Teleconference at 15, 21; Tr. of December 14, 1999, Teleconference at 16-17. Relying on those rulings, the Atmel witnesses deposed in November and December of 1999 refused to answer multiple questions posed by counsel for intervenor and respondents. Thus we find that the ALJ did, in fact, place appropriate temporal limitations on the scope of Atmel's waiver.

D. Inequitable Conduct in the Correction of Inventorship of the '903 Patent

Inequitable conduct before the PTO involves affirmative misrepresentations of a material fact, failure to disclose material information, and/or submission of false material information, coupled with intent to deceive, *Baxter Int'l Inc. v. McGaw Inc.*, 149 F.3d 1321, 1327, 47 USPQ2d 1225, 1228-29 (Fed. Cir. 1998). In order to prove inequitable conduct, it must be shown by clear and convincing evidence that any misrepresentations, withholding, and/or false statements to the PTO satisfy threshold levels of materiality and that there was an intent to mislead the PTO. *Haliburton Co. v. Schlumberger Tech., Corp.*, 925 F.2d 1435, 1439, 17 USPQ2d 1834, 1838 (Fed. Cir. 1991). Once the thresholds of materiality and intent are satisfied, the tribunal must balance materiality and intent. *Id.* The more material the omissions, false statements, and/or misrepresentations, the less culpable the intent required, and vice versa. *Id.* The tribunal must make a determination as to whether the conduct "in its totality manifests a sufficiently culpable state of mind to warrant a determination that it was inequitable." *Molins PLD v. Textron, Inc.*, 48 F.3d 1172, 33 USPQ2d 1823, 1826-28 (Fed. Cir.

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1995).

In determining whether Atmel made misrepresentations of a material fact, failed to disclose material information, and/or submitted false material information to the PTO, the ALJ applied PTO rule 56, 37 C.F.R. § 1.56 (1995), which defines information as material to patentability when:

[I]t 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.

Atmel and the IA relied on the "plain language" of PTO rule 324, 37 C.F.R. § 1.324, which governs petitions for correction of issued patents, to argue that information or documents not listed in PTO rule 324, are *ipso facto* not material.⁸ The ALJ rejected their arguments, citing, *inter alia*,

⁸ PTO rule 324 provides:

(a) Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his or her part, the Commissioner may, on petition, or on order of a court before which such matter is called in question, issue a certificate naming only the actual inventor or inventors.

(b) Any petition pursuant to paragraph (a) of this section must be accompanied by:

(1) A statement from each person who is being added as an inventor and from each person who is being deleted as an inventor that the inventorship error occurred without any deceptive intention on his or her part;

(2) A statement from the current named inventors who have not submitted a statement under paragraph (b)(1) of this section either agreeing to the change of inventorship or stating that they have no disagreement in regard to the requested change;

(3) A statement from all assignees of the parties submitting a statement under paragraphs (b)(1) and (b)(2) of this section agreeing to the change of inventorship in the patent, which statement must comply with the requirements of § 3.73(b) of this chapter; and

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Semiconductor Energy Lab. Co. v. Samsung Electronics Co., 204 F.3d 1368, 54 USPQ2d 1001 (Fed. Cir. 2000), in which the Federal Circuit considered a patentee's technical compliance with another PTO rule, regarding disclosure of non-English prior art references. In that case, the Federal Circuit concluded that the patentee committed inequitable conduct even though it may have technically complied with the PTO rule 98, holding that compliance with rule 98 "provides neither a safe harbor nor a shield against allegations of inequitable conduct." *Semiconductor Energy*, 54 USPQ2d at 1007.

The ALJ also found that adverse information is "material" to a PTO correction proceeding under rule 324 even though the rule does not purport to assess the merits of inventorship claims in a petition. He based his ruling on the PTO's inherent power to deny inventorship petitions if it has reason to believe that the petition may warrant a close and detailed examination. In other words, the ALJ found that, while the PTO will not conduct a substantive inquiry into the issue of inventorship, the PTO will not allow petitioners to conceal adverse facts that may reveal the need for closer and more detailed examination by a federal district court. 5/17/00 ID at 45. The ALJ found that where adverse "substantive" information suggests that inventorship may be disputed, the PTO has discretion to reject a correction petition. *Id.* The ALJ found that, if a petitioner fails to disclose adverse facts, the PTO cannot even make this threshold determination. *Id.* at 46. Accordingly, the ALJ found that the PTO's refusal to make inventorship decisions does not, *ipso facto*, render all adverse inventorship material "immaterial" to the PTO. *Id.*

Prior to a 1992 amendment, PTO rule 56 defined information as material when "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." 37 C.F.R. § 1.56 (1989). The "reasonable patent examiner" standard for materiality articulated in *Halliburton*, 925 F.2d at 1439-40, 17 USPQ2d 1834 at 1841, cited by *Atmel*, refers to the version of PTO rule 56 in effect at the time that the decision was written.⁹ The *Halliburton* court acknowledged that the standard for materiality contained in PTO regulations should provide the "appropriate starting point for determining the threshold level of materiality." *Id.* Under the reasoning in *Halliburton*, we determine that the appropriate starting point for a determination of materiality in the present case is the materiality standard contained in the present version of rule 56, which was in effect at the time *Atmel* submitted its PTO petition for correction.

Inventorship correction proceedings clearly concern patentability since 35 U.S.C. § 102(f) makes the correct naming of inventors a requirement of patentability. The Federal Circuit recently noted a Manual of Patent Examination Procedure (MPEP) provision that specifically states that information about inventorship is material. *PerSeptive Biosystems, Inc. v. Pharmacia Biotech Inc.*, 56 USPQ 1001, 1005 (Fed. Cir. 2000)(citing MPEP § 2001.06 (c))("inventorship disputes are material information and MPEP § 2004 suggests that applicants carefully consider inventorship in the duty to disclose context). Accordingly, we affirm the ALJ's determination that materiality in correction

(4) The fee set forth in § 1.20(b).

⁹ *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559 (Fed. Cir. 1997), also cited by *Atmel*, concerned a patent prosecution that occurred under the pre-1992 rules.

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proceedings is properly determined under the criteria set forth in PTO rule 56, and we adopt his analysis on that issue.

The ALJ found that Atmel made material misleading statements in its PTO petition for correction, submitted material misleading declarations to the PTO, and omitted material contradictory inventorship information. We examine each of these findings in turn.

Misleading Statements in the Petition

Atmel's petition for correction states in pertinent part:

Patentee respectfully requests that a certificate [of correction] be issued for the ... U.S. Patent No. 4,451,903 (hereinafter "the '903 patent"), naming the actual inventors by adding the following inventor who was not originally named as inventor through error, and without any deceptive intention:

Anil GUPTA, a citizen of the United States of America, whose post office address and residence is 5542 Bigoak Drive, San Jose, California 95129.

This petition is accompanied by a Statement of Anil GUPTA that the inventorship error occurred without deceptive intention on his part; a Statement of Larry T. JORDAN agreeing to the change of inventorship; the fee set forth in 37 C.F.R. 1.20(b); and the written consent of the Assignee.

Patentee notes that this patent has been involved in litigation before the International Trade Commission (ITC) in an action styled as *In the Matter of EPROM, EEPROM, Flash Memory, And Flash Microcontroller Semiconductor Devices And Products Containing Same*, Investigation No. 337-TA-395. The ITC issued an opinion on July 9, 1998, holding that the above-identified patent is unenforceable due to failure to name a co-inventor, and that the co-inventor is the person who designed the particular circuit structures corresponding to each of the means-plus-function claim elements. The ITC indicated that it did not have the power to correct inventorship, but indicated that the Patent and Trademark Office or a court could correct the inventorship of the '903 patent provided there was no deceptive intent. The separate statement of the ITC Chairman stated that there was no reason to believe that the inventorship of the '903 patent could not be corrected.

From the above, it is noted that the ITC made no finding on the issue of deceptive intention in the failure to name Anil GUPTA as a joint inventor of the '903 patent, but has indicated that any correction of inventorship should proceed before the Patent and Trademark Office or a court. Accordingly, the instant Petition is being filed to have the correction of inventorship entered at the Patent and Trademark Office.

Patentee further notes that this patent is currently involved in litigation before

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the Northern District of California in an action styled as *Atmel Corporation v. Silicon Storage Technology, Inc.*, No. C-96-0039 SC.

Patentee further notes that a Request for Certificate of Correction and a proposed Certificate of Correction are being filed herewith requesting the correction of the inventor information on the patentee to include Anil GUPTA as a co-inventor.

JX-39

The ALJ found that Atmel's PTO petition concealed the existence of an ongoing inventorship dispute. The ALJ found that at the time that it filed its petition for correction, Atmel knew that the inventorship of the '903 patent was contested, but omitted informing the PTO of that dispute. He also found that the conflict over inventorship made an *ex parte* PTO correction proceeding improper. 5/17/00 ID at 41.

We disagree with the ALJ's finding that Atmel was aware of an inventorship conflict in August 1998. Materiality must be determined as of the time that Atmel's petition for correction was filed. MPEP § 2001.04 at 2000-3 (1998). Atmel did disclose to the PTO that inventorship had been at issue in the Commission proceedings. JX-39. In the original Commission investigation, respondents and intervenor had either argued that Gupta was the co-inventor or, in the case of respondent Winbond, that an unnamed Seeq engineer (or engineers) was the inventor.¹⁰ At the time that Atmel filed its petition for correction, respondents and intervenor had just successfully argued to the Commission that the '903 patent was invalid due to nonjoinder because Gupta was a co-inventor, and the Commission had stated in its 7/9/98 Opinion that Gupta was "presumably" the co-inventor. Respondents and intervenor did not argue that Smarandoiu and Perlegos first implemented Silicon Signature in the 5133 EPROM in the original investigation. Atmel credibly states that this argument was not known to it until the reconsideration proceedings were underway in 1999, well after the August 12, 1998 date of its PTO petition.¹¹ Accordingly, we find that Atmel was aware of no inventorship dispute at the time that it filed its petition for correction at the PTO.

In addition, we note that, aside from Jordan and Gupta, no one (specifically, neither Smarandoiu nor Perlegos) has ever claimed to be an inventor, or claimed to be the first to implement Silicon Signature, or claimed to have selected particular circuit structures for each of the means plus function elements of the '903 patent. Under *Pro-Mold & Tool Co., Inc. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1576 (Fed. Cir. 1996), "[w]hen an alleged omitted co-inventor does not claim to be

¹⁰ As noted above, Seeq Technology Inc. was the original assignee of the '903 patent.

¹¹ We note respondents' and intervenor's statement that inventorship was at issue in parallel district litigation. *Joint Response to Atmel's Petition for Review*, p.33 n.13, dated June 13, 2000. However, we are not familiar with the record in that litigation, and respondents and intervenor have not provided any information as to when the inventorship issue arose in that litigation or whether a position was taken in that litigation contrary to Gupta being a co-inventor.

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such, it can hardly be inequitable conduct not to identify that person to the PTO as an inventor."

The ALJ found that Atmel's PTO petition affirmatively misled the PTO by implying that: (a) the Commission had made a finding that Gupta was the single co-inventor; (b) the Commission had made findings on the issue of deceptive intent; and (c) the Commission was simply referring the matter for *pro forma* correction by the PTO or the courts. 5/17/00 ID at 27. The ALJ also found that these asserted misrepresentations of the Commission's 7/9/98 Opinion improperly bolstered the credibility of statements by Jordan and Gupta that were included in the PTO petition. The ALJ also found that Atmel's counsel misrepresented the Commission's 7/9/98 Opinion to Gupta and Jordan.¹²

Contrary to the ALJ's finding, we find that Atmel's petition to the PTO neither states nor implies that the Commission made a finding that there was a single co-inventor, which was Gupta. We determined in the original investigation that Jordan was not the sole inventor *because* we found that the person or persons who selected particular circuit structures for each of the means plus function claim elements is a co-inventor. 7/9/98 Opinion at 13-14. We also stated that "the '903 patent is unenforceable for failure to name an inventor," *Id.* at 14, and that "inventorship can be corrected if the omission occurred without deceptive intent of the co-inventor(s). 35 U.S.C. §256 ¶ 1." 7/9/98 Opinion at 14, n.31. Chairman Bragg indicated in her Supplemental Views that she had no reason to believe the inventorship of the '903 patent was not correctable.¹³ Views of Chairman Bragg at 1-2. We find that Atmel's petition tracked the Commission's and Chairman Bragg's language and, in fact, made no misrepresentations.

We disagree with the ALJ's finding that Atmel's statement in its PTO petition that the Commission had "made no finding on the issue of deceptive intent in the failure to name Anil Gupta as a joint inventor" suggested that the Commission had actually made a finding that there was no deceptive intent on the part of Gupta. 5/17/00 ID at 27. We find instead that Atmel's statement merely referred to an absence in the Commission's record of any finding of deceptive intent on the part of Gupta. Such a statement was relevant given that the PTO considers the issue of whether there has been deceptive intent in the failure to name a co-inventor in the correction proceedings. In our view, Atmel accurately described the Commission's July 9, 1998 Opinion and Chairman Bragg's Supplemental Views. We also find that Atmel clearly indicated that Chairman Bragg's Supplemental views were separate from those of the whole Commission. *See* JX-39.

We also disagree with the ALJ's finding that Atmel "convey[ed] the impression that the Commission was simply referring the matter for *pro forma* correction by the PTO." 5/17/00 ID at 27. The PTO is experienced in conducting correction proceedings under 35 U.S.C. § 256, and given that

¹² As noted above, a public version of the Commission's 7/9/98 Opinion was not available until September 28, 1999. Thus Jordan and Gupta were not able to read the Commission's opinion at the time that they signed their PTO statements.

¹³ The Commission is not authorized to order the correction of inventorship under 35 U.S.C. § 256. Thus, Atmel could seek correction of inventorship only at the PTO or in a district court. *See* 35 U.S.C. § 256.

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such referral would be legally and procedurally improper, would not be likely to act on, or even draw, such an inference from Atmel's petition. We also find no evidence in the record to support a finding that Atmel intended the PTO to draw such an inference.

Gupta's and Jordan's Statements to the PTO

The ALJ did not find that the actual statements of Jordan and Gupta submitted to the PTO were untruthful or inaccurate. Rather, the ALJ found that Atmel misled the PTO because Gupta's August 11, 1998 statement to the PTO failed to disclose that Gupta had testified under oath at the Commission's 1997 hearing that he was not a co-inventor. 5/17/00 ID at 36-37. In addition, the ALJ found that Atmel misled the PTO because the statement of Jordan, which was included with the PTO petition, failed to disclose that Jordan had testified under oath in deposition and at the hearing in 1997 that: (1) he worked with "Seeq engineers" to decide on the actual circuitry used in Silicon Signature and on the description of that circuitry in the '903 patent, (2) the only engineer Jordan recalled specifically was Dado Banatao, and (3) while the engineers may have included Perlegos, Jordan did not recall working with either Smarandoiu or Gupta. *Id.* at 37. As we discuss below, we find that Gupta's and Jordan's testimony before the ALJ in the original investigation does not conflict with the position that Atmel took before the PTO.

The ALJ also found that the language contained in statement to the PTO, "[t]he standard for inventorship as it relates to the '903 patent has been explained to me" and based on "my understanding of that standard . . . I am a co-inventor" inaccurately implied that the issue of inventorship as it relates to the '903 patent was never considered by Gupta until he prepared his statement for the PTO petition. *Id.* at 37. We find that Gupta could not have considered whether he was an inventor under the Commission's interpretation of *Ethicon* until after issuance of the Commission's 7/9/98 Opinion. His statement that the "standard for inventorship has been explained to me," clearly refers to the explanation of the Commission's interpretation of *Ethicon* given in its 7/9/98 Opinion. Therefore, any implication in Gupta's statement that he had not previously considered inventorship *under the standard that had been explained to him* would not be misleading.

Omitted Testimony and Finding of Fact 205

The ALJ found that Atmel omitted informing the PTO about the following testimony from the Commission's original investigation: (1) Perlegos' 1997 testimony about the implementation of Silicon Signature in Seeq's 5133 EPROM, 5/17/00 ID at 28-34; (2) Gupta's testimony that he was not an inventor, but rather had implemented Jordan's idea in the 5213 EEPROM; *Id.* at 36; and (3) Jordan's testimony that he was the sole inventor of the '903 patent, that he had worked with "Seeq engineers" in selecting the circuitry to implement Silicon Signature, that the only individual that he remembered working with was Dado Banatao and that while the Seeq engineers might have included Perlegos, he did not recall working with either Gupta or Smarandoiu. *Id.* The ALJ also found a material omission in Atmel's withholding from the PTO ALJ Finding of Fact 205 (FF 205), which was made in the 3/19/98 ID. *Id.* at 36. Finding of Fact 205 was based on Perlegos' 1997 testimony. We examine these omissions in turn.

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The ALJ found that on four separate occasions in 1997 George Perlegos, Atmel's president, testified under oath that Silicon Signature was first implemented in the 5133 EPROM, a device in which Gupta had no involvement, and that this testimony contradicted the position that Atmel took before the PTO that Gupta was the co-inventor. 5/17/00 ID at 28-24. The ALJ found that Perlegos had no motivation to testify falsely under oath in 1997 about the first reduction to practice of the Silicon Signature, but that Perlegos "had a reason in the remand proceeding to have a lapse of memory, viz., the speedy issuance by the Commission of an exclusion order and cease and desist orders." *Id.* at 36. The ALJ noted that Atmel's in-house counsel, who worked closely with Perlegos, stated in deposition that Perlegos had an "amazing memory." *Id.* at 35.

We agree that Perlegos' 1997 testimony that the 5133 EPROM was the first product to contain Silicon Signature was not "cumulative to information already of record" before the PTO and was inconsistent with the facts Atmel was seeking to establish as the PTO. Therefore we find that Atmel's failure to tell the PTO about that testimony was a material omission under PTO rule 56. However, we do not find Perlegos' testimony to be highly material. [

In fact, both the ALJ and the Commission gave Perlegos' 1997 testimony little weight in making their determinations in the original investigation. Perlegos' testimony was before the ALJ when he found that "Jordan used the skills of Gupta to construct the physical embodiment of the invention of the '903 patent,"¹⁴ and when he found that Gupta's role in the inventorship of the '903 patent was analogous to that of Sewall in *Sewall v. Walters*, 21 F.3d 411, 416-417 (Fed.Cir. 1994). *i.e.*, because Gupta used his admittedly ordinary skills in implementing Jordan's design in chip form.¹⁵ Perlegos's testimony was also before the Commission

¹⁴ The ALJ stated in the 3/19/98 ID:

Referring to the invention in issue, while Jordan used the skills of Gupta to construct the physical embodiment of the invention of the '903 patent, the work he performed for Jordan was basic and well known implementations of ordinary electrical engineering skills (FF 594, 602). 3/19/98 ID at 99.

¹⁵ The ALJ stated in the 3/19/98 ID:

The administrative law judge finds that Gupta's role in the inventorship of the '903 patent was analogous to that of Sewall in *Sewall*, because in implementing Jordan's design in chip form, Gupta utilized his admittedly ordinary skill in the art of electronics, did not engage in extensive research or experimentation, and was subject to Jordan's conception of the invention which was admittedly beyond Gupta's grasp at that point in Gupta's career (FF 601, 602). 3/19/98 ID at 103-104.

Sewall held that one who utilizes only ordinary skill to implement an invention is not an inventor. *Sewall*, 21 F.3d 411, 416-417.

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when it stated that Gupta was "presumably" the circuitry designer for Silicon Signature, and hence a co-inventor. 7/9/98 Opinion at 13. In fact, Gupta was the only putative co-inventor even considered in the original investigation.

ALJ FF 205, which was based on Perlegos' testimony, stated that "the EPROM was the first chip at Seeq that implemented manufacturer's identification and the actual implementation of the circuitry was done under George Perlegos' supervision." FF 205, 3/19/98 ID. We determine that FF 205 was of low materiality at the time that Atmel filed its petition for correction because the Commission had given it no weight in making its determination that Gupta's work on the 5123 EEPROM was "presumably" an inventive contribution.¹⁶ Furthermore, FF 205 had no legal effect at the time the PTO petition was filed because the finding was made in connection with the 3/19/98 ID's determination that Seeq, the original owner of the '903 patent, had waived the right to enforce the '903 patent through its activities in an industry standards organization. The Commission determined to review the waiver issue, but did not reach the issue in reaching its final determination in the original investigation. Since the Commission never adopted FF 205, it had no legal effect in August 1998. 19 U.S.C. § 210.45 (c).

In his October 24, 1997 deposition Gupta testified that he designed the circuits for Silicon Signature in the 5213 EEPROM. JX-42C at 25. He further testified that, while the idea of Silicon Signature was thought of by another individual, he suggested incorporating the idea in the 5213 EEPROM chip. *Id.* Gupta explained:

Yes, I designed the circuitry, but irrespective of Silicon Signature, we — you need a circuitry to disable all the word lines if redundancy row is enabled. 5213 did have a row redundancy, so the disable function had to be merely modified to an or function that if redundancy is used in the part, or silicon ID is enabled, then the rest of the rows get disabled. But the disabling circuitry wasn't only for the Silicon Signature, it was also used by the row redundancy.

Gupta, JX-42C at 29:8-18.

Gupta explained during the December 1997 hearing before the ALJ that when he testified in deposition about the role he played in implementing the '903 patent, he differentiated between implementing and conceiving or developing. He testified that "[t]he '903 was Mr. Jordan's idea. I implemented it in silicon." When the ALJ followed up by asking, "[w]ere you or were you not involved in the development of the '903 patent? What is your testimony today?" Gupta replied, "I was not involved, your Honor." Gupta, Tr. 1047-1049. Thus, while Gupta testified in December 1997, that his contribution did not rise to the level of inventorship, he also testified that he had

¹⁶ We note that FF 205 was inconsistent with the ALJ's own finding that "Jordan used the skills of Gupta to construct the physical embodiment of the invention of the '903 patent," 3/19/98 ID at 99, and his finding that Gupta's role in the inventorship of the '903 patent was analogous to that of Sewall in *Sewall, i.e.*, because Gupta used his admittedly ordinary skills in implementing Jordan's design in chip form. 3/19/98 ID at 103-104.

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"implemented" Jordan's general idea for Silicon Signature by designing circuitry for it. Accordingly, we do not find that Gupta's 1997 testimony is inconsistent with the position Atmel took in the PTO correction proceedings. Rather, between his 1997 testimony and the 1998 PTO correction proceedings, the Commission determined that Gupta's contributions rose to the level of inventorship under *Ethicon*. Gupta's views on inventorship changed because of the explanation he received about the Commission's 7/9/98 decision, which was the law of the case. Gupta testified during the reconsideration proceedings in he implemented the '903 patent by designing circuits for the 5213 EEPROM. IX-270C at 16-17; CX-642C, Q67, Q70. Gupta's testimony as to what he contributed to the invention of the '903 patent has been consistent throughout this investigation.

As the ALJ recognized, in the 1997 Commission proceedings Jordan was unable to identify Gupta as the individual with whom he had worked on the invention of the '903 patent. We do not find Jordan's lack of a memory about the implementation of Silicon Signature surprising given that he was asked in 1997 to recall events that occurred 16 years earlier. We also do not find his lack of memory in 1997 in conflict with the position Atmel took in the correction proceedings because it is likely that Jordan's lack of memory on this point was refreshed by Atmel's investigation of inventorship. Moreover, it is clear that Jordan's 1997 testimony that he was the sole inventor of the invention of the '903 patent reflected his understanding that one must have come up with the idea for an invention in order to be an inventor. Jordan's testimony in the original investigation as to what he actually did, *i.e.*, that he alone thought of and described the invention, Tr. 3107-3119, is not inconsistent with the position that Atmel took before the PTO in the correction proceedings given that in the interim the Commission determined that whoever selected the circuitry to implement Silicon Signature was a co-inventor. The fact that the Commission later determined that Jordan's earlier understanding of inventorship was incorrect did not make his testimony inconsistent with the position Atmel took in the PTO correction proceedings.

Having determined that Atmel made no misrepresentations to the PTO and that its only material omissions were the 1997 testimony of Perlegos and FF 205, we turn to the issue of whether clear and convincing evidence supports a finding that Atmel intended to deceive the PTO. Because "smoking gun" evidence is rarely available to prove inequitable conduct, the Federal Circuit has held that a patent applicant's "intent to deceive" may be inferred generally from the applicant's overall conduct. *Paragon Podiatry*, 984 F.2d at 1189-90, 25 USPQ2d at 1567; *Merck & Co. v. Danbury Pharmacal, Inc.*, 873 F.2d 1418, 1422, 10 USPQ2d 1682, 1686 (Fed. Cir. 1989). A finding that the alleged misrepresentation or omission is material, however, does not, of itself, provide evidence of an intent to deceive. *Halliburton*, 925 F.2d at 1442. In reconciling conflicting precedent, *Kingsdown Medical Consultants, Ltd. v. Hollister, Inc.*, 863 F.2d 867, 876 (Fed. Cir. 1988)(*en banc* as to inequitable conduct issue) held that in order to support a finding of inequitable conduct, the patentee's intent to deceive must be independently established, not presumed from materiality. *Kingsdown* held that unenforceability for inequitable conduct requires a showing, by clear and convincing evidence, of intent to deceive or to mislead the patent examiner into granting the patent. *Id.*

Because a finding of inequitable conduct requires proof of actual intent to deceive, there can be no inequitable conduct if Atmel complied with what it reasonably believed to be the applicable PTO requirements in correction proceedings. Atmel contends that it determined that the record from the

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Commission's original investigation was not material to the PTO correction proceedings based on the PTO's express statements, in the *Federal Register* and in the MPEP, that it would not make substantive inventorship determinations in correction proceedings under 35 U.S.C. § 256, and that additional information beyond the documents required by PTO rule 324 regarding the substance of inventorship would "not [be] appropriate for consideration," MPEP § 201.03 at 200-6; 62 *Fed. Reg.* 53132, 53138, 53171 (1997); MPEP § 1481 at 1400-45. Even though we have determined that Atmel erred in its interpretation of the PTO's various statements, we do not find that Atmel's interpretation of PTO rule 324, the relevant MPEP provisions, and the PTO's statements in the *Federal Register* was unreasonable. The principal cases on which we based our finding that Atmel omitted material information -- *Semiconductor Energy Lab. Co. v. Samsung Electronics Co.* and *PerSeptive Biosystems, Inc. v. Pharmacia Biotech Inc.* -- were both decided well after Atmel filed its petition for review. To our knowledge, PTO rule 324 has not been interpreted by any court since it was amended in 1997.

Atmel's internal documents and testimony by Atmel's attorneys confirm that Atmel used due diligence in researching the requirements of rule 324 and support its argument that it had a good faith belief that it was not required to submit documents to the PTO from the Commission's investigation. IX-314; IX-295C; Lee, IX-265C at 21:10-15; Lee, IX-265C at 65:4-66:15; James, IX-264C at 147:4-20. The evidence shows that Atmel's lawyers consulted with patent prosecutors both inside and outside their law firm for guidance in verifying their interpretation of the rules. IX-311C; IX-313; IX-324; James, IX-264C at 148:20-149:6; IX-327; IX-332; IX-331; Young, Tr. 5129:23-5130:16; 5131:11-14; Young, IX-268C at 121:9-122:19; 125:23-126:23. After those consultations, Atmel's lawyers believed they needed to submit to the PTO only the documents and information specifically required by PTO rule 324. IX-295C at Atmel/ITC 061834C; Lee, Tr. 5043:15-5044:7; Lee, IX-265C at 173:17-174:15; 208:19-209:2; 209:13-210:4; IX-295C at Atmel/ITC 061834C. We find that Atmel's good faith belief that it was not required or appropriate to submit additional inventorship information to the PTO precludes a finding of an intent to deceive.

We are aware that *Critikon, Inc. v. Becton Dickinson Vascular Access*, 120 F.3d 1253, 1256-57 (Fed. Cir. 1997), held, in a case concerning the withholding of prior art, that "close cases should be resolved by disclosure, not unilaterally by the applicant." However, the Federal Circuit has found it appropriate, even where the patentee is incorrect in its resolution of a difficult question, to give the patentee the benefit of the doubt on issues that are close and subject to varying reasonable interpretations. *B.F. Goodrich, Co. v. Aircraft Braking Systems Corp.*, 72 F.3d 1577, 1584 (Fed. Cir. 1996) (upholding finding of no inequitable conduct based on failure to disclose information material to on-sale bar). The Federal Circuit held as a matter of law in *OddzOn Products, Inc. v. Just Toys, Inc.*, 122 F.3d 1396, 1404 (Fed. Cir. 1997), that the ambiguous nature of a statute (35 U.S.C. §102(f)) prevented a finding of an intent to deceive the PTO. The issue here, the interpretation of PTO rule 324, is more akin to the issues presented to the court in *B.F. Goodrich* and *OddzOn Products*, than it is to the relatively less complicated issue of whether close prior art should be disclosed to the PTO, which is at the heart of the *Critikon* holding.

Apart from our finding that Atmel's good faith belief that it was not required to submit parts of the record from the Commission's original investigation precludes a finding of an intent to deceive, we find that the record contains no evidence, much less clear and convincing evidence, of an intent to

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deceive the PTO on the part of Atmel. [

] However, these document do not state or suggest that Perlegos was told that he was required to submit Gupta's prior testimony to the PTO. In fact, Atmel's counsel testified that Perlegos was told by his attorneys that the law did not require him to disclose the information to the PTO. James, Tr. 4568:14-16. Moreover, the passages of the internal memoranda cited by the ALJ concern Gupta's testimony alone. We have determined that Gupta's testimony did not conflict with the position Atmel was taking before the PTO in the correction proceedings. Therefore, Gupta's testimony was not material, and Atmel was under no obligation to disclose it to the PTO.

The ALJ found that internal Atmel documents "overwhelmingly" demonstrated that Atmel was motivated by its desire for speed in getting the '903 patent corrected. 5/17/00 ID at 56-60. We have examined the internal Atmel documents cited by the ALJ to support his finding. We find that they do in fact establish that Atmel was eager to get its patent corrected quickly; however, we find nothing improper with that motivation. It is understandable that Atmel would want to correct its patent quickly given that the '903 patent expires in September 2001. We find that the documents cited by the ALJ do not constitute clear and convincing evidence that Atmel intended to deceive the PTO.

Concerning FF 205, we note that the ALJ found that the evidence supports a conclusion that Atmel was chargeable with the knowledge of FF 205 under *FMC Corp. v. Manitowac Corp.* 835 F. 2d 1411, 1415 (Fed. Cir. 1987), 5/17/00 ID at 76, but he made no specific finding that Atmel intended to deceive the PTO by withholding FF 205. A finding that Atmel was chargeable with the knowledge of FF 205 does not equate to a finding of intent to deceive. *Scripps Clinic & Research Foundation v. Genentech*, 927 F.2d 1565, 1573-74 (Fed. Cir. 1991)("The district court stated that the 'three elements of inequitable conduct' are 'material prior information, chargeable to applicant, not disclosed to the PTO.' . . . Notably missing is the element of intent, essential as a matter of law to a ruling of inequitable conduct. See *Kingsdown* . . .") The mere fact that Atmel was chargeable with the knowledge of FF 205 does not constitute clear and convincing evidence that Atmel withheld FF 205 from the PTO with an intent to deceive. The original ID in this investigation was 439 pages long and contained 790 Findings of Fact. 3/19/98 ID. Finding of Fact 205 was an ancillary finding that appeared in a section of the ID that concerned the issues of waiver and estoppel. After FF 205 issued, respondents and intervenor *continued* to argue to the Commission during the review phase of the investigation that Gupta was a co-inventor of the '903 patent. Neither the parties, the Commission, nor the ALJ mentioned FF 205 in any paper during the time between the issuance of the 3/19/98 ID and the filing of respondents' and intervenor's pre-hearing statements in the reconsideration proceeding in January 2000. Of all the internal Atmel documents that are of record in these proceedings not one mentions FF 205. Accordingly, we find there is no evidence, much less clear and convincing

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evidence, that Atmel withheld FF 205 from the PTO with an intent to deceive. We therefore conclude that Atmel simply overlooked FF 205 and did not deliberately withhold FF 205 from the PTO.

Likewise, the record does not support a finding that Perlegos' testimony was deliberately withheld. As we discussed above, that testimony was inconsistent with other findings made by the ALJ on Gupta's role in the inventorship of the '903 patent, and was given no weight by the Commission in finding that Gupta was presumably the co-inventor. Even Respondents and intervenor overlooked the testimony in making their case that Jordan was not the sole inventor of the '903 patent to the Commission in their petitions for review of the 3/19/98 ID. We conclude that there is no evidence to support a finding that Atmel deliberately withheld Perlego's testimony.

The ALJ cited evidence drawn from Atmel's internal documents that he believed supported his finding that Atmel wanted to get the inventorship of the '903 patent corrected by adding Gupta as the co-inventor, without regard to whether Gupta was the actual inventor. 5/17/00 ID at 60-73. We have examined that evidence and disagree with the ALJ's conclusion. For example, the ALJ disparaged Atmel's pre-filing investigation by noting that Atmel did not establish that it contacted Dado Banatao even though Banatao was the only engineer that Jordan recalled in his testimony in the original investigation. However, no party ever suggested that Banatao was a co-inventor. Moreover, Atmel's counsel did in fact conduct an interview with Banatao in 1997, at which Banatao denied any role in the implementation of Silicon Signature. IX-338. The ALJ also found it indicative of deceptive intent that Atmel did not have any substantive discussion with Jordan on the inventorship issue until only two days before Atmel filed its PTO petition. 5/17/00 ID at 62. However, we find nothing unusual in Atmel's striving to file its petition for correction with the PTO as soon as possible after it had contacted the persons involved with the '903 invention.

We also disagree with the ALJ's finding that Atmel's attorneys misled Jordan. The 5/17/00 ID states:

While Young and James "discussed Gupta's prior testimony that he [Gupta] was the first to implement the Silicon Signature [and Di-Trace] inventions in silicon in the 5213 EEPROM Device," (FF 65, Emphasis added), Gupta had never testified that he was the first to implement Silicon Signature. . . . Despite being misled that Gupta had testified that Gupta was the first to implement Silicon Signature and despite Young and James telling Jordan that "Banatao had told us that he did not have any recollection of being involved in the Silicon Signature and Di-Trace patents," Jordan "indicated that he still believed that Banatao was involved in the patents." (FF 65, Emphasis added). 5/17/00 ID at 66-67 .

The internal Atmel document on which FF 65 is based states "[w]e discussed Gupta's prior testimony that he was the first to implement the Silicon Signature and [Di-Trace] inventions in silicon in the 5213 device." IX-370. We find that counsel's statement recorded in that document was a correct representation of Gupta's October 24, 1997, deposition in which he stated that he designed the circuits for the 5213 EEPROM, in which Silicon Signature was incorporated. Gupta, JX-42C at 25:6-22. Counsel did not represent that Gupta testified that he was the first to implement Silicon Signature.

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The ALJ also found a misrepresentation by counsel based on Gupta's testimony that Atmel's counsel told him that the Commission had "recommended" that he was a co-inventor. Tr. at 4169. The ALJ is correct in stating that "the Commission in fact never found that Gupta was the first to implement Silicon Signature on the 5213 EEPROM," 5/17/00 ID at 70. However, we do not find counsel's characterization that we "recommended" that Gupta was a co-inventor to be a misrepresentation of our opinion. Moreover, after reading the Commission Opinion, both Gupta and Jordan testified that Atmel's lawyers had accurately portrayed it to them. Gupta, Tr., 4169:2-4170:3; Jordan, Tr. 4768:9-17; 4771:14-4772:10.

In order to be inequitable, a patentee's "conduct, viewed in light of all the evidence, including evidence indicative of good faith, must indicate sufficient culpability to require a finding of intent to deceive." *Kingsdown*, 863 F.2d at 876. We do not agree with the ALJ's conclusion that the factual record in the original investigation "do[es] not support Atmel's argument that it had a good faith basis for believing that Gupta made an inventive contribution to the '903 patent." 5/17/00 ID at 73 n.59. In fact, our examination of the record in the original investigation led to our statement that Gupta was "presumably" the co-inventor. At the time we came to that conclusion, we had before us Perlegos, Gupta's, and Jordan's testimony, as well as FF 205. Moreover, respondents and intervenor argued that Gupta was a co-inventor based on that same record.

We also reject the ALJ's reasoning that Atmel may not assert a good faith reliance on the Commission's 7/9/98 Opinion because the Commission's subsequent January 25, 1999, remand order asked the ALJ to determine the correct inventors. The inequitable conduct issue in this proceeding turns on Atmel's state of mind in August 1998, when it submitted its petition to the PTO to correct inventorship. Our January 1999 decision to remand the inventorship issue to the ALJ clearly could not have affected Atmel's state of mind in August 1998. Likewise, Commissioner Crawford's statement that if she were to vote again she would change her vote on the inventorship was not issued until September 28, 1998, and therefore could not have affected Atmel's state of mind in August 1998. In addition, we note that the Commission's Opinion of February 2, 1999, which accompanied its January 25, 1999 remand order, stated that "all of the unique circumstances surrounding this case, including the timing of Atmel's actions in response to and following our original determination, establish good and sufficient reason to waive the 14-day limit" governing motions for reconsideration under Commission rule 210.47. Commission's Opinion of February 2, 1999 at 5. In that same opinion, we also stated that the "question of the enforceability of the *corrected* patent is a question that is the direct result of, and in that sense raised by, the Commission's determination." *Id.* at 4 (emphasis in original).

We find that the evidence supports the conclusion that Atmel had a good faith belief that Gupta was a co-inventor when it filed its petition for a certificate of correction. [

] This evidence indicates to us that Perlegos honestly deferred to the memory of Gupta, whose memory Perlegos believed was more reliable than his own, on the issue of the first implementation of Silicon Signature.

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Finally, we find that Atmel had no motivation to deceive the PTO. Smarandoiu and Perlegos were Atmel employees in August 1998, and met with Atmel's lawyers during their investigation of inventorship. They were also both employees of Seeq (from which Atmel obtained the '903 patent) at the time of the original '903 patent application in September 1981.¹⁷ Thus, even if Atmel and its lawyers named both Perlegos and Smarandoiu as co-inventors, instead of Gupta, Atmel would have retained ownership of the patent. Given the litigious history of this case, it is unlikely that Atmel or its lawyers would have risked jeopardizing the '903 patent by concealing any inventive contribution of either Smarandoiu or Perlegos, when such concealment would gain it nothing, or that Atmel's lawyers would have wanted to deceive their own clients into signing papers that the lawyers knew to be false. This lack of motivation to deceive militates against finding an intent to deceive. *Applied Medical Resources*, 967 F. Supp. 867, 873 (E.D.Va 1997) (in light of licensing agreement, no motive to omit a co-inventor).

Accordingly, we find that the record does not contain clear and convincing evidence of an intent to deceive on the part of Atmel or its counsel. On balancing our finding that Atmel omitted informing the PTO about certain matters of low materiality with our finding that there is no clear and convincing evidence of intent to deceive, and taking into account Atmel's evidence of good faith, we determine that neither Atmel nor its counsel committed inequitable conduct before the PTO.

E. ALJ Order No. 69 Concerning the Presumption of Validity

ALJ Order No. 69, which issued on January 13, 2000, held, *inter alia*, that PTO rule 324, under which Atmel filed its petition for correction of inventorship, does comply not with its enabling statute, 35 U.S.C. § 256, because it does not require that a patentee prove facts by clear and convincing evidence in order to correct the inventorship of an issued patent.¹⁸ Order No. 69 at 6-7. For that reason, the ALJ refused to accord the presumption of validity, which attaches to an issued patent under 35 U.S.C. § 282, to the corrected '903 patent. In the 5/17/00 ID itself, the ALJ reaffirmed and incorporated the conclusion of Order No. 69 that PTO rule 324 does not comply with its enabling statute, and held Atmel's certificate of correction to be a nullity because Atmel did not provide clear and convincing evidence of facts to the PTO. 5/17/00 ID at 52-54. Despite his ruling in Order No. 69 and the statements in the 5/17/00 ID, the ALJ concluded his discussion of inventorship in the ID by stating as follows:

respondents and intervenor have established by clear and convincing evidence that Gupta was not the first Seeq engineer to implement Silicon Signature on a SEEQ

¹⁷ Respondents and intervenor argued that Smarandoiu was not contractually obligated to assign his rights when he began designing the circuits for the 5133 EPROM as a consultant to Seeq in May 1981. Joint Response to Atmel's Petition for Review, p. 44, n.18 June 13, 2000. However, Smarandoiu himself stated that he understood that he was obligated to assign to Seeq any inventions that he developed while a consultant to Seeq. CX-643, Q 93.

¹⁸ Order No. 69 also made other procedural rulings concerning the way in which the proceedings would be conducted that were not reviewed by the Commission. Those rulings are undisturbed

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device and that the first chip at SEEQ to implement Silicon Signature was not an EEPROM 5213. Therefore Gupta did not make an inventive contribution to the '903 patent.

5/17/00 ID at 112 (emphasis added).

Nonetheless, we find that it is clear from a reading of the 5/17/00 ID that the ALJ, in fact, placed the burden of proof on the inventorship issue on Atmel. For instance, in referring to documents on which Atmel relied, he stated "[t]he administrative law judge has found that said documents do not corroborate the argument that the 5213 EEPROM was the first to implement Silicon Signature." 5/17/00 ID at 71.

The ALJ's legal conclusion that PTO rule 324 does not comply with its enabling statute was based on his interpretation of *Stark v. Advanced Magnetics Inc.*, 119 F.3d 1551, 1553 (Fed. Cir. 1997), which held that "section 256 expressly applies the standards of the entire section, including the first paragraph, to both the administrative and judicial proceedings."¹⁹ The ALJ relied on *Stark* to find that the burden of proof standards that are applicable to a judicial correction, *i.e.*, clear and convincing evidence, *Hess v. Cardiovascular Sys., Inc.*, 106 F.3d 976, 980 (Fed. Cir. 1997), also apply to administrative proceedings in the PTO. We disagree with the ALJ's interpretation of *Stark*.

The dispute in *Stark* arose because the first paragraph of section 256, which governs inventorship corrections by the PTO, does not require lack of deceptive intent for correction in misjoinder cases (wrong inventor), but does require lack of deceptive intent in nonjoinder cases (omitted inventor), *Stark*, 119 F.3d at 1553 ("In the latter case [nonjoinder], the error cannot involve any deceptive intention *by the nonjoined inventor*") (emphasis added). The issue in *Stark* was whether those standards should also apply to the second sentence in the second paragraph of section 256, which governs correction in a court. *Id.* The *Stark* court concluded as follows:

Thus, section 256 expressly applies the standards of the entire section, including the first paragraph, to both administrative and judicial proceedings. *In other words, the nonjoinder and misjoinder clauses supply the heart of the correction standard* from

¹⁹ 35 U.S.C. § 256 provides in its entirety:

Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his part, the Commissioner may, on application of all the parties and assignees, with proof of the facts and other such requirements as may be imposed, issue a certificate correcting such error.

The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Commission shall issue a certificate accordingly.

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which both sentences of the second paragraph draw lifeblood.

Id. (emphasis added). Thus, the standards discussed by the *Stark* court were the requirements of section 256 relating to lack of deceptive intent in misjoinder and nonjoinder cases, which the court held applied in both the PTO and the courts.²⁰ The *Stark* court did not address burdens of proof in any forum. Accordingly, we disagree with the ALJ's interpretation that *Stark* equalized the "burdens of proof" in the PTO and in courts.

The burden of proof in a judicial proceeding originates in 35 U.S.C. § 282, which states that a "patent shall be presumed valid." The presumption of validity applies in litigation, but does not govern in *ex parte* administrative proceedings in the PTO. The Federal Circuit has explained:

Before the courts, a patent is presumed valid and the party asserting invalidity must prove the facts to establish invalidity of each claim by clear and convincing evidence. 35 U.S.C. § 282 [citation omitted]. In a reexamination proceeding, on the other hand, there is no presumption of validity

Ethicon, Inc. v. Quigg, 849 F.2d 1422, 1427 (Fed. Cir. 1988). The Federal Circuit has also noted that section 282 is in a Chapter of the Patent Act entitled "Remedies for Infringement of Patent, and Other Actions," showing that -

the presumption [of validity] is operative to govern procedure in *litigation* involving validity of an *issued* patent. A statute setting rules of procedure and assigning burdens to litigants in a court trial does not automatically become applicable to proceedings before the PTO.

* * *

It is at best incongruous to apply a trial court procedural rule to the examination of claims in the PTO. . . . This court has repeatedly pointed out that the § 282 presumption is a rule of procedure placing the burden of persuasion on him who attacks a patent's validity. There is no such attacker in a reexamination, and hence no one on whom that burden may be placed.

In re Etter, 756 F.2d 852, 856, 858-59 (Fed. Cir. 1985) (en banc) (emphasis in original).

In addition, *In re Searles*, 422 F.2d 431, 437 (C.C.P.A. 1970), held that the clear and convincing standard of proof does not apply to proceedings under 35 U.S.C. § 116, which governs changes in inventorship during the pendency of an application in the PTO. Cases interpreting section 116 are relevant because legislative history indicates that section 256 and section 116 should be construed consistently. S. Rep. No. 82-1979 at 150 (1952) ("Section 256 is a new section in the law

²⁰ The *Stark* court also found that under the statutory standard, correction of inventorship in a misjoinder case could be based on any error, either honest or dishonest, while correction in the case of nonjoinder required both error and a finding that the unnamed inventor was free of any deceptive intent. *Stark*, 119 F.3d at 1555.

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that is correlated with section 116"); *Stark*, 119 F.3d at 1555 ("Section 256 . . . is a companion to section 116 [as was amended in 1982] to similarly enlarge the possibilities for correction of misnamed inventors in issued patents."). Accordingly, we find that the allocation of the burden of proof and the standard of clear and convincing evidence that are applicable in litigation do not apply to correction proceedings conducted under section 256 in the PTO.

Turning to the ALJ's ruling that PTO rule 324 does not comply with 35 U.S.C. § 256, we take note that the Supreme Court has held that a court should defer to an agency's implementation of its statutory authority as long as it is based on a permissible construction of the statute. *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842-43 (1984). Since the PTO is the agency charged with the administration of the patent statutes, we believe its interpretation of section 256 is entitled to great deference. *See, e.g., Rydeen v. Quigg*, 748 F. Supp. 900, 904-5 (D.D.C. 1990) ("In the specialized field of patent law, . . . the Commissioner of Patent[s] and Trademarks is primarily responsible for the application and enforcement of the various narrow and technical statutory and regulatory provisions.") In this regard, we note that section 256 expressly authorizes the PTO Commissioner to grant correction "with proof of the facts and such other requirements *as may be imposed*" by the Commissioner, 35 U.S.C. § 256 (emphasis added). Thus Congress explicitly granted to the Commissioner of the PTO the authority to determine the form and quantum of "proof" needed to correct inventorship. Accordingly, deference to the PTO's interpretation of section 256 is especially warranted here where there exists an "interpretive gap in the statutory structure" and the PTO has provided a reasonable interpretation of the statute. *See Pauley v. BethEnergy Mines, Inc.*, 501 U.S. 680, 696 (1991).

The PTO amended rule 324 in 1997 to delete language that had called for factual showings to establish a lack of deceptive intent. *Changes to Patent Practice and Procedure*, 62 Fed. Reg. 53132, 53171 (1997) ("[t]he requirement for factual showings to establish a lack of deceptive intent is deleted, with a statement to that effect being sufficient"). The 1997 amendment did not delete the requirement that a patentee must provide proof of the facts relating to lack of deceptive intent, but instead allowed the patentee to do so through the required statements. Current PTO rule 324 sets out, under subsection (b), the "proof of facts" required for correction:

- (1) A statement from each person who is being added as an inventor and from each person who is being deleted as an inventor that the inventorship error occurred without any deceptive intention on his or her part;
- (2) A statement from the current named inventors who have not submitted a statement under paragraph (b)(1) of this section either agreeing to the change of inventorship or stating that they have no disagreement in regard to the requested change;
- (3) A statement from all assignees of the parties submitting a statement under paragraphs (b)(1) and (b)(2) of this section agreeing to the change of inventorship in the patent

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37 C.F.R. § 1.324 (b).

The PTO's construction of the "proof of the facts" language in section 256 is similar to the evidence of proof of inventorship that must be submitted in an original patent application or in a petition to correct inventorship in an original patent application. The PTO pointed out in its comments upon promulgation of rule 324 that "Office practice is to require the same type and character of proof of facts as in petitions under § 1.48(a) [which deals with correction of inventorship in a pending application]." 62 *Fed. Reg.* at 53171. In both kinds of corrections, as in an original patent application, the PTO does not require "corroborating evidence" of inventorship. 37 C.F.R. §§ 1.41 and 1.63.

All indications are that the PTO carefully considered the very aspect of rule 324 that the ALJ found to be not in compliance with section 256, *i.e.*, the deletion of the requirement that patentees submit statements of facts proving lack of deceptive intent to the PTO in order to obtain a certificate of correction. The 1997 change to rule 324 took over two years to promulgate and "was the result of an extensive review of the Rules of Patent Practice" in which the PTO "received numerous public comments . . . almost all of which reflected thoughtful and careful review." Bernstein and Bahr, "Major Changes to Patent Rules," 79 *J. Pat. Trad. Off. Society*, 677, 677-78 (1997). Commentators noted that the reduction in the amount of material given to the PTO was based on the fact that, "the generation of partial facts simply to generate an incomplete record for later review by others [was] not seen as adequate justification for the effort to which applicants ha[d] been required to undergo." *Id.* at 683. Viewed in this light, we find that current PTO rule 324 is a reasonable interpretation of section 256 by the PTO.

The PTO accepted the statements of Jordan and Gupta as sufficient "proof of facts" and granted Atmel's petition for correction of inventorship, thereby indicating the PTO's view that Atmel had complied with section 256. Judicial precedent supports a finding that patents corrected under section 256 are entitled to the presumption of validity. In *Upjohn Co. v. Medtron Labs.*, 17 USPQ2d 1268, 1277 (S.D.N.Y. 1990), *aff'd without op.* 1991 U.S. LEXIS 9817 (Fed. Cir. 1991), the district court held that the PTO's decision to correct a patent pursuant to section 256 is entitled to the presumption of validity under the doctrine of administrative correctness, relying on *American Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350, 1359 (Fed. Cir. 1984). In *American Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d at 1359, the Federal Circuit explained, citing *Morgan v. Daniels*, 153 U.S. 120, 125 (1894), that the presumption of validity is rooted in the proposition that a government agency is presumed to do its job. In *C.R. Bard, Inc. v. M3 Systems, Inc.* 48 USPQ2d 1225, 1234 (Fed. Cir. 1998), the Federal Circuit put the burden of proving incorrect inventorship on the challengers of a patent whose inventorship had been corrected during PTO reissue proceedings. Reissue proceedings also do not require clear and convincing evidence of proof of the facts. 37 C.F.R. §§ 1.171-1.179.

Modine Manufacturing Co. v. The Allen Group Inc., 5 USPQ2d 1922 (N.D. 1987), *overruled on other grounds*, 8 USPQ2d 1622 (N.D. Cal. 1988), is also instructive. In *Modine*, the patentee filed a section 256 correction petition with the PTO after commencing infringement litigation over the patent at issue. The defendant in the lawsuit attempted to file an opposition to the petition for a certificate of

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correction in the PTO, but was rebuffed by the PTO. Although the PTO was aware that the district court suit had been filed, it issued a certificate of correction without reviewing the defendant's papers opposing the correction. The district court defendant claimed that inequitable conduct had been committed in obtaining that certificate of correction. The district court rejected the defendant's argument, holding:

A Certificate issued according to regular PTO procedures should be given the same deference as a patent issued by the PTO. The PTO has expertise in determining whether the circumstances indicate a likelihood of deceptive intent. The Court agrees with [the patentee] that the patent challenger bears the burden of proving the Certificate was improperly issued.

Modine, 5 USPQ2d 1922, 1930.

Specifically relying on the *Modine* case, a prominent patent law treatise states that "[a] Certificate issued according to regular PTO procedure should be given the same deference as a patent issued by the PTO," while expressly noting the 1997 amendments to the PTO rule 324. 1 Donald S. Chisum, *Chisum on Patents*, § 2.04 [2] (1999)

The ALJ found the *Modine* and *UpJohn* cases unpersuasive solely because those cases were decided before PTO rule 324 was amended in 1997. ALJ Order No. 69 at 11. However, both *Modine* and *UpJohn* based their findings that a presumption of validity attaches to corrected patents on the presumption of regularity that attaches to the PTO's actions, not on any specific language in the previous version of PTO rule 324. Accordingly, we determine that those cases remain good law even though PTO rule 324 has been amended. The presumption of validity that attaches to issued patents exists "to contribute stability to the grant of patent rights." *Magnavision, Inc. v. Bonneau Co.*, 115 F.3d 956, 957-58 (Fed. Cir. 1997). That stability is no less important in the correction of patents than it is in any other aspect of patent law.

Respondents and intervenor argue that they proved incorrect inventorship in the original investigation and that it is now Atmel's turn to prove that the inventors listed on the '903 patent's certificate of correction are correct. They contend that Order No. 69 came to the only reasonable conclusion given the procedural posture of this matter, arguing that the reconsideration proceeding, in form and substance, is a continuation of the original violation proceeding in which the Commission found that respondents and intervenor proved, by clear and convincing evidence, that the '903 patent was invalid for nonjoinder of an inventor. Respondents and intervenor argue that under *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1350, 47 USPQ2d 1657, 1662 (Fed. Cir. 1998), once they proved that the '903 patent was invalid due to improper inventorship, the burden shifted to Atmel to overcome that invalidity and save the '903 patent by naming a proper inventor. They submit that, while section 256 allows a patentee to save its patent from an otherwise invalidating inventorship error, it does so with a condition, viz., that the patentee must prove the facts establishing that it is entitled to correction.

We are not convinced by respondents' and intervenor's argument that *Pannu* supports assigning the burden of proof on the inventorship issue to Atmel. *Pannu* concerned an inventorship

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dispute that arose in a single district court proceeding. The court held that once defendants prove that the patent is invalid due to improper inventorship, the patentee must be given the opportunity to overcome that invalidity by filing a motion under section 256 and naming the proper inventor. *Id.* Thus, the court did not shift the burden of proving validity to the patentee, as respondents' and intervenor's argument implies. Since the Commission is not authorized to correct patent inventorship under section 256, it could not afford Atmel the opportunity to correct the patent by filing a motion under section 256 during the Commission proceedings. Atmel's only recourse was to file a petition for correction with the PTO or a motion in district court. No legal authority required Atmel to go to the district court rather than the PTO to correct its patent.²¹

Respondents' and intervenor's collateral attacks on the validity of the PTO's action in issuing a certificate of correction cannot shift the burden of proof to the patent holder to defend the PTO's action. In *Magnavision*, the Federal Circuit reversed a lower court finding that, because of certain "irregularities" that occurred during the prosecution of the subject patent, the presumption of validity that such a patent would normally be accorded was lost. The Federal Circuit held that "the presumption of validity and the placement of the burden of proof remain static, never changing." *Magnavision*, 115 F.3d at 957-58, quoting *American Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350, 1359-60 (Fed. Cir. 1984).

For the reasons set forth above, we reverse Order No. 69 to the extent that it placed the burden of proving correct inventorship on Atmel and vacate its finding that PTO rule 324 does not comply with the proof of the facts requirement of 35 U.S.C. § 256. We determine that the burden of proof on the issue of inventorship in these reconsideration proceedings lies upon the parties challenging the validity of the corrected '903 patent, *i.e.*, upon respondents and intervenor.

F. Whether the Proper Inventors of the '903 Patent Are Named in the Certificate of Correction

"The burden of showing misjoinder or nonjoinder of inventors is a heavy one and must be proved by clear and convincing evidence." *Hess v. Advanced Cardiovascular Systems, Inc.* 106 F.3d 976, 980 (Fed. Cir. 1997), citing *Garrett Corp. v. United States*, 422 F.2 874, 880 (1970) *cert. denied*, 400 U.S. 951 (1970); *C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340, 1353 (Fed. Cir. 1998). An assertion of incorrect inventorship must be based on facts proved by clear and convincing, corroborated evidence. *C.R. Bard*, 157 F.3d at 1352, citing *Hess*, 106 F.3d at 980. The testimony of an alleged inventor, standing alone, does not constitute corroboration, and cannot rise to the level of clear and convincing proof, *Ethicon*, 135 F.3d at 1461 (in order to meet the clear and convincing evidence standard in the context of inventorship disputes, one must provide evidence corroborating an

²¹ Respondents and intervenor argued, without citing authority, that PTO correction proceedings should be available only in cases where there is no inventorship dispute. This argument essentially rewrites PTO rule 324 to include an additional requirement. If the PTO's decision on whether to correct inventorship turned on whether there was an inventorship dispute, we believe the PTO would have made that requirement clear in the rule. Moreover, we find that such an interpretation would make little practical sense since it would allow any allegation of disputed inventorship, however baseless, to defeat the operation of PTO rule 324, and by extension, 35 U.S.C. § 256.

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alleged inventor's contribution to the invention at issue); *Price v. Symsek*, 988 F.2d 1187, 1194 (Fed. Cir. 1993) ("[a]n alleged co-inventor's testimony alone cannot satisfy [the clear and convincing evidence] standard.).

Respondents and intervenor contend that corroborated evidence is required only when a co-inventor omitted from a patent seeks to be added to the patent pursuant to 35 U.S.C. § 256. Thus, they argue that corroboration would be required only if Perlegos and Smarandoiu sought to be added to the '903 patent. Since they do not maintain that Perlegos and Smarandoiu should be added as co-inventors to the '903 patent, they argue that they only need to establish that Silicon Signature was in the first version of the 5133 EPROM, on which Gupta indisputably did not work, before it was in the 5213 EEPROM, which Gupta designed.

C.R. Bard, 157 F.3d at 1353, held that the clear and convincing, corroborated evidence standard applies in cases such as this one, where the alleged omitted co-inventor is not seeking to be named an inventor. Moreover, the basis for requiring clear and convincing evidence in cases involving inventorship disputes is rooted in the realization that the "temptation for even honest witnesses to reconstruct, in a manner favorable to their own position, what their state of mind may have been years earlier, is simply too great to permit a lower standard." *Hess*, 106 F.3d at 975, quoting *Amax Fly Ash Corp. v. United States*, 514 F.2d 1041, 1047 (Ct. C. 1975). That rationale is equally applicable when the alleged co-inventor does not seek to add his name to the patent, and therefore reject respondents and intervenor's argument that they do not need to prove their case with corroborated evidence.

The Federal Circuit recently clarified that anyone challenging inventorship must do so with clear and convincing, corroborated evidence, no matter how they go about proving their case. In *Solomon v. Kimberly Clark*, 55 USPQ2d 1279 (Fed. Cir. 2000) defendants relied entirely on inconsistencies in the patentee's testimony to prove that she was not the inventor. The Federal Circuit held that in some cases a court may be justified in holding that the inventor's testimony could be sufficient to justify a finding of incorrect inventorship, but that it would require much stronger evidence than what was presented. *Solomon*, 55 USPQ2d at 1285. The court held:

Although we understand Kimberly-Clark to contend that the claims of the '381 patent are invalid under section 102(f) either because Solomon is simply not the true inventor and thus should not be named on the patent, or that someone else (Kimberly-Clark suggests Solomon's patent attorney) invented the claimed invention and should have been joined but was not, both of Kimberly-Clark's assertions fail for the same reason: Kimberly-Clark relied entirely on Solomon's lack of precision in defining her invention in the course of her deposition and the DX13 prototype, rather than introducing clear and convincing evidence that someone else was the true inventor. . . . *Id.*

Accordingly, we determine that respondents and intervenor must demonstrate by clear and convincing corroborated evidence that someone other than Gupta was the co-inventor of Silicon Signature. While *Solomon* indicates that this burden may be carried without demonstrating specifically who is the true inventor, respondents and intervenor nonetheless must prove by clear and convincing, corroborated evidence that a person or persons implemented the circuitry for Silicon Signature before Gupta did.

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Respondents and intervenor have chosen to attempt to carry that burden by proving that Silicon Signature was in the first version of the EPROM, which Perlegos and Smarandiou indisputably designed. In this investigation, the law of the case is that "the person(s) who selected *particular circuit structures* for each of the means plus function elements . . . is a co-inventor [of the '903 patent]." 7/9/98 Opinion, at 13-14 (emphasis added). Since it is undisputed that Perlegos and Smarandiou designed all the circuitry for the first version of the 5133 EPROM, respondents' and intervenor's burden is the same whether characterized as proving that the circuitry necessary for Silicon Signature was in the 5133 EPROM before it was in the 5213 EEPROM, or that Perlegos and Smarandiou first selected the circuitry for Silicon Signature.

The ALJ found Jordan's and Gupta's 2000 hearing testimony to be not credible based on what he deemed to be inconsistencies within their testimony. For instance, the ALJ found that Jordan's testimony that the first EPROM was a "plain vanilla" device is inconsistent with his testimony that he came up with the general idea for Silicon Signature to solve a problem relating mostly to EPROMs. 5/17/00 ID at 111. However, we find nothing inconsistent between Jordan's testimony that Silicon Signature solved a problem that arose primarily with EPROMs and Seeq's decision to make its first EPROM a reliable device that would serve the purpose of generating revenue for Seeq. The ALJ also found inconsistencies between Jordan's testimony and a 1982 Private Placement Memorandum. 5/17/00 ID at 95-96. Jordan testified that the Memorandum, which does not mention Silicon Signature in Seeq's EEPROM, did not list all of the features of that product because the purpose of the Memorandum was to highlight those features that Seeq believed would have the greatest commercial value for each device. Jordan, Tr. 4774:25-4776:8. The ALJ found that this testimony "conflicts with the statement of the Memorandum and is further contradicted by Jordan's admission that marketing documents 'contained as much puffery as Seeq's marketing group could get away with.'" 5/17/00 ID at 95-96. However, nothing in the Memorandum states that it intends to provide an exhaustive list of all features contained on any product, and we do not find that Jordan's testimony is in conflict with his statement about "puffery" in marketing documents generally. We are aware of no motivation for Jordan to lie under oath. He does not own any Atmel stock, he did not receive compensation for his testimony in this investigation, which he gave voluntarily, and he has no apparent financial interest in seeing the '903 patent declared valid or infringed. Jordan, Tr. 4787:4-23; Jordan, IX-277C at 139:7-8. 12-15.

The ALJ found Gupta's testimony to be not credible because Gupta is currently employed by Atmel as the Managing Director for Data Flash, and therefore had an incentive to lie so that Atmel could obtain an exclusion order and cease and desist orders. 5/17/00 ID at 102. The ALJ also found an inconsistency between Gupta's current testimony that he is an inventor of the '903 patent, and his previous testimony that he was not involved in the "conception" or "development" of the '903 patented invention. *Id.* As a matter of Commission policy, we find it inappropriate to discredit a witness' testimony merely because he or she has an employment relationship with the complainant. *Cf. Wright v. U.S. Postal Service*, 183 F.3d 1328, 1333 (Fed. Cir. 1999)(overruling ALJ's finding that wife's testimony in support of husband was not credible because a "familial interest, while relevant, is not sufficient to disregard a witness' testimony"). Moreover, as we have discussed above, we do not find Gupta' testimony inconsistent. His testimony regarding his role in implementing Silicon Signature in the 5213 EEPROM has been consistent throughout his depositions and his hearing appearances in this

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investigation.

The ALJ also found that Gupta's and Jordan's 2000 hearing testimony was not credible based on their demeanors while testifying at the 2000 Commission hearing. 5/17 00 ID at 90, 95. Since we did not observe the witnesses, we cannot quarrel with his finding. *Wainwright v. Witt*, 469 U.S. 412, 434 (1985) ("How can we say the judge is wrong? We never saw the witnesses. . . "). Accordingly, we will not consider Jordan's and Gupta's 2000 hearing testimony, unless corroborated, in reaching our inventorship determination. However, since the ALJ's demeanor finding affects only the 2000 hearing testimony, we will consider Gupta's and Jordan's hearing testimony in the original investigation and their deposition testimony given in both the original and reconsideration proceedings in reaching our determination. As Perlegos and Smarandoiu are the putative co-inventors of the '903 patent, their testimony must be supported by corroborating evidence under the standards set forth in *Price and Ethicon*.

In 1997, Perlegos testified that he believed Silicon Signature was first implemented in the 5133 EPROM, JX-45 at 160-161, JX-46 at 315-317, JX-47 at 35, Tr. 928-929, IX-446 at 29. He also testified that he was the manager for the 5133 EPROM design, but that "somebody else" was working on the chip. Tr. 927-928. We accord Perlegos' testimony on the issue of Silicon Signature's first implementation of Silicon Signature in 1981 little weight because his memory on that issue has been shown to be unreliable. Perlegos testified that he believed Jordan designed the original circuits for Silicon Signature, IX-445 at 318. This belief conflicted with Jordan's testimony in the original investigation, which was credited by the Commission, that he (Jordan) did not design the circuitry. 7/9/98 Opinion at 12, citing Jordan, Tr. 3104, 3107-3110.

The 5133 EPROM and the 5213 EEPROM were developed close in time 16 years before Perlegos gave his testimony in the original investigation. As head of engineering, Perlegos supervised the development of both the 5133 EPROM and the 5213 EEPROM. Tr. 928. Given the proximity of the development of those products, Perlegos' supervisory role, and the length of time that has passed since the products were developed, it would be inappropriate to find Perlegos' testimony unassailable, despite his reputation for having an excellent memory. We conclude that Perlegos' earlier recollection is not reliable. Perlegos' current testimony is that he does not have a personal recollection as to which device was the first to incorporate Silicon Signature. IX-271C at 37:8-10.

In finding that Perlegos was a co-inventor, the ALJ relied on Perlegos' testimony that he had lengthy experience in the design of EPROMs, Perlegos, Tr. at 927-930 and was considered to be a "guru" of EPROM design, JX-16 at 35. 5/17/00 ID at 98. The ALJ also relied on Intel documents (IX-129-134) that showed Perlegos was familiar with high voltage detection circuits being attached to address pins for placing an EPROM in a test mode and disabling its normal functioning. *Id.* However, we find that simply being familiar with high voltage detection circuits in general does not make Perlegos an inventor of all devices that use such a circuit. *Ethicon*, 135 F.3d at 1460 ("One who simply provides the inventor with well-known principles or explains the state of the art without ever having 'a firm and definite idea' of the claimed combination as a whole does not qualify as a joint inventor."). The question in this investigation is not who designed the first high voltage detection circuit, or who in the industry was familiar with this circuit. Gupta testified that the high voltage

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detection circuit was "well known" and "used by 5133 perhaps and . . . by a lot of other parties in the industry." Tr. 4188. However, Gupta's testimony related only to the high voltage detection circuit itself, and not to the particular use of the high voltage detection circuit in the context of the Silicon Signature invention. See IX270C at 165-168. Rather, the question presented here is who selected the high voltage detection circuit for use with Silicon Signature. Regardless of Perlegos' expertise or general knowledge of circuit techniques, there is no evidence that he made this particular selection.

Smarandoiu, whose credibility the ALJ did not question, testified at the February 2000 hearing that he believed that Perlegos had started designing circuits on the first 5133 EPROM before Smarandoiu started working for Seeq in May 1981 as a part-time consultant. Smarandoiu, Tr. at 4470. Smarandoiu also testified that he began designing circuits for Seeq "[s]ometime in the summer of 1981," that the 5133 EPROM was the first part on which he began his design work, and that he began designing circuits on the 5133 EPROM in either June or July 1981. Smarandoiu, Tr. at 4441. Smarandoiu testified that he worked with Perlegos on the design of the 5133 EPROM, and that any circuits designed on the 5133 EPROM were designed either by Perlegos or himself. Smarandoiu, Tr. at 4471.

Smarandoiu testified that Perlegos designed "some of the circuits" in the first 5133 chip, but he never identified which particular circuits either he or Perlegos designed.²² Tr. 4470. In fact, Smarandoiu testified that he did not recall any particular circuits that he or Perlegos designed in the 5133 EPROM, Smarandoiu, JX50C at 12:13-13:2, and specifically testified that he did not remember designing specific circuits for Silicon Signature while working on the 5133 EPROM. CX-643, Q61-Q72. Smarandoiu also testified that Silicon Signature was implemented in the 64K EPROM, but he did not say *when* it was implemented in the EPROM, and he did not recall *who* designed the specific circuitry for Silicon Signature. Smarandoiu, JX-49C at 55:22-56:18.

In his 1999 deposition, Smarandoiu testified repeatedly that he did not remember whether Silicon Signature was included in the first version of the 5133 EPROM, JX50C at 17:16-19; 46:14-21; 67:16-20, or whether the EPROM was the first device to include Silicon Signature, JX50C at 62:3-6; 64:22-65:1. He testified that he did not remember which Seeq product first contained Silicon Signature. CX-643, Q-58. At the February 2000 hearing, Smarandoiu testified that it was unlikely that the first EPROM would have contained Silicon Signature because the EPROM was the first product Seeq was trying to produce, and to make sure it would be produced on time, Seeq probably included as few "bells and whistles" as possible. Smarandoiu, Tr. 4481:24-4482:10. Smarandoiu has never testified that he was the first person to implement Silicon Signature in a device, or that the 5133 EPROM was the first device to incorporate the invention of the '903 patent. In fact, he specifically testified that he *did not* consider himself to be an inventor of the '903 patent. CX-643, Q 77.

According to Jordan, and as corroborated by Smarandoiu, at the time Jordan came up with his general idea for Silicon Signature, Seeq was just starting out as a company, and it needed to prove to

²² Both the 5133 EPROM and the 5213 EEPROM contain complex circuitry for performing a variety of functions. The circuitry needed for Silicon Signature comprises a small part of the circuitry in either chip.

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its investors that it could manufacture a marketable device. Seeq had an incentive to make its first EPROM a reliable device. Jordan, Tr. 4736:14-4737:23. Thus, Jordan testified that Seeq decided to make its first EPROM a plain vanilla, industry-standard part, Tr. 4736, and that its first EEPROM became the first device available to incorporate new features, including Silicon Signature, CX644C at Q67-68. He testified that Silicon Signature had not been developed to the point of implementation at the time of the completion of the first version of the 5133 EPROM. CX-644 at Q 66. He also testified that Silicon Signature was first implemented in the 5213 EEPROM because the EEPROM was the first device available at Seeq to incorporate the idea. Jordan, CX-644C at Q 42. In 1997, Jordan testified in deposition that he did not remember whether the first run of the EPROM had a Silicon Signature. IX277C at p.220, Atmel/ITC 064302 .

In order to corroborate an inventorship claim, evidence must reflect the specific contribution allegedly made by the putative inventor. *Linkow v. Linkow*, 517 F.2d 1370 (CCPA 1975) (insufficient corroboration of joint inventorship where testimony of corroborating witnesses "lack[ed] specifics"); *Chirichillo v. Prasser*, 30 F. Supp.2d 1132, 1138 (E.D. Wis 1998) (insufficient corroboration where only evidence of alleged inventor's role, aside from alleged inventor's own testimony, was testimony of third party stating that he did not recall discussing "the technical aspects" of the invention with the alleged inventor "in any detail"). Documents used to corroborate an inventive contribution must embody the contribution "in some clearly perceptible form, such as drawings or models." *Price*, 988 F.2d at 1194; *Chirichillo*, 30 F. Supp.2d at 1138.

Respondents and intervenor relied on four documents to support their argument that Silicon Signature was first implemented in the 5133 EPROM: (1) the '903 patent, CX-50; (2) May 1981 JEDEC minutes, IX-50; (3) a target specification for the "QS106" version of the 5133 EPROM, dated August 1981, IX-63; and (4) a June 1982 Private Placement Memorandum, IX-280.

The '903 patent specification, which was included in the '903 patent application filed on September 18, 1981, states: "With reference to FIG. 1 there is shown therein an exemplary semiconductor circuit 10 with which the present invention can be effectively used. More particularly, the circuit 10 may be a device such as a 2564 erasable, programmable, read only memory (EPROM) such as manufactured by a number of semiconductor vendors." CX-50, col. 2, ll. 45-52. The '903 patent also states "the present invention is particularly applicable to byte-wide memories such as RAMs, EPROMs and E²PROM [EEPROM], and is preferably implemented in single row format." CX-50, col.4, ll. 65-68. The patent does not refer specifically to the 5133 EPROM, or to any other product. It does not indicate in any way that an EPROM was the first device to include the claimed invention. Accordingly, we find that the '903 patent specification sheds no light on the issue of which device first contained the circuitry for Silicon Signature.

The minutes from a May 8, 1981, JEDEC (Joint Electronic Device Engineering Council) meeting, state under a heading entitled Electrical Identification of EPROMs: "Larry Jordan described a 'signature in silicon' method for providing a form of identification." IX-50, p. J000283. The JEDEC minutes do not refer specifically to Seeq's 5133 EPROM, or to any circuits contained in the first version of that device. Rather, they note that Jordan made a presentation to JEDEC about "Electrical Identification of EPROMs" on May 8, 1981. They do not state that Silicon Signature could only be

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used with EPROMs, or that Silicon Signature was first incorporated in an EPROM. The minutes also predate the August 18, 1981, completion date for the 5133 EPROM by three and one-half months. Thus, the JEDEC minutes cannot corroborate that the first 5133 EPROM, which had not yet been designed when the minutes were written, contained Silicon Signature. At most these minutes indicate that Jordan had come up with an idea for Silicon Signature by May 1981.

A target technical specification (target spec) dated August 6, 1981, with final approval signatures dated as late as September 19, 1981, describes the QS106 version of the 5133 EPROM as containing Silicon Signature. (IX-280). Jordan's notebook states in an entry dated September 3, 1981, "taping out this week QS106" and "EE layout should be done in Sept." (CX-292C, at 055845). Taken together the ALJ found that these documents corroborated a finding that Smarandioiu and Perlegos implemented Silicon Signature in the 5133 EPROM before Gupta did so in the 5213 EEPROM. However, the target spec merely contains the word "Signature" on a diagram and discloses none of the circuitry necessary for Silicon Signature. Although Smarandioiu testified that target specs at Seeq were developed in parallel with the actual circuit design, Tr. at 4460, there is no evidence in the record that this particular target spec was developed in parallel with the QS106 EPROM or that the QS106 EPROM actually contained Silicon Signature when it was taped out or even that it was, in fact, taped out the week of September 3, 1981. Smarandioiu testified that he did not recall to which version of the 5133 the QS106 target spec referred. Tr. 4461.

The Private Placement Memorandum of June 21, 1982 (IX-63) is a marketing document that Seeq used to attract investors. The Memorandum contains a list of features included in the 5213 EEPROM, but does not mention Silicon Signature. The Memorandum does list Silicon Signature as a feature of the 5133 EPROM. Atmel contended that the Memorandum did not mention Silicon Signature as a feature on the 5213 EEPROM because the Memorandum was not intended to include an exhaustive list of features contained in Seeq's EEPROMs.

Because the Memorandum is dated June 21, 1982, and does not purport to describe the first version of the 5133 EPROM completed in 1981, we find that it is not relevant to the question of which device was the first in 1981 to incorporate Silicon Signature. The Memorandum simply refers to the presence of Silicon Signature on some version of the 5133 EPROM, but does not specify which version. It does not contain any circuitry or indicate in any way whether the particular version of the 5133 EPROM contained Silicon Signature before Gupta implemented the circuitry in the 5213 EEPROM. A February 1982 *Electronics* magazine article, CX-298, demonstrates that the 5213 EEPROM *did* include Silicon Signature as of February 1982, and supports Atmel's argument that the June 1982 document did not contain an exhaustive list of the features of the 5213 EPROM.

Whether a putative inventor's testimony has been sufficiently corroborated is evaluated under a "rule of reason" analysis. *Ethicon*, 135 F.3d at 1461. Under the rule of reason, tribunals are required to look at all the evidence and to judge whether that evidence, taken together rather than individually, demonstrates an inventive contribution by clear and convincing evidence. *Price v. Symsek*, 988 F.2d 1187, 1196, states:

[A]ll the evidence put forth...including any...corroborating testimony, must be

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considered as a whole, not individually, in determining [priority of conception]...It is sufficient if the picture painted by all of the evidence taken collectively gives the board "an abiding conviction" that [the] assertion of prior conception is "highly probable."

We conclude that the documentary evidence in the record does not corroborate a finding that Smarandoiu and Perlegos implemented Silicon Signature in the 5133 EPROM before Gupta implemented Silicon Signature in the 5213 EEPROM. No documents indicate when Silicon Signature was implemented in the 5133 EPROM, or refer to the 5133 EPROM as the "first" to contain Silicon Signature, or state that the 5133 EPROM contained Silicon Signature before it was contained in the 5213 EEPROM. None of the documents relied on by respondents and intervenor describe *any* particular circuit structures found in the 5133 EPROM, and even taken together, fall short of meeting the corroboration requirement. Accordingly, we determine that "the picture painted by the evidence" does not give us an "abiding conviction" that Perlegos and Smarandoiu implemented Silicon Signature before Gupta did, or that Silicon Signature was on the 5133 EPROM before it was on the 5213 EEPROM.

In fact, we find that documentary evidence supports a finding that the 5213 EEPROM was the first device to implement the invention of the '903 patent. Schematics created at the time that Silicon Signature was designed in the 5213 EEPROM are of record. These schematics, JX35C and JX34C, relate only to the 5213 EEPROM, and not to the 5133 EPROM. They refer specifically to the high voltage detection circuit and disable circuitry used with Silicon Signature, and are the only sets of contemporaneous schematics showing any aspect of Silicon Signature in the record. The ALJ found that JX-35 was dated July of 1981. 5/17/00 ID at 103. While the ALJ discredited the schematics in JX-34C because they do not contain a date, no party disputed Gupta's testimony that several of the schematics from JX-35C appear without change in JX34C. *See* Gupta, Tr. 4312:11-22. Also, no party disputed that the schematics in JX-34C are in Gupta's handwriting.

The ALJ found that JX-35 shows only "some aspect" of Silicon Signature and not all aspects of Silicon Signature. 5/17/00 ID at 103. Atmel admitted that JX-35 was incomplete, but argued:

The fact that pin A9 does not appear on the schematic for the redundancy control depicted at page Atmel/ITC 063944 does not mean that Silicon Signature was not implemented on the first 5213 represented by JX35. The schematics found in JX35 are incomplete sets. Furthermore, the addition of pin A9 to the schematics for the redundancy control depicted at page Atmel/ITC 063944 would have been such a simple change that Mr. Gupta would have easily made that change to the 5213 schematics at a later time.

(Atmel proposed finding of fact CFF-R 101).

Despite their incomplete nature, we find that the draft schematics in JX35C do show that Silicon Signature was designed by Gupta in the version of the 5213 EEPROM that these schematics represent.

Finally, we find that other evidence supports a conclusion that Silicon Signature was first

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implemented in the 5213 EEPROM. The Advance Data Sheet for the 5213 EEPROM, dated September 1982 (CX589), specifically states that "Seeq's 5213 and 5213H are the industry's first devices to incorporate Silicon Signature." CX-589 at 060232. Moreover, SEEQ's 1984 Annual Report states that "[w]e were the first to introduce and ship 5-volt only EEPROMs back in 1982, together with the origination of Silicon Signature and DiTrace, features soon adopted by others throughout the industry." CX 532, at SEEQ 1016.

We conclude that respondents and intervenor did not prove by clear and convincing evidence that incorrect inventors are listed on the '903 patent's certificate of correction.

G. Other violation Issues Concerning the '903 Patent

As to the '903 violation issues other than inventorship, the Commission adopts Commissioner Bragg's Supplemental Views issued with the Commission's *EPROMs* Opinion that issued on July 9, 1998. These views are attached as an Appendix to this Opinion. In those views, Commissioner Bragg found as follows: (1) there is no basis in law for any contention that the '903 patent is unenforceable due to waiver and implied license by legal estoppel, (2) the '903 patent is valid, (3) intervenor SST and respondents Sanyo and Winbond infringe claims 1 and 9 of the '903 patent, but respondent Macronix does not infringe those claims, and (4) complainant Atmel has established a domestic industry with respect to the '903 patent.

III. The '811 and '829 Patents

A. The Accused Products²³

A non-volatile memory device is a semiconductor device capable of retaining information stored within the device in the absence of applied power. It does not "forget" its content when the power is removed. Non-volatile memory devices are used in a variety of types of electronic equipment to store program information that operates a microprocessor or microcontroller, or to store data information that the program can refer to in the course of operating the equipment.

An example of program information would be the microcontroller program in a cellular phone, which senses events in the processing of a telephone call, such as buttons being pushed, new calls arriving, or calls being initiated. An example of data storage in the same application might be the storing of phone numbers to be automatically available for one-button dialing. In both cases, the program information or the stored data information must be retained even when the battery runs down and requires removal and recharge. The information stored in the memory cells is represented by the presence or absence of charge on particular structures in the device. If one adds charge to, or removes charge from, these structures, data is stored in or erased from the cell.

EPROM ("erasable programmable read only memory"), EEPROM ("electrically erasable

²³ FF 9, 11-16, 18 (3/19/98 ID).

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programmable read only memory"), Flash memory, and Flash microcontroller semiconductor devices are generally designed to retain information in memory cells without constant connection to a power source. Data is stored in the devices in the form of the presence or absence of charges on certain memory cells within the devices. An EPROM device is a type of non-volatile memory. It is typically used for program storage in embedded control applications. It can be programmed, that is, written into, which completely changes the entire content of the memory device. The erasure and rewriting process takes on the order of tens of minutes. An EPROM device typically requires a special power source for programming and must be erased using ultraviolet light or another non-electrical means, typically while the EPROM device is outside of the system in which it is used. In contrast, EEPROM devices contain on-chip circuitry to allow erasing and writing the chip in situ without the use of an external laboratory instrument. Moreover, most EEPROM devices can accomplish this erasing and rewriting in a matter of milliseconds for individual bytes of information.

A Flash memory device is a type of non-volatile memory device. Flash memory devices may be based on either EPROM or EEPROM technology. Flash memory devices based on EEPROM technology are sometimes referred to as "Flash EEPROM" devices. While non-Flash EEPROMs are typically able to selectively erase relatively small portions of information, such as an 8-bit byte of information, the less expensive Flash EEPROM devices typically are erased in larger blocks or sectors.

Flash microcontrollers integrate a Flash EEPROM or EPROM-based Flash, a random access memory (RAM), a CPU core, and other components in a single semiconductor device. The Flash memory device integrated into such Flash microcontrollers is the same as a separately-packaged Flash EEPROM. The typical use of Flash memory on the Flash microcontroller is to contain the microcontroller's working program, or program code.

B. The Patents at Issue

U.S. Letters Patent 4,511,811 ("the '811 patent"), entitled "Charge Pump for Providing Programming Voltage to the Word Lines in a Semiconductor Memory Array," was issued on April 16, 1985, based on Application No. 346,891, filed February 8, 1982. FF 20 (3/19/98 ID). U.S. Letters Patent 4,673,829 ("the '829 patent"), which has the same title as the '811 patent, was issued on June 16, 1987, based on Application No. 699,551, filed February 8, 1985. FF 21 (3/19/98 ID). The '829 patent is based on a continuation of the application that matured into the '811 patent; the two patents have the same specification.²⁴ 3/19/98 ID at 62 n.44. Both patents have been assigned to Atmel. FF 23 (3/19/98 ID).

Atmel argued that SST infringes claim 1 of the '811 patent and claim 1 of the '829 patent through its use of the cpl2 circuit and associated circuitry in its Flash EEPROM parts. It argued that Sanyo's 1Mb, 4Mb, and 8Mb Flash EEPROM parts and its Flash microcontrollers with embedded 1-Mb Flash EEPROM and Winbond's 512k, 1Mb, and 2Mb Flash EEPROM parts infringe claim 1 of

²⁴ There is a terminal disclaimer in effect for the '829 patent that makes its expiration date the same as that of the '811 patent. FF 21 (3/19/98 ID).

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the '811 patent and claim 1 of the '829 patent because the parts at issue use a cpl2 circuit that is the same as the SST cpl2 circuit in all relevant respects.²⁵ The analysis of infringement involves a two-step process: first, construction of an asserted claim to determine its meaning and scope, and second, comparison of the construed claim with the accused product to determine whether the accused product is within the scope of the claim. *See, e.g., Bell & Howell Document Management v. Altek Sys.*, 132 F.3d 701, 705 (Fed. Cir. 1997); *Electro Med. Sys. S.A. v. Cooper Life Sciences Inc.*, 34 F.3d 1048, 1053 (Fed. Cir. 1994).

III. Claim Construction

Claim language is construed in view of the understanding of one of ordinary skill in the relevant art. *See, e.g., Atmel Corp. v. Information Storage Devices, Inc.*, 198 F.3d 1374, 1379 (Fed. Cir. 1999); *Multiform Dessicants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998); *Smith-Kline Diagnostics, Inc. v. Helena Lab. Corp.*, 859 F.2d 878, 882 (Fed. Cir. 1988). "Although words in a claim are generally given their ordinary and customary meaning, a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history." *Vitronics Corp. v. Conceptoronic Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

The starting point for claim construction is the claim language. Claims are construed in light of the "intrinsic evidence," which consists of the language of the claim, the patent's specification, and the patent's prosecution history before the PTO. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979-80 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). The claim must be read in light of the specification, which may serve as a sort of dictionary to explain the invention and claim terms. *See id.* Similarly, the patent's prosecution history, which is a record of the PTO proceedings leading to issuance of the patent, can be used to understand the language of the claim. *See id.* at 980. For example, the prosecution history limits the claims to exclude any interpretation that the patent applicant disclaimed during prosecution. *Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995).

"Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises. This evidence may be helpful to explain scientific principles, the meaning of technical terms, and terms of art that appear in the patent and prosecution history." *Markman* at 980. Where the intrinsic evidence unambiguously defines the disputed claim language, extrinsic evidence may not be used to contradict the intrinsic evidence. *Bell & Howell Document Management v. Altek Sys.*, 132 F.3d 701, 707 (Fed. Cir. 1997) ("[b]ecause the intrinsic evidence unambiguously defines the disputed claim limitation, the district court's reliance on [expert testimony] to contradict the intrinsic evidence when interpreting the claims was error"); *see also Key Pharm. v. Hercon Lab. Corp.*, 161 F.3d 709, 716 (Fed. Cir. 1998) ("a trial court is quite correct in hearing and relying on expert testimony on an ultimate claim construction question in cases in which the intrinsic evidence (*i.e.*, the patent and its file history— the 'patent

²⁵ 3/19/98 ID at 105.

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record') does not answer the question," but "if the meaning of a disputed claim term is clear from the intrinsic evidence— the written record— that meaning, and no other, must prevail").

"Means-plus-function" claim limitations drafted pursuant to 35 U.S.C. § 112, ¶ 6, recite a function to be performed rather than the structure, material, or acts for performing that function. By statute, such claim limitations "shall be construed to cover the corresponding structure, material or acts described in the specification and equivalents thereof." 35 U.S.C. § 112, ¶ 6. The construction of a "means-plus-function" limitation involves determining the claimed function by construing specific claim terms, and determining the corresponding structure by identifying the structure(s) disclosed in the specification that perform the claimed function. See *Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303, 1308 (Fed. Cir. 1998); *IMS Tech. Inc. v. Haas Automation Inc.*, 206 F.3d 1422, 1430, 1432-33 (Fed. Cir. 2000).

Claim 1 of the '811 patent, the patent's only claim, reads as follows:

1. An apparatus for selectively increasing the voltage on one or more of a plurality of conductive lines having inherent distributed capacitance disposed in a semiconductor circuit comprising:

means disposed on said semiconductor circuit for selecting one or more of said conductive lines;

high voltage generating means disposed on said semiconductor circuit for generating a high voltage from a lower voltage power supply connected to said semiconductor circuit;

voltage pulse generating means disposed on said semiconductor circuit for generating voltage pulses;

means for capacitively coupling voltage pulses from said voltage pulse generating means to a voltage node in said semiconductor circuit;

transfer means responsive to said selecting means and connected to said voltage node for transferring increments of charge from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses;

said transfer means including switching means cooperating with said selecting means for blocking substantially all of the flow of current through and transfer of charge from said high voltage generating means to said conductive lines which are unselected.

'811 patent, col. 8, lines 17-45.

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Claim 1 of the '829 patent, the patent's only claim, is similar to claim 1 of the '811 patent. The '829 patent adds the capability of enabling the operation of the high voltage generating means and the pulse generating means with an external signal. Claim 1 of the '829 patent reads as follows:²⁶

1. An apparatus for selectively increasing the voltage on one or more of a plurality of conductive lines having inherent distributed capacitance disposed in a semiconductor circuit *including*:

means disposed on said semiconductor circuit for selecting one or more of said conductive lines;

switchable high voltage generating means disposed on said semiconductor circuit for generating a high voltage from a lower voltage power supply connected to said semiconductor circuit;

switchable voltage pulse generating means disposed on said semiconductor circuit for generating voltage pulses;

means for capacitively coupling voltage pulses from said voltage pulse generating means to a voltage node in said semiconductor circuit;

transfer means responsive to said selecting means and connected to said voltage node for transferring increments of charge from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses;

said transfer means including switching means cooperating with said selecting means for blocking substantially all of the flow of current through and transfer of charge from said high voltage generating means to said conductive lines which are unselected;

means connected to said high voltage generating means and said voltage pulse generating means for enabling them in response to a write enable signal.

²⁶ The claim language that differs from that of claim 1 of the '811 patent is highlighted in italics.

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The ALJ construed "the common language in claim 1 of the '829 patent as he did with that language in claim 1 of the '811 patent." 3/19/98 ID at 63.

Having considered the parties' written submissions and the evidence of record, we affirm the 3/19/98 ID's construction of the claims in issue of the '811 and '829 patents, with the following modifications:

(1) We affirm the ALJ's construction of the "selecting means" limitation in the claims of the '811 and '829 patents, "means disposed on said semiconductor circuit for selecting one or more of said conductive lines," with the clarification that one or more lines may be selected. Specifically, rather than "interpret[ing] the language in issue as limited to the action of decoders when a particular word line or other long line such as a y-line, select line, [or] write line in [a] memory array is chosen as the line to be charged," 3/19/98 ID at 58, we construe the language as referring to "the action of decoders when *one or more* particular word line(s) or other long line(s) such as y-line(s), select line(s), or write line(s) in a memory array are chosen as the line(s) to be charged."

(2) We modify the ALJ's construction of the "transfer means" limitation in the claims of the '811 and '829 patents, "transfer means responsive to said selecting means and connected to said voltage node for transferring increments of charge from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses" in the '811 and '829 patents to clarify that the claimed function of "transferring increments of charge from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses" does not require that the increments of charge be transferred to the inherent distributed capacitance of a selected conductive line through the structures comprising the transfer means; the destination of the increments of charge that are transferred, however, is "the inherent distributed capacitance in selected ones of said conductive lines."

(3) We affirm the ALJ's construction of the term "increments of charge" in the "transfer means" limitation in the claims of the '811 and '829 patents, "transfer means responsive to said selecting means and connected to said voltage node for transferring *increments of charge* from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses," and clarify the rationale for this construction as discussed below.

(4) We affirm the ALJ's construction of the "switching means" limitation in the '811 and '829 patents with the ALJ's construction of the term "cooperating with" in that limitation, "said transfer means including switching means *cooperating with* said selecting means for blocking substantially all of the flow of current through and transfer of charge from said high voltage generating means to said conductive lines which are unselected," clarified as discussed below.

(5) We modify ALJ FF 425 (3/19/98 ID), which identifies the corresponding structure for "capacitively coupling voltage pulses from said voltage pulse generating means to a voltage node in said semiconductor circuit," to reflect the fact that, as stated in the '811 patent, col. 5, lines 24-26, and as shown in Figure 2 of the '811 patent, the gate of device 44 is connected to node 42 and the source

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and drain are connected to oscillator 38.

We address below the substantive claim construction arguments of the parties.

A. Inherent Distributed Capacitance

"An apparatus for selectively increasing the voltage on one or more of a plurality of *conductive lines having inherent distributed capacitance* disposed in a semiconductor circuit"

We affirm the ALJ's construction of "conductive lines having inherent distributed capacitance." The ALJ concluded that "the phrase 'conductive lines having inherent distributed capacitance' in the preamble has meaning for the remaining paragraphs of claim 1, *and* defines the type of conductive line(s) on which the voltage will be increased, and thus must be understood as a limitation to claim 1." 3/19/98 ID at 47. He found that "the language of claim 1 requires that the type of conductive line(s) on which voltage will be increased are those conductive line(s) having 'inherent distributed capacitance'." 3/19/98 ID at 48. He concluded that --

based on the language of claim 1 and of the '811 [patent] specification . . . a man of ordinary skill in the art would *not* interpret "conductive lines having inherent distributed capacitance" recited in claim 1 and on which the voltage will be increased to refer to every line in a circuit or to any conductive line having sufficient inherent capacitance to store and transfer a charge without regard to the length or amount of capacitance, but rather would limit the language "conductive lines having inherent distributed capacitance" to word lines, y-line[s], select lines, write lines or other such *relatively long lines that have a great deal of capacitance distributed along their length and which must be accounted for in the operation of the claimed circuit.*

3/19/98 ID at 55-56 (emphasis added).²⁷

Complainant Atmel argues that because the claim language refers only to "increments of charge" (first transfer means clause) and "increasing the voltage" (preamble) without specifying the size of the increments of charge or voltage increase, the large size of the word line capacitance described in a "typical design" in the specification cannot justify imposing a further limitation of "large size" on the more general "inherent distributed capacitance" language used in the claim. The Federal Circuit has recognized that "there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification." *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998). Rather than improperly reading a limitation into the claim *from* the specification, the ALJ's claim construction, in our view, properly reads the claim *in light of* the specification.

²⁷ The ALJ further found that the prosecution history supported his construction of the disputed language. 3/19/98 ID at 56-57.

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Although we agree with Atmel that the claim language does not include any express "size" requirement for the charge increments or for the voltage increases, the cited passage in the specification discloses that the relatively large inherent distributed capacitance of the word line in "a typical design" affects the operation of the claimed invention in that it affects the increase in voltage on the word line that occurs as increments of charge are transferred to the word line.²⁸ Because a large inherent distributed capacitance affects the operation of the claimed circuit, the ALJ's claim construction--limiting the language "conductive lines having inherent distributed capacitance" to relatively long lines that have a great deal of capacitance distributed along their length and which must be accounted for in the operation of the claimed circuit--is supported by *Toro Co. v. White Consolidated Industries, Inc.*, 199 F.3d 1295 (Fed. Cir. 1999), as discussed below.

The ALJ found that "[t]he inherent distributed capacitance in the '811 patent controls the mechanism for and speed of charging word line 8." FF 408 (3/19/98 ID) (citing '811 patent, col. 6, lines 30-67). The portion of the specification cited by the ALJ states in part that "[i]n a typical design" the word line capacitance is "much greater" than the capacitance of certain other devices and indicates that the large word line capacitance relative to the capacitance of other devices in the circuit affects the size of the incremental increase in word line voltage as an increment of charge is transferred to the word line. '811 patent specification, col. 6, lines 45-49.

The 3/19/98 ID's findings of fact, FF 380 and FF 381, provide additional support for the conclusion that the large inherent distributed capacitance of a word line affects the operation of the claimed invention. In FF 381, the ALJ found that "[r]eferring to the operation of FIG. 2 of the '811 patent, because of the large capacitance of the selected word line, each time an increment of charge is transferred to that line from the charge pump circuit the voltage on the word line is raised by only a small amount" In support of this finding, the ALJ cited expert (Gosney) testimony that referred to a computer animation depicting the operation of figure 2 of the '811 patent. The cited testimony included the following:

Q: I note that the word line appears to have gone up to 4.3 volts. Do you see that?

A: I do see that.

Q: That .3 volt increase reflects what?

A: That .3 volt increase represents the change in word line voltage when we transfer the increment of charge that was previously loaded into the capacitor. As we transfer that charge from the capacitor on the word line, the word line only rises a small amount. It's the property, it is listed in the specification describing the sizing of the elements that the capacitance of the word line is

²⁸ We do not understand Atmel's argument as suggesting that the operation of the claimed invention does *not* include increasing the voltage on a selected conductive line with the transfer of increments of charge to the selected line.

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large, much, much larger than the value of the capacitance of capacitor 44.

Transcript (Gosney) at 2435:9-21.²⁹ In FF 380, the ALJ found that "[t]he capacitance of a word line is sufficiently high that it is comparatively difficult to raise the voltage on that line." The expert (Gosney) testimony cited by the ALJ in support of this finding included the following:

Q: What, if any, effect does the existence of inherent distributed capacitance have on increasing the voltage on a word line?

[Mr. Young: Objection; leading.

Judge Luckern: I am going to overrule the objection. You will have opportunity for cross, Mr. Young. You may answer that.]

A: THE WITNESS: The inherent distributed capacitance constitutes a fairly large capacitance in terms of the capacitance of conductors within the circuit, so therefore it's going to be difficult to raise the voltage on that word line because of that capacitance.

FF 380 (quoting in relevant part Transcript (Gosney) at 2416:18-2417:4).

In *Toro*, the Federal Circuit construed the term "including" in the claim phrase "cover including means for increasing the pressure" in the context of the patent specification and drawings. 199 F.3d at 1300-1301. At issue was whether "including" required the cover to be permanently attached to a restriction ring (the disclosed "means for increasing the pressure") or encompassed a cover with a removable ring. The Federal Circuit concluded that, in the context of the claim and specification, the term "including" meant the ring was permanently attached to the cover. In rejecting the patentee's argument that whether the ring and the cover were "one part or two" was "irrelevant," the Federal Circuit stated that the patentee had stressed in the specification the advantage of building the ring as part of the cover, viz., "the ring is inserted and removed 'automatically' when the cover is inserted or removed." 199 F.3d at 1301. The Federal Circuit also explained that its construction did not limit the claims to a preferred embodiment or --

to immaterial details of a broader invention as set forth in the specification. *No such broader invention is here described.* Instead, the invention is described throughout the specification as it is claimed, whereby the cover 'includes' the ring, so that the ring is inserted by closing the cover and removed by opening the cover, 'automatically.' There is no basis for construing 'including' the ring to mean not including the ring.

199 F.3d at 1301-1302 (citation omitted) (emphasis added).

In explaining that the large inherent distributed capacitance in "a typical design" controls the

²⁹ FF 381 omits the witness's first response, "I do see that."

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incremental voltage increase on the line receiving the charge increments, the '811 patent specification stresses the importance of a large inherent distributed capacitance to the operation of the invention, just as in *Toro* the patentee stressed the advantage of building the ring as part of the cover. See also *Laitram Corp. v. Morehouse Indus. Inc.*, 143 F.3d 1456, 1463 (Fed. Cir. 1998) ("While claims are not necessarily limited by the written description, it is relevant that nothing in the written description suggests that the driving surfaces can be anything but flat. Indeed, the benefits of having flat driving surfaces are stated in the 'Summary of the Invention' portion of the written description. These observations warrant a conclusion that the 'driving surface' limitation, 'extending downwardly . . . and in the direction of intended travel,' requires flat driving surfaces." (footnote omitted)). We agree with Sanyo that all of the lines disclosed in the specification as having the voltage raised by the claimed invention have significant capacitance, and are not persuaded by Atmel's argument that the ALJ's claim construction limits the claimed invention to the preferred embodiment.³⁰ Consequently, in

³⁰ The ALJ's analysis expressly takes into account the broadening language in the specification, "although this disclosure has been made with reference to raising the voltage on a word line in a memory array, those skilled in the art will recognize from the disclosure that other lines, such as y-lines, select lines and write lines may be pumped up to higher voltages by use of this invention," '811 patent, col. 7, lines 26-31. 3/19/98 ID at 55; FF 399 (3/19/98 ID). The ALJ found that a word line generally has "a great deal of capacitance distributed along its length" and that "'other lines' such as y-lines, select lines and write lines" that the specification discloses "may be pumped up to higher voltages by the claimed invention" also have significant capacitance. 3/19/98 ID at 54-55; FF 378, 380 (3/19/98 ID).

We are not persuaded by Atmel's arguments that the ALJ improperly relied on expert testimony in concluding that y-lines, select lines and write lines are long lines having significant capacitance and ignored language in the specification that, according to Atmel, indicates that the invention could be used to raise the voltage on any line. The ALJ used expert testimony to understand the technology at issue and to explain how one of skill in the art would understand technical terms used in the '811 patent specification. In our view, the specification language identified by Atmel, "[t]he instant invention finds particular application with floating gate memory devices such as EPROMs and EEPROMs, but *can be used anywhere where an on-chip generation of high voltage is required to supply small amounts of current*", '811 patent, col. 7, lines 12-16 (emphasis added), does not address the inherent distributed capacitance of the lines on which the voltage is to be raised. Therefore, this language does not suggest that the invention could be used to raise the voltage on any line regardless of its inherent distributive capacitance.

Atmel also contended that in reading the patent claim at issue on the Nakano prior art circuit, "which pumped up the voltage on a short interconnect prior to transferring that voltage onto the word line," the PTO examiner and the inventor (because, according to the Atmel, the inventor did not dispute the examiner's reading) acknowledged that the claim was not limited to a circuit pumping the voltage of a line having significant inherent distributed capacitance. *Atmel Corp.'s Pet. for Review* at 27 and n.10 (Apr. 1, 1998). We are not persuaded by this prosecution history argument. In rejecting claim 1 of the '811 patent as obvious in light of the Nakano prior art patent, the examiner stated that "Nakano et al., in Fig. 4, illustrates a power level boosting circuit for a *selected memory line* as determined by the address decoders, e.g., Figure 6 and block 41." '811 patent prosecution history, Office Action at 2 (mailed Jan. 31, 1984) (emphasis added). In responding to the rejection, the applicant stated that "Nakano et al. is directed to a circuit for *charging a semiconductor word line* wherein a driving means 11 operates in conjunction with a delay means 12 which periodically outputs a clock signal ϕ to drive a rather complicated boost circuit 21 connected to the word line." '811 patent prosecution history, Amendment at 2 (July 30, 1984) (emphasis added). We agree with the ALJ that the "applicant in the prosecution history acknowledged that [the] cited Nakano et al patent is directed to a circuit for *charging a semiconductor word line*." 3/19/98 ID at 56 (emphasis added).

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our view, *Toro* supports the ALJ's construction of "conductive lines having inherent distributed capacitance" in the context of the claim and specification to refer to "word lines, y-line[s], select lines, write lines or other such relatively long lines that have a great a deal of capacitance distributed along their length and which must be accounted for in the operation of the claimed circuit." 3/19/98 ID at 55-56.

In its petition for review, Atmel argued that the claim language at issue, "conductive lines having inherent distributed capacitance" encompassed "all conductive lines disposed in a semiconductor circuit," pointing out that "the ALJ acknowledged [that] every conductive line formed above an insulating layer overlying the substrate in a semiconductor device has 'some level of inherent capacitance'."³¹ Having determined to review the ALJ's claim construction, the Commission requested additional briefing as to whether "conductive lines having inherent distributed capacitance" should be construed to mean "every conductive line on a semiconductor chip positioned over the insulating layer." This construction was supported by complainant Atmel and opposed by respondents Winbond and Sanyo, intervenor SST, and the IA.³² We agree with respondents Winbond and Sanyo, intervenor SST, and the IA that these alternative constructions of the claim language at issue are defective in that they render the phrase "inherent distributed capacitance" surplusage. We address Atmel's substantive arguments to the contrary below.

We reject Atmel's argument that the claim language "serves to inform the skilled artisan that the inherent capacitance, rather than a capacitor, is used to store charge." In our view, this same information is conveyed by the transfer means clause, which indicates that increments of charge are transferred "to the inherent distributed capacitance in selected ones of said conductive lines."

We are also not persuaded by Atmel's argument that the reference to an inherent property of "conductive lines" is not a further limitation, but a clarification, of the language at issue. In support of this argument, Atmel relied on *Bell & Howell Document Management Products Co. v. Altek Systems*, 132 F.3d 701 (Fed. Cir. 1997). The claim limitation at issue in *Bell & Howell* concerned the formation of plastic ribs "integrally bonded . . . free of adhesive." 132 F.3d at 703. According to the district court, "the term 'integrally bonded' could not be construed to mean bonded without adhesive, because this would render the claim language 'free of adhesive' superfluous." 132 F.3d at 704. Concluding that the intrinsic evidence unambiguously defined the limitation at issue, the Federal Circuit construed "integrally bonded . . . free of adhesive" to mean that the ribs bond without the use of a separate adhesive layer. 132 F.3d at 707. Given the Federal Circuit's statement in *Bell & Howell* that the patentee added the 'free of adhesive' language "[i]n response to the examiner's contention that

³¹ *Atmel Corp.'s Pet. for Review* at 18-19 (Apr. 1, 1998) (quoting 3/19/98 ID at 54; FF 382, 383 (3/19/98 ID)).

³² To reflect the fact that a semiconductor chip could have more than one insulating layer, Atmel suggested that the construction mentioned in the Commission's request for additional briefing, "every conductive line on a semiconductor chip positioned over *the* insulating layer," be modified to "every conductive line on a semiconductor chip positioned over *an* insulating layer." *Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 58 (May 26, 1998).

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the term 'integrally bonded' could include the use of an adhesive," 132 F.3d at 707. we do not understand Atmel's reliance on this case.

Finally, relying on testimony by its expert, White, Atmel argued that claim language is not rendered superfluous because "the relevant conductive line must be a conductive line formed above an insulating layer overlying the semiconductor substrate as opposed to, for example, a line formed directly on or in the semiconductor substrate itself."³³ The expert testimony cited in support of Atmel's distinction is as follows:

JUDGE LUCKERN: What does it, I am talking about the words "having inherent distributed capacitance," what does that add?

THE WITNESS: I think to myself it says -- it defines the conductive lines. When you say they have inherent distributed capacitance, automatically, in my mind, I think the lines are lying over an insulator in a semiconductor circuit and not simply, for example, without capacitance. And in other words, they have to lie over an insulator to have that terminology applied.

If the conducting line is simply applied on the surface of a semiconductor device, then it would just, would just be a conducting line, like a contact, we call it. But if it's a line that is conducting and has inherent distributed capacitance, I immediately think that that line is moving over an insulator like an oxide on a semiconductor circuit.

Intervenor SST noted that the above-quoted testimony refers to "a contact" and contended that "a 'contact' is not a 'line . . . disposed on a semiconductor circuit."³⁴ This argument raises the issue of the scope of the term "conductive line." The ALJ's next question was directed at clarifying the witness's understanding of the scope of the term "conductive line." We conclude that the witness's answer to the ALJ's question supports SST's position:

JUDGE LUCKERN: It was my understanding, maybe I am wrong, I don't want to take the time on your earlier testimony, I may be dead wrong but it was my understanding that when you gave your -- *as to the words "conductive lines" only, you said that with respect to, what are you understand* -- maybe I am dead wrong.

THE WITNESS: *I defined, when I said "conductive line," they had to lie over*

³³ *Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 59 (May 26, 1998) (citing Transcript (White) at 1593).

³⁴ *Response of Intervenor Silicon Storage Tech., Inc. to Notice of Decision to Review* at 19 (May 26, 1998).

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an insulating material like an oxide. In that case, they would have inherent distributed capacitance but there would be no way of knowing whether it had distributed capacitance unless you are informed on this. In the claims.

Transcript (White) at 1593-94 (emphasis added).

B. Selecting Means

"means disposed on said semiconductor circuit for selecting one or more of said conductive lines"

The ALJ stated that --

[t]he '811 patent discloses that the operation of the "present invention" can be best understood by considering two modes of operation: (1) that when word line 8 is not selected by decoders 19 and 20; and (2) that when word line 8 is selected (FF 394). It also teaches that while the disclosure has been made with reference to raising the voltage on a word line in a memory array, other lines such as y-line[s], select lines and write lines may be pumped up to higher voltages by use of the disclosed invention (FF 399). The structures disclosed in the '811 specification for performing the "selecting" function are the NOR pre-decoder 10 and post-decoder 20. Those structures constitute conventional logic means for selecting a particular word line in a memory array (FF 397, 414, 415, 416, 417, 418).

Based on the language of the '811 specification, the administrative law judge interprets the language in issue as limited to the action of decoders when a particular word line or other long line such as a y-line, select line, [or] write line in [a] memory array is chosen as the line to be charged.

3/19/98 ID at 57-58 (footnotes omitted). The ALJ noted that, in the '811 patent, the word "selected" was used in a non-technical sense.³⁵ In a second footnote, the ALJ stated that his construction of the "selection means" did not rely on the prosecution history.³⁶

We affirm the ALJ's construction of the "selecting means" limitation, with the clarification that, as stated in the claim language, "one or more of said conductive lines" may be selected by the "selecting means." Consequently, rather than "interpret[ing] the language in issue as limited to the action of decoders when *a particular* word line or other long line such as a y-line, select line, [or] write line in [a] memory array is chosen as the line to be charged," 3/19/98 ID at 58, we construe the

³⁵ 3/19/98 ID at 58 n.42 (citing FF 416).

³⁶ 3/19/98 ID at 58 n.43.

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language as referring to "the action of decoders when *one or more particular* word line(s) or other long line(s) such as y-line(s), select line(s), or write line(s) in a memory array are chosen as the line(s) to be charged."

We disagree with SST and Sanyo's argument that, because the '811 patent applicant emphasized this function of the decoder circuitry in distinguishing the prior art Nakano reference during prosecution, the prosecution history requires that the "selection means" pull unselected lines to ground. We note that the ALJ rejected this argument. 3/19/98 ID at 58 n.43. Although the patent applicant discussed the functioning of the decoder circuitry in the prior art Nakano reference, that discussion concerned the operation of the switching means rather than the selection means.³⁷

Atmel argued in its supplemental briefing to the Commission that, in addition to the NOR pre-decoder 10 and post-decoder 20 identified by the ALJ, the corresponding structures disclosed in the '811/'829 patent specifications include x-decoder 124 and y-decoder 126 depicted in Figure 4, and the conventional multiple level decoding circuitry referred to in the text, '811 patent, col. 3, line 54.³⁸ Atmel took the same position in its district court litigation against Information Storage Devices, Inc. *Atmel Corp. v. Information Storage Devices, Inc.*, No. C-95-01987 SC, at 7, 9-10 (N.D. Cal. July 24, 2000) (order construing claim 1 of U.S. Patent No. 4,511,811). Relying on *Fonar Corp. v. General Electric Co.*, 107 F.3d 1543, 1551 (Fed. Cir. 1997), the district court concluded that "the general language in the specification regarding 'conventional multiple level decoding circuitry' does not expand the claim." *Id.* at 9. It further found that "the 'black-boxes' labeled as 'x-decoder 124' and 'y-decoder 125' in Figure 4 do not disclose a definite structure. Moreover, expert testimony provided by Atmel does not specify any structure that one skilled in the art would associate with these decoders." *Id.* at 9.

We agree with the district court's analysis and, having reviewed the evidence Atmel cites to the Commission in support of its argument, we reach the same conclusion. In support of its argument to the Commission, Atmel cites the expert report of Dr. White, CX 129C at 14-15. The cited material does not mention x-decoder 124 or y-decoder 125 or Figure 4, although it does quote and discuss the

³⁷ '811 patent prosecution history, Amendment at 2-3 (July 30, 1984); Transcript (White) at 1673:19-1675:20. In rejecting the claim for obviousness in view of the Nakano prior art, the examiner had identified the pull up transistor in the decoder of Nakano as the switching means. '811 patent prosecution history, Office Action at 2 (mailed Jan. 31, 1984).

³⁸ Atmel did not raise this argument in its earlier Commission briefing. In its petition for review Atmel stated that "[t]he ALJ correctly found that the structure disclosed in the patent for performing the function of selecting one or more of said conductive lines is the NOR pre-decoder 10 and post-decoder 20." *Atmel Corp.'s Pet. for Review* at 32 (Apr. 1, 1998); see also *Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 64 (May 26, 1998) ("It is undisputed that the structure disclosed in the patent for performing the function of selecting one or more of said conductive lines is the NOR pre-decoder 10 and post-decoder 20."); *Reply Br. of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 42 (June 5, 1998) (stating that "it is entirely undisputed" that the corresponding structures disclosed in the patent are NOR pre-decoder 10 and post-decoder 20).

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specification's reference to 'conventional multiple level decoding circuitry.' The passage quoted from the specification in the cited portion of the report states that pre-decoder 10 and post-decoder 20 are well known to those of skill in the art, and the discussion of that passage in the cited portion of the report emphasizes that they could be implemented in a number of ways. In our view, the cited portion of the report does not indicate what, if any, structure one skilled in the art would associate with the language in the specification at issue.

C. Transfer Means

"transfer means *responsive to said selecting means* and connected to said voltage node for *transferring increments of charge* from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses"

Atmel argued that the ALJ misconstrued the "increments of charge," "responsive to said selecting means," and "transferring" aspects of the transfer means limitation. We address each of these issues below. We affirm the ALJ's construction of the term "increments of charge" as meaning "discrete packets of charge" and clarify the rationale for this construction as discussed below. We affirm the ALJ's construction of "responsive to said selecting means." We modify the ALJ's construction of the limitation to clarify that the claimed function of "transferring increments of charge from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses" does not require that the increments of charge be transferred to the inherent distributed capacitance of a selected conductive line through the structures comprising the transfer means; the destination of the increments of charge that are transferred, however, is "the inherent distributed capacitance in selected ones of said conductive lines." With the above-stated exceptions, we affirm the remainder of the ALJ's construction of this limitation.

Increments of Charge. The ALJ did not include an explicit discussion of his construction of the phrase "increments of charge" in the section of the 3/19/98 ID dealing with the claim construction of the "transfer means." In the findings of fact cited in that section of the 3/19/98 ID, however, he identified the increments of charge passed by device 46 of the "transfer means" to the selected word line as "discrete packet[s] of charge"—passed by a current³⁹ that flows briefly and then stops—based on the operation of the invention disclosed in the '811 patent specification. See FF 428 (3/19/98 ID) (citing '811 patent specification) and FF 429 (3/19/98 ID) (citing expert testimony).⁴⁰

We agree with complainant Atmel that, although the means portion of a means-plus-function clause is limited to the corresponding structure and its equivalents, the other portions of a means-plus-

³⁹ "Charge transferred is defined as the current multiplied by time." FF 432 (3/19/98 ID).

⁴⁰ Based on our review of the expert testimony cited by the ALJ in support of FF 429 (3/19/98 ID), which indicates that transistor 46 does not transfer charge to capacitor 44 (Transcript (Gosney) at 2426:6-11; 2426:24-2427:2; 2428:14-25), we modify FF 429 by deleting the words "to line 44" at the end of the first sentence.

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function clause--including the recited function--are not so limited and should be construed using the standard rules of claim construction. *IMS Tech. Inc. v. Haas Automation Inc.*, 206 F.3d 1422, 1432-33 (Fed. Cir. 2000); *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1581 (Fed. Cir. 1997).

Webster's Third New International Dictionary defines "increment" as follows:⁴¹

1. an increasing or growth in bulk, quantity, number, or value : enlargement, increase
2. a. something that is gained or added : an added quantity or character[;]
b. one of a series of regular consecutive additions of like or proportional size or value . . . [; or]
c. one of a series of minute additions : a slight or imperceptible augmentation[.]
4. a. a positive or negative change in the value of one or more of a set of variables.

The Federal Circuit has stated that dictionaries may be used at any time to discern the ordinary meaning of claim terms. *Virionics Corp. v. Conceptronic Inc.*, 90 F.3d 1576, 1584 n.6 (Fed. Cir. 1996); *Optical Disc Corp. v. Del Mar Avionics*, 2000 WL 354753, *9 (Fed. Cir. 2000); *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1459 (Fed. Cir. 1998). "Where there are several common meanings for a claim term, the patent disclosure serves to point away from the improper meanings and toward the proper meaning." *Renishaw PLC v. Marposs Societa' Per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). The '811 patent specification indicates that the proper meaning of increment is "one of a series of regular consecutive additions of like or proportional size or value."⁴² In our view, the *discrete* nature of each increment is implicit in this definition because it refers to "*one of a series of regular consecutive additions.*" Therefore, we agree with Sanyo and Winbond that the ALJ's construction of "increments of charge" as "discrete packets of charge" is consistent with the ordinary meaning of the term "increment" and supported by the '811 patent specification. Consequently, we affirm the ALJ's construction of the term "increments of charge" as meaning "discrete packets of charge"--passed by a current that flows briefly and then stops-- and clarify the rationale for this construction as discussed above.

Responsive to Said Selecting Means. The ALJ stated that "[t]here is . . . no dispute that the transfer means must be 'responsive' to the selecting means." 3/19/98 ID at 60. He found that --

In the context of the '811 patent, "responsive" means that when the selecting means is selecting the word line, the transfer means is transferring charge to it, and when the selecting means is not selecting the word line, the transfer means is not transferring charge because the word line is set to zero volts. In the specification, the transfer means (transistors 46 and 40) is responsive to said selecting means because they only transfer charge when the selecting means is selecting word line 8, and they do not

⁴¹ Webster's Third New International Dictionary 1146 (1981). Definitions 3 and 4(b) are excluded because they expressly refer to limited and irrelevant subject matter.

⁴² '811 patent specification, col. 6, line 67 - col. 7, line 8, and Fig. 3.

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transfer charge when the word line does not select word line 8. ('811 patent.) col. 5, lines 11-23; col. 5 line[] 44 to col. 7, line 3).

FF 427 (3/19/98 ID). He further found that --

The phrase "responsive to said selecting means" is the way the circuit responds when a word line is or [is] not selected. The circuit turns [on] when the word line is [in] the selected state and off when it is [in] the unselected state. Element 40 of the '811 patent causes the transfer means to be responsive because it turns on when the line is selected and turns off when the word line is deselected. ([Transcript (Gosney)] at 2424. see [FF 429]).

FF 430 (3/19/98 ID). We note that this finding is further supported by expert testimony, Transcript (Gosney) at 2432:1-2433:13; 2439:19-2440:4; 2452:23-2453:19, which is cited by the ALJ in support of FF 381 (3/19/98 ID) and FF 530 (3/19/98 ID). We affirm the ALJ's construction of the term "responsive."

Atmel characterized the ALJ's construction as requiring that the transfer means be "continually responsive to the selecting means throughout the pumping process."⁴³ It contended that the ALJ's construction rested on errors of law and fact. Atmel argued that--even if the ALJ's understanding of the operation of the preferred embodiment were correct as a factual matter--limiting the meaning of "responsive" to the operation of the preferred embodiment, rather than construing the claim term according to its plain meaning, was legal error.⁴⁴ Atmel asserted that "responsive to said selecting means" means that "the transfer means must act as a result of, *i.e.*, respond to, the selecting means."⁴⁵ It stated that the claim does not specify *when* the transfer means must be responsive to the selecting means, and asserted that "the transfer means need only be responsive to the selecting means whenever and for that period of time necessary to result in the transfer of increments of charge from the high voltage generating means to the inherent distributed capacitance in the selected conductive lines."⁴⁶

⁴³ *Atmel Corp.'s Pet. for Review* at 38 (Apr. 1, 1998) (citing FF 427 (3/19/98 ID)).

⁴⁴ *Atmel Corp.'s Pet. for Review* at 36, 38 (Apr. 1, 1998) (citing *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 987 (Fed. Cir. 1988); *Loctite Corp. v. Ultraseal, Ltd.*, 781 F.2d 861, 867 (Fed. Cir. 1985)); *see also Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 66-68 (May 26, 1998).

⁴⁵ *Atmel Corp.'s Pet. for Review* at 36 (Apr. 1, 1998) (citing '811 patent, col. 5, line 65 - col. 6, line 12); *see also Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 66-68 (May 26, 1998).

⁴⁶ *Atmel Corp.'s Pet. for Review* at 36-37 (Apr. 1, 1998); *see also Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 66-68 (May 26, 1998).

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As a factual matter, Atmel asserted that the ALJ misunderstood the operation of the preferred embodiment. Atmel contended that because device 22 turns off after a few cycles of charge pumping, the transfer means cannot respond to the selecting means during the rest of the pumping.⁴⁷ Consequently, according to Atmel, the ALJ's conclusion that "the transfer means in the preferred embodiment is continually responsive to the selecting means, because the conductive line remains physically connected to the drain of device 22, even though device 22 is off (*i.e.*, open or non-conducting electrically), FF 427, 430, 531 [(3/19/98 ID)], is clearly erroneous."⁴⁸

Atmel argued that the claim term "responsive" concerns only responsiveness during the transfer operation. It asserted that the claim limitation at issue only concerns "the function of transferring increments of charge, and not any other function, such as draining or discharging increments of charge."⁴⁹ Relying on *Chiuminatta*, it contended that "connections which might be relevant to other non-claimed functions [such as deselecting or grounding the line] are *not* to be considered."⁵⁰

Although SST and Winbond question the source of Atmel's plain meaning construction of "transfer means responsive to said selecting means" as meaning "the transfer means must act as a result of, *i.e.*, respond to, the selecting means," Atmel's interpretation is consistent with a dictionary definition of "responsive."⁵¹ Atmel's contention that the transfer means need only respond to the

⁴⁷ *Atmel Corp.'s Pet. for Review* at 37 (Apr. 1, 1998) (citing '811 patent, col. 5, lines 44-53); see also *Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 66-68 (May 26, 1998).

⁴⁸ *Atmel Corp.'s Pet. for Review* at 37 (Apr. 1, 1998); see also *Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 66-68 (May 26, 1998).

⁴⁹ *Reply Br. of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 42 (June 5, 1998).

⁵⁰ *Reply Br. of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 42-43 (June 5, 1998) (citing *Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303 (Fed. Cir. 1998)).

⁵¹ "Responsive" (adj) is defined as: "1. giving or serving as an answer : constituting a response or made in response to something < a responsive glance > < prairie fires sprang up responsive to the draught > [.] 2. Obs[solete]. correspondent, corresponding[.] 3. readily inclined to respond or react appropriately or sympathetically to influences, suggestions, impressions : sensitive : not dull, apathetic, unreceptive, impassive, or unaffected < sensitive to atmospheric conditions, responsive to every varying shift of wind and weather-J.C. Powys > < efforts . . . to keep government in America responsive to the will of the people-V.L. Parrington > [.] 4. involving the use of responses < responsive worship > ." Webster's Third New International Dictionary 1935 (1981). "Respond" (verb) is defined as: "1. archaic : to correspond to or accord with something[.] 2. to say something in return : make an answer . . . 3. *to show some reaction to a force or stimulus* < the pupil of the eye responds to change of light intensity > : react in response . . . 4. to render satisfaction : be answerable." *Id.* (underlined, emphasis in original; italics, emphasis added). "Response" (noun) is defined as: "1. an act or

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selection means during the initial portion of the charge transfer process is inconsistent with this definition. Requiring that the transfer means respond only at some times, but not at other times, is inconsistent with the plain language that "the transfer means *must act* as a result of . . . the selection means."

The ALJ's reliance on the specification to construe the meaning of the term "responsive" is particularly appropriate in this case because the ordinary meaning, "the transfer means must act as a result of, *i.e.*, respond to, the selection means," renders the scope of the claim uncertain. *See Johnson Worldwide Assocs. Inc. v. Zebco Corp.*, 175 F.3d 985, 990 (Fed. Cir. 1999) ("where the term or terms chosen by the patentee so deprive the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used" the "term or terms used in the claim invites—or indeed, requires—reference to intrinsic, or in some cases, extrinsic, evidence.") This is so because construing responsive as requiring that the transfer means "act as a result of," in our view, encompasses any action⁵² by the transfer means, such as turning on, turning off, speeding up, or slowing down. The ALJ looked to the specification to provide the context for understanding the phrase "transfer means responsive to said selecting means," and focused on the relationship in the disclosed invention between the transfer means and the selecting means. FF 427 (3/19/98 ID) (citing '811 patent, col. 5, lines 11-23; col. 5, line 44 - col. 7, line 3); *see, e.g., North Am. Vaccine, Inc. v. American Cyanamid Co.*, 7 F.3d 1571, 1575-77 (Fed. Cir. 1993) (construing "linkage to a terminal portion of the polysaccharide without significant crosslinking" in context of patent specification). The cited portion of the specification supports the ALJ's construction of the term "responsive."

We also do not understand Atmel's reliance on *Chiuminata* in arguing that "grounding the line, or deselecting it, is of no concern in considering responsiveness" because "this claim limitation focuses only on the function of transferring increments of charge."⁵³ Although Atmel's citation to

action of responding (as by an answer) : a responsive or corresponding act or feeling : *a responding to a motive force or situation* : reaction . . . 2. a half pier or pillar that supports an arch." *Id.*

See also Webster's New International Dictionary (2nd ed. 1956), defining "responsive" (adj) as: "1. That responds; answering; replying. A responsive chime. 2. Obs[olete]. a. Correspondent; corresponding. b. Responsible. 3. Ready or inclined to respond, or react in sympathy; as, a responsive child; always responsive to affection; his eloquence stirred a responsive chord in his listeners. 4. Characterize by responses; as, responsive worship," and defining "respond" (verb) as: "1. To correspond; to accord. Rare. 2. To say something in return; to answer; to reply; specif., in liturgies, to make a respond or a response . . . 3. *To show some effect* in return to a force or *as a result of a stimulus*; to act, behave, etc., *in response* . . . 4. To render satisfaction, to be answerable" Webster's New International Dictionary (2nd ed. 1956) (underlined, emphasis in original; italics, emphasis added).

⁵² The breadth of the phrase "transfer means responsive to said selecting means" is illustrated by contrasting this phrase with the claimed relationship between the transfer means and the voltage pulses: "transfer means . . . for transferring increments of charge . . . in response to said voltage pulses." In the latter case, the action by the transfer means is narrowly claimed as transferring increments of charge.

⁵³ *Reply Br. of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 42-43 (citing *Chiuminata Concrete Concepts, Inc. v. Cardinal Indus.*, 145 F.3d 1303 (Fed. Cir.

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Chiuminata does not identify a particular portion of the opinion. Atmel apparently relies on the court's discussion of identifying corresponding structure, in which the court stated that aspects of the disclosed structure unrelated to the recited function "are not what the statute contemplates as structure corresponding to the recited function."⁵⁴ We fail to see the relevance of this discussion to the construction of the term "responsive."⁵⁵

Finally, we are unpersuaded by Atmel's suggestion that the transfer means in the preferred embodiment (devices 40 and 46) cannot "act as a result of, *i.e.*, respond to" the selecting means after a few cycles of charge pumping have been completed. Atmel's argument misapprehends the import of the factual findings at issue: FF 427, 430, and 531 (3/19/98 ID). The ALJ found that "[e]lement 40 of the '811 patent causes the transfer means to be responsive because it turns on when the [word] line is selected and turns off when the word line is deselected." FF 430 (emphasis added). The physical connection at issue in FF 531 is the connection between the selecting means and the word line, more specifically, the connection between device 24 in decoder 20 and the word line. As explained in the expert testimony (Gosney) cited in FF 530 (3/19/98 ID), when the word line is deselected, transistor 24 turns on, the word line discharges, and transistor 40 turns off.

Transferring. We agree with Atmel that the claimed function of "transferring increments of charge . . . from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses" does not require that the increments of charge be transferred through the structures comprising the transfer means, particularly in light of the construction of the means-plus-function language at issue in *Cybor Corp. v. FAS Technologies, Inc.* 138 F.3d 1448, 1459 (Fed. Cir. 1998) (construing "pumps the fluid through said filtering means to said second pumping means" as requiring "only that the liquid move from the filter 'in a pathway with a destination of the second pumping means' and does not preclude the fluid from passing through intervening components") (emphasis added).

In *Cybor*, the Federal Circuit rejected the argument that the limitation at issue "require[d] that the liquid flow directly from the filtering means to the second pumping means *without* passing through any additional components." *Id.* at 1458-59 (emphasis added). Although the rejected argument in *Cybor* is nominally the reverse of our case—where the question is whether a similar limitation requires that the increments of charge pass through specific components—we understand the construction of the limitation in *Cybor* to be that the fluid is *not* constrained to flow *in a specific pathway*. The claim language "transferring increments of charge . . . to the inherent distributed capacitance in selected ones of said conductive lines," does require that the destination of the increments of charge that are transferred be "the inherent distributed capacitance in selected ones of said conductive lines." *Id.*

1998)).

⁵⁴ *Chiuminata*, 145 F.3d at 1308.

⁵⁵ See discussion *supra* page 55.

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As to Sanyo's prosecution history argument regarding the applicant's statement that "[t]he word line itself is tied to the voltage node via a novel switching means in the transfer means, which switching means passes the voltage on the node to the word line when the word line has been selected for programming purposes," '811 patent prosecution history, Amendment at 2 (July 30, 1984), it is unclear to us why "switching means [in the transfer means] passing the voltage on the node to the word line" is any more specific as to the need for transfer through the elements of the transfer means than is the claim language "transfer means . . . for transferring increments of charge . . . to the inherent distributed capacitance in selected ones of said conductive lines."

Consequently, we modify the ALJ's construction of the limitation to clarify that the claimed function of "transferring increments of charge from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses" does not require that the increments of charge be transferred to the inherent distributed capacitance of a selected conductive line through the structures comprising the transfer means; the destination of the increments of charge that are transferred, however, is "the inherent distributed capacitance in selected ones of said conductive lines."

D. Switching Means

"said transfer means including switching means cooperating with said selecting means for blocking substantially all of the flow of current through and transfer of charge from said high voltage generating means to said conductive lines which are unselected"

We affirm the ALJ's construction of the "switching means" limitation with the construction of the term "cooperating with" clarified as discussed below. Although the 3/19/98 ID does not expressly set forth a construction for the claim language "switching means *cooperating with* said selecting means," the ALJ's infringement analysis indicates that, under his claim construction, the switching means must cooperate with the selecting means when the selecting means changes the status of a line from selected to unselected. 3/19/98 ID at 107; FF 530 (3/19/98 ID).

We begin by considering the ordinary meaning of "cooperating with." Webster's Third New International Dictionary defines "cooperate" as follows:⁵⁶

1. to act or work with another or others to a common end : operate jointly <marines and navy men *cooperated* in the attack> <the police force always cooperates with the fire department> [;]
2. to act together : produce an effect jointly <heavy rains and rapid thaws *cooperated* to bring disastrous floods> [; or]

⁵⁶ Webster's Third New International Dictionary 501(1981).

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3. to associate with another or others for mutual often economic benefit < many nations *cooperated* in the trade agreement > .

The first definition's emphasis on joint action suggests coordination between the actors to achieve a common end, while the second definition emphasizes a result without necessitating coordinated action; the third definition is inconsistent with the subject matter of the '811 patent. Atmel's suggestion that the claim requires cooperation between the switching and selecting means only when the unselected line remains in a previously unselected state is inconsistent with the joint operation aspect of the first definition. Moreover, we are not persuaded by Atmel's suggestion that *Chiuminata* compels this result on the ground that de-selecting and blocking flow to a previously selected line is an unclaimed function. Atmel apparently relies on the court's discussion of identifying corresponding structure, in which the court stated that aspects of the disclosed structure unrelated to the recited function "are not what the statute contemplates as structure *corresponding* to the recited function." *Chiuminata*, 145 F.3d at 1308. We do not understand the relevance of this discussion to the construction of the term "cooperating with."⁵⁷

Looking to the specification to clarify the nature of the cooperation between the switching means and selection means, we see that the switching means (device 46) "is turned off when word line 8 is not selected [by decoders 10 and 20] since node 42 is at approximately zero volts. Thus no DC current path exists between word line 8 and the output of high voltage generator circuit 34 when word line 8 is not selected and no current is drawn for unselected lines." '811 patent, col. 5, lines 36-43; col. 5, lines 11-14. Further, the switching means (device 46) will turn on and pump charge onto the word line when word line 8 is selected. '811 patent, col. 5, line 44 - col. 7, line 3.⁵⁸ Thus the switching means cooperates at all times with the selecting means: the switching means (device 46) blocks the flow of current when the word line is not selected by the selecting means (pre-decoder 10 and post-decoder 20), and does not block the flow of current when the word line is selected.

We reject Atmel's argument that device 40 corresponds to the switching means when device 40 is implemented as an enhancement device, and affirm the ALJ's conclusion that device 46 corresponds to the switching means, 3/19/98 ID at 62. The findings of fact, FF 438 and 439 (3/19/98 ID), cited by the ALJ in support of his finding that transistor 46 corresponds to the switching means are as follows:

⁵⁷ See discussion *supra* page 55.

⁵⁸ When the word line is selected, node 42 is brought to about 4.5 volts. '811 patent, col. 5, line 64 - col. 6, line 2 (we note that the source of device 40 is connected to node 42; see FF 429 (3/19/98 ID)); col. 6, line 16. "Device 46 is initially turned off since the output voltage of oscillator 38 coupled through device 44 has not brought node 42 to the point where device 46 can turn on. Turn-on of device 46 will occur when its gate voltage, the voltage at node 42 is equal to the sum of its source voltage (the voltage on word line 8) and its threshold voltage. Assuming a threshold voltage of 1 volt, device 46 will turn on when the voltage at node 42 is 6 volts because the voltage on word line 8 is 5 volts. Since node 42 [the source of device 40] is initially at 4.5 volts, it must move 1.5 volts in order to reach 6 volts and thus turn on device 46 to pump charge on to word line 8." '811 patent, col. 6, lines 6-18.

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FF 438. Transistor 46 is the structure in the disclosure of the '811 patent that corresponds to the switching means because it blocks the flow of current from the high voltage means to word line 8 when the selecting means forces word line 8, and hence the drain of transistor 46, to zero volts. ['811 patent,] col. 5, lines 36-43.

FF 439. The patentee defined diode transistor 46 as the switching means. Thus in the prosecution of the '811 patent (amendment dated July 30, 1984), it is stated:

The word line itself is tied to the voltage node via a novel switching means [in] the transfer means[,] which switching means passes the voltage on the node to the word line when the word line has been selected for programming purposes but prevents DC current leakage from the high voltage source to the word line (and hence ground) when the word line has not been selected.

CX 48 ['811 patent prosecution history] at SST 001411. The '811 patent discloses transistor 40 as [a] native MOS transistor, and when it says it can be an enhancement mode transistor, the patent does not say its function changes. '811 patent, col. 5, lines 21-22; col. 7, lines 21-25.

We reject Atmel's contention that the patentee's statement during prosecution, quoted by the ALJ in support of FF 439, does not disclaim alternative embodiments disclosed in the patent because it only discusses the preferred embodiment disclosed in Figure 2 of the '811 patent. The paragraph at issue never refers to Figure 2 or to specific numbered devices in the '811 patent, but broadly states that "[t]he word line itself is tied to the voltage node via a novel switching means in the transfer means, which switching means passes the voltage on the node to the word line when the word line has been selected for programming purposes but prevents DC current leakage from the high voltage source to the word line (and hence ground) when the word line has not been selected." '811 patent prosecution history, Amendment at 2 (July 30, 1984). Although SST pointed out that only device 46 "both passes charge to line 8 when it is selected, and blocks charge when it is not selected,"⁵⁹ Atmel has argued only that device 40 blocks current to unselected lines--without addressing whether device 40 also passes the voltage on the node to selected lines. Consequently, we agree with the ALJ's finding, FF 439, that the prosecution history limits the structure corresponding to the switching means to device 46.

IV. Infringement

Atmel argues that SST's accused parts infringe claim 1 of the '811 patent and claim 1 of the '829 patent through its use of the cpl2 circuit and associated circuitry and that the accused parts of Sanyo and Winbond infringe those claims because their parts use a cpl2 circuit that is the same as the SST cpl2 circuit in all relevant respects. The patentee bears the burden of proving infringement by a preponderance of the evidence. See, e.g., *Rohm & Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092

⁵⁹ *Response of Intervenor Silicon Storage Tech., Inc. to Notice of Decision to Review* at 29 (May 26, 1998).

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(Fed. Cir. 1997); *Conroy v. Reebok Int'l Ltd.*, 14 F.3d 1570, 1573 (Fed. Cir. 1994). The ALJ concluded that "Atmel has failed to establish that each of the claims in issue of the '811 and '829 patents is infringed," 3/19/98 ID at 436. As discussed below, we affirm the ALJ's conclusion that Atmel failed to establish infringement of the '811 or '829 patent.

The first step in an infringement analysis is construing the asserted claim. The second step of the analysis is to compare the construed claim with the accused product to determine whether the accused product is within the scope of the claim. See, e.g., *Bell & Howell Document Management v. Altek Sys.*, 132 F.3d 701, 705 (Fed. Cir. 1997); *Electro Med. Sys. S.A. v. Cooper Life Sciences Inc.*, 34 F.3d 1048, 1053 (Fed. Cir. 1994). To find infringement, an accused product must meet each claim limitation, either literally or under the doctrine of equivalents. See *Charles Greiner & Co. v. Mari-Med Mfg., Inc.*, 962 F.2d 1031, 1034 (Fed. Cir. 1992); *SmithKline Diagnostics Inc. v. Helena Lab. Corp.*, 859 F.2d 878, 889 (Fed. Cir. 1988). Literal infringement requires that every limitation of the claim be found in the accused device, exactly. See *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995). If the accused device does not literally infringe, infringement may still be found under the "doctrine of equivalents" if each claimed element is present literally or equivalently in the accused device. *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1423 (Fed. Cir. 1997). "A claim element is equivalently present in an accused device if only 'insubstantial differences' distinguish the missing claim element from the corresponding aspects of the accused device." *Id.*; accord, *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1517-18 (Fed. Cir. 1995) (in banc), *rev'd on other grounds*, 117 S.Ct. 1040 (1997). "The function-way-result test often suffices to assess equivalency because similarity of function, way, and result leaves little room for doubt that only insubstantial differences distinguish the accused product or process from the claims." *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d, 1512, 1518 (Fed. Cir. 1995) (in banc), *rev'd on other grounds*, 117 S.Ct. 1040 (1997); *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1267 (Fed. Cir. 1999) ("In the doctrine of equivalents context, the following test is often used: if the "function, way, or result" of the assertedly substitute structure is substantially different from that described by the claim limitation, equivalence is not established").

Literal infringement of a means-plus-function limitation drafted pursuant to 35 U.S.C. § 112, ¶ 6, "requires that the relevant structure in the accused device perform the identical function recited in the claim and be identical or equivalent to the corresponding structure in the specification. Functional identity and either structural identity or equivalence are *both* necessary." *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1267 (Fed. Cir. 1999) (citations omitted). A structure in the accused device is equivalent to the corresponding structure disclosed in the specification if the differences between the structures are "insubstantial." *Chiuminatta Concrete Concepts v. Cardinal Indus.*, 145 F.3d 1303, 1309 (Fed. Cir. 1998). Because functional identity is required, in this context the "function, way, or result" test for insubstantial differences reduces to "way" and "result." See *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1267 (Fed. Cir. 1999) ("Structural equivalence under § 112, ¶ 6 is met only if the differences are insubstantial; that is, if the assertedly equivalent structure performs the claimed function in substantially the same way to achieve substantially the same result as the corresponding structure described in the specification" (citations omitted)); *Kemco Sales, Inc. v. Control Papers Co.*, 208 F.3d 1352 (Fed. Cir. 2000). A finding of lack of structural equivalence under section 112, paragraph 6, where the equivalence issue involves technology in the accused device

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that predates the claimed invention, precludes a finding of infringement under the doctrine of equivalents. *Chiuminatta Concrete Concepts v. Cardinal Indus.*, 145 F.3d 1303, 1310-11 (Fed. Cir. 1998).

The ALJ concluded that Atmel failed to establish that each of the claims of the '811 and '829 patents is infringed. 3/19/98 ID at 436. In the infringement section of the 3/19/98 ID, he found that Atmel had not met its burden in establishing that the cpl2 circuit in the accused products infringes claim 1 of each of the '811 and '829 patents because the circuit lacks at least "conductive lines having inherent distributed capacitance," "selecting means," "transfer means . . . for transferring increments of charge," and "switching means cooperating with said selecting means." 3/19/98 ID at 107. As discussed below, we affirm the ALJ's conclusion that the cpl2 circuit lacks "transfer means . . . for transferring increments of charge" and "switching means cooperating with said selecting means," and conclude that Atmel has failed to establish infringement either literally or under the doctrine of equivalents.

Atmel argues for infringement under two theories: (1) assuming that [] and (2) assuming that the []

⁶⁰ As discussed below, we conclude that Atmel has failed to establish infringement under either of these theories. We note that we affirm the ALJ's conclusion that, []

] 3/19/98 ID at 106, *Beloit Corp. v. Valmet Oy*, 742 F.2d 1421 (Fed. Cir. 1984). Having considered the parties' arguments assuming that the source/word line is the line to be charged, as discussed below, we also take no position as to the ALJ's conclusion, 3/19/98 ID at 107, that []

] *Beloit Corp. v. Valmet Oy*, 742 F.2d 1421 (Fed. Cir. 1984).

In the following discussion, we consider "conductive lines having inherent distributed capacitance," transfer means, and switching means under each of the two theories: (1) assuming that the line to be charged is [], and (2) assuming that the line to be charged is the [].

A. []

⁶⁰ Under the first theory, Atmel argues that the ALJ erred in concluding that all elements of claim 1 of the '811 patent and claim 1 of the '829 patent were not present in the cpl2 circuit in the accused products when the line to be charged is considered to be []. We understand Atmel's argument to be that []

] are met under the doctrine of equivalents, while the other limitations are literally met in the accused products. Under the second theory, Atmel argues that all elements of claim 1 of the '811 patent and claim 1 of the '829 patent are present in the accused products []. We understand Atmel's argument to be that if the line to be charged in the accused products is the source/word line, then the accused products literally infringe.

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For the reasons discussed below, we reject Atmel's argument that, [], all the limitations of claim 1 of the '811 patent and claim 1 of the '829 patent are met literally or under the doctrine of equivalents.

Inherent Distributed Capacitance. The ALJ stated that - -

Atmel argued that [] has "inherent distributed capacitance" ([Complainant Atmel's Post Hearing Brief] at 43). However, the administrative law judge finds that the evidence demonstrated that the [] it is insignificant in the context of the claim 1 of the '811 and '829 patents and hence does not satisfy that claim limitation (FF 527).

3/19/98 ID at 106.

Atmel argues that the ALJ erroneously found that [] was not a "conductive line[] having inherent distributed capacitance" because he misconstrued that phrase to require a *long* conductive line with *significant* inherent distributed capacitance. Atmel further argues that the ALJ erred in failing to find that, under the ALJ's construction of the claim language at issue, [] satisfies the requirement under the doctrine of equivalents.

As discussed above in the claim construction section of this opinion, we affirm the ALJ's construction of "conductive lines having inherent distributed capacitance." We also adopt the ALJ's above-quoted finding that "the evidence demonstrated that the capacitance [] in the context of the claim 1 of the '811 and '829 patents and hence does not satisfy [the inherent distributed capacitance] claim limitation (FF 527)." Consequently, we reject Atmel's argument that the ALJ erred in finding that [] as not a line having inherent distributed capacitance. We are also not persuaded by Atmel's argument that [] satisfies the limitation under the doctrine of equivalents, because we agree with Sanyo and the IA that Atmel's argument impermissibly uses the doctrine of equivalents effectively to eliminate this limitation from the claim entirely. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 117 S. Ct. 1040, 1049 (1997). We find that Atmel has failed to establish that this limitation is met literally or under the doctrine of equivalents if it is assumed []

Transfer Means. Atmel argues that [] in the accused parts satisfy the transfer means element. It states that []⁶¹ It asserts that []

As we stated in the previous discussion of "inherent distributed capacitance," we affirm the ALJ's construction of "inherent distributed capacitance" and adopt his finding that [] is not within

⁶¹ *Atmel Corp.'s Pet. for Review* at 56 (Apr. 1, 1998) (citing CX 129C [White expert report] at 33-35).

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the scope of that limitation as construed by the ALJ. Consequently, if [] is considered to be the line to be charged, the alleged transfer means in the accused products [] does not perform the identical claimed function of the transfer means, viz., "transferring increments of charge from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses," and there is no literal infringement with respect to this limitation. This is so because literal infringement of a means plus function limitation "requires that the relevant structure in the accused device perform the *identical function* recited in the claim and be identical or equivalent to the corresponding structure in the specification." *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1267 (Fed. Cir. 1999). The function of the "transfer means" recited in the claim is "transferring increments of charge . . . to the inherent distributed capacitance in selected ones of *said conductive lines*," which is not identical to transferring increments of charge [] is not a "conductive line having inherent distributed capacitance." Consequently, we find that it has not been established that the transfer means limitation is literally met [].

Atmel argues that the transfer means limitation is met under the doctrine of equivalents in the accused products because [] in the accused products (1) performs substantially the same function, (2) in the identical way, (3) to achieve the identical result as do the corresponding transfer means structures disclosed in the '811 patent. Atmel contends that the transfer means in the accused products performs substantially the same function because [

[]⁶² It supports this argument by asserting that the capacitance of []⁶³

We are unpersuaded by this argument, which asserts that because [] the transfer of increments of charge to this line is substantially the same as the transfer of charge to [

[]⁶⁴ It appears to us that Atmel merely takes issue with the ALJ's construction of the limitation "conductive lines having inherent distributed capacitance." As we stated in the discussion of "inherent distributed capacitance," Atmel's argument that [] is "equivalent" to a line with inherent distributed capacitance impermissibly uses the doctrine of equivalents effectively to eliminate this limitation from the claim entirely. *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 117 S. Ct. 1040, 1049 (1997). We therefore find that Atmel has failed to establish that the transfer means limitation is met under the doctrine of equivalents, if it is assumed that [].

⁶² *Atmel Corp.'s Supplemental Br. on Review to Comm'n* at 59 (May 3, 2000) (citing *Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 80-81 (May 26, 1998) []

⁶³ *Atmel Corp.'s Supplemental Br. on Review to Comm'n* at 59 (May 3, 2000).

⁶⁴ 3/19/98 ID at 56-57 (construing "conductive lines having inherent distributed capacitance").

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Switching Means. In the course of its briefing to the Commission, Atmel argues that [] in the accused products and is the same as device 40 (in the '811 patent) in structure and operates in the same way, when device 40 is implemented as an enhancement mode transistor. Atmel alternatively argues that [] are the switching means [] in the accused products and that each of these devices is the same as device 46 (in the '811 patent) in structure and operates in the same way. Atmel states that "[t]he ALJ concluded [] citing FF 530 [3/19/98 ID], such that the switching means assertedly cannot be said to 'cooperate' with the selecting means."⁶⁵ It argues that the ALJ relied on testimony concerning the operation of [] in support of his finding and that the claim requires only that the switching means cooperate with the selecting means when an unselected line remains in a previously unselected state.

Atmel further argues that [] is equivalent under the doctrine of equivalents to the corresponding switching means disclosed in the patent because [] (1) performed substantially the same function, (2) in the same way, (3) to achieve the same result. Atmel supports its argument that [] performs substantially the same function as follows:

[]

] See *WMS Gaming*, 184 F.3d at 1353-54.

Atmel Corp.'s Supplemental Br. on Review to Comm'n at 60 (May 3, 2000). Atmel argues that [] and produces the same result as device 40, viz., preventing current drain on the high voltage generation circuit.

As discussed above in the claim construction portion of this opinion, we reject Atmel's suggestion that the claim requires cooperation between the switching and selecting means only when the unselected line remains in a previously unselected state and construe the limitation at issue to require that the switching means must cooperate with the selecting means when the selecting means changes the status of a line from selected to unselected. Consequently, we also reject Atmel's argument that the ALJ erred in finding that the switching means does not cooperate with the selecting means because he relied on expert testimony concerning the operation of the cpl2 circuit for a selected

⁶⁵ *Atmel Corp.'s Pet. for Review* at 64 (Apr. 1, 1998) (citing 3/19/98 ID at 107).

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ALJ's broad findings that [
1984).

] *Beloit Corp. v. Valmet Oy*, 742 F.2d 1421 (Fed. Cir.

Transfer Means.

"*transfer means* responsive to said selecting means and connected to said voltage node for transferring increments of charge from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses"

Atmel argues that [

] ⁶⁸ It argues that under this construction of transferring, the transfer means limitation is literally met in the accused parts. It asserts that [

] ⁶⁹ Atmel states that - -

[

]

Brief of Com plainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding at 82 (May 26, 1998). It further argues that [

]

As discussed above in the claim construction section of this opinion, we modify the ALJ's construction of the transfer means limitation to clarify that the claimed function of "transferring increments of charge from said high voltage generating means to the inherent distributed capacitance in selected ones of said conductive lines in response to said voltage pulses" does not require that the increments of charge be transferred to the inherent distributed capacitance of a selected conductive line

⁶⁸ *Atmel Corp.'s Supplemental Br. on Review to Comm'n* at 52-53 (May 3, 2000).

⁶⁹ *Atmel Corp.'s Supplemental Br. on Review to Comm'n* at 45 (May 3, 2000).

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through the structures comprising the transfer means; the destination of the increments of charge that are transferred, however, is "the inherent distributed capacitance in selected ones of said conductive lines." [

] This is so because, although
Atmel asserted that an increment of charge is transferred to [

] ⁷⁰ Thus, the destination of the
charges transferred by [] We also agree
with Winbond that []
For example, in the preferred embodiment of the '811 patent, selecting word line 8 causes the charge pump to transfer charge. Under Atmel's . . . interpretation, pre-decoder 10 and post-decoder 20

⁷⁰ The testimony of Atmel's expert (White) on the issue of the transfer of charge to the selected line through NH9 is as follows:

Q: I thought you told me--and correct me if I'm not right--that []
]; is that a true statement?

A: That's a true statement.

Q: []?

A: []?

Q: []?

A: [].

* * *

Q: The drain [of NH9] is above the gate, and it's the dot closest to the connection HV; correct?

A: That's correct.

Q: As I understand it--and you tell me if I'm right--when N1 actuates NH9, current flows from the drain to the source of NH9; correct?

A: Instantaneously, current flows, correct.

Q: Whether it's instantaneous or not, that current flows from HV to the selected line; correct?

A: That's correct.

Q: There is no current that flows from the node of N1 through the gate, is there?

A: No, there is not.

Q: It's a physical impossibility, isn't it?

A: Not physical, but it will not happen in this kind of application.

Transcript (White) at 3264:5-3265:9.

Atmel stated in its supplemental brief that "the increments of charge that pass through [] clearly do not get passed onto the []. *Atmel Corp.'s Supplemental Br. on Review to Comm'n* at 53-54 (May 3, 2000). Atmel noted that [] *Id.* at 54 n.16.

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would thus be part of the transfer means."⁷¹ Thus, [] because these structures do not perform the identical claimed function.⁷²

Atmel also argues that the combination of [] in the accused parts literally meets the transfer means limitation, because the combination performs the identical claimed function, in substantially the same way, to achieve the same result. We reject this argument. In the claim construction section of this opinion, we stated that we affirm the ALJ's construction of "increments of charge" as meaning "discrete packets of charge"- -passed by a current that flows briefly and then stops- -and clarified the rationale for that construction. The combination of []

[]FF 429 (3/19/98 ID) (discussing transfer of charge from high voltage circuit to the word line by devices 40 and 46), FF 528 (3/19/98 ID) (discussing transfer of charge from []).

Atmel argues that the combination of [] performs the claimed function in substantially the same way as do the corresponding structures (devices 40 and 46) in the '811 patent. Atmel argues generally that the use of source followers was a well-known technique for increasing the ability of a circuit to supply current at a specified voltage and that the patent specification discloses the use of source followers with charge pumps. As to the way []

] "⁷³ []

⁷¹ *Reply of Winbond Elecs. Corp. and Winbond Elecs. N. Am. Corp. to Atmel Corp.'s Br. on the Issues for Comm'n Review and on Remedy, the Pub. Interest and Bonding* at 8 (June 5, 1998). We also agree with Winbond that *Cybor Corp. v. FAS Technologies, Inc.*, 138 F.3d 1448 (Fed. Cir. 1998), provides no support for Atmel's construction of "transferring" to mean "causing the transfer." *Id.* at 8 n.2.

⁷² We previously rejected Atmel's argument that the transfer means limitation is met under the doctrine of equivalents by the [] See discussion *supra* page 66.

⁷³ *Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding* at 41-42 (May 26, 1998) (citing CX 129C [White expert report] at 35; '811 patent, fig. 3B); accord *Atmel Corp.'s Pet. for Review* at 49 (Apr. 1, 1998) (citing CX 129C [White expert report] at 35; '811 patent, fig. 3B).

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⁷⁴ The simulation by Ping Wang at issue, (IX 160C, Ex. 12), shows [] Transcript (Wang) at 2292:5-2293:14; IX 160C ¶¶ 22-27, Ex.12. Ping Wang testified [] Transcript (Wang) at 2294:18-2295:24; 2296:16-2297:9. SST's expert (Gosney) explained what is shown by figure 3B of the '811 patent specification concerning the transfer of increments of charge to the word line as follows:

Q: Can you explain to the Court what is shown in figure 3B [of the '811 patent] as far as the transfer of increments [of] charge is concerned?

A: What that is showing is the word line voltage as a function of time. The steps are going to be occurring at the point where the oscillator signal is stepping from zero to 5 volts. And so what happens then, when the oscillator steps, there is momentary conduction of transistor 46 in figure 2 of the '811 patent. And that transfer of charge, that transfer of an increment of charge results in a rather abrupt change in voltage, very slight change in voltage on the word line voltage, which is where you get this step appearance.

The slope of the line--the slope of this voltage versus time line is related to the current at any point. And so the fact that, for the most part, the step is flat tells you that the current is zero, and so the current is flowing, transferring an increment of charge at the point in time where the step occurs.

Transcript (Gosney) at 2456:22-2457:15 (emphasis added).

Atmel's expert (White) testified that he agreed with Ping Wang's simulation. Transcript (White) at 3234:16-18 (referring to IX 160C, exh 9),⁷⁵ 3236:16-20 (referring to IX 160C, Ex. 12). In discussing what that simulation indicated,⁷⁶ White testified as follows:

[

⁷⁴ Brief of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding at 41-42 (May 26, 1998) (citing IX 160C at ¶¶ 22-30 and Ex. 8, 12; CX 129C [White expert report] at 35); accord Atmel Corp.'s Pet. for Review at 49 (Apr. 1, 1998) (citing IX 160C at ¶¶ 22-30 and Ex. 8, 12; CX 129C [White expert report] at 35).

⁷⁵ IX 160C exhibits 9 and 12 display the same simulation (the results of circuit #1 shown in exhibit 6), but on different time scales. IX 160C, ¶¶ 23, 27; Transcript (White) at 3234:2-3235:23.

⁷⁶ Transcript (White) at 3234:2-3236:20.

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]

Transcript (White) at 3236:8-16. In CDX 52, White graphed the current flowing [] Transcript (White) at 3236:21-3237:17. He explained [

] Transcript (White) at 3281:6-17.

In its briefing to the Commission, Atmel stated that [

] ⁷⁷

Further, the ALJ found that [

] 3/19/98 ID at 107.⁷⁸ FF 528 (3/19/98 ID) cites expert testimony (Gosney) that [

] Transcript (Gosney) at 2455 (emphasis added). For the reasons discussed above, we reject Atmel's argument that the combination of [] performs the claimed function in substantially the same way as do the corresponding structures (devices 40 and 46) in the '811 patent.

We note that in the course of its briefing to the Commission, Atmel suggested that the combination of [] meets the transfer means limitation under the doctrine of equivalents.⁷⁹ We disagree. The use of source followers was known at the time of the invention of the '811 patent, FF 412 (3/19/98 ID). As discussed above, we have found that the combination of [] does not literally meet the transfer means limitation because it is not structurally equivalent to the corresponding structure disclosed in the '811 patent specification (devices 40 and 46). This finding of lack of structural equivalence involves [] and therefore precludes a finding of infringement under the doctrine of equivalents. *Chiuminatta Concrete Concepts v. Cardinal Indus.*, 145 F.3d 1303, 1310-11 (Fed. Cir. 1998).

Switching Means.

⁷⁷ Reply Br. of Complainant Atmel Corp. on the Issues for Comm'n Review and on Remedy, the Pub. Interest, and Bonding at 17 (June 5, 1998).

⁷⁸ The ALJ's finding is further supported by FF 529 (3/19/98 ID), reciting testimony of Atmel's expert (White) at Transcript (White) 3264-65 concerning the transfer of charge to the selected line through NH9. See *supra* note 70 and accompanying text.

⁷⁹ Atmel appears to have abandoned this argument in its latest briefing.

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"said transfer means including *switching means* cooperating with said selecting means for blocking substantially all of the flow of current through and transfer of charge from said high voltage generating means to said conductive lines which are unselected"

Atmel argues that [

Atmel states that "[t]he ALJ concluded [that] the 'charging circuitry' in the accused parts, which includes [] citing FF 530 [(3/19/98 ID)], such that the switching means assertedly cannot be said to 'cooperate' with the selecting means."⁸⁰ It argues that the ALJ relied on testimony concerning the operation of []

As discussed above in the claim construction portion of this opinion, we reject Atmel's suggestion that the claim requires cooperation between the switching and selecting means only when the unselected line remains in a previously unselected state and construe the limitation at issue to require that the switching means must cooperate with the selecting means when the selecting means changes the status of a line from selected to unselected. Consequently, we also reject Atmel's argument that the ALJ erred in finding that the switching means does not cooperate with the selecting means because he relied on expert testimony concerning the operation of [

⁸¹

The administrative law judge found that the [

](FF 530)," 3/19/98 ID at 107. We understand the ALJ's reference to [], (see Transcript (Gosney) at 2446:19-2454:4; IX 143C [Gosney rebuttal expert witness statement], ¶ 14), and further find that if the switching means [], then that "switching means" does not "cooperate" with the "selecting means" for the same reason. 3/19/98 ID at 107; FF 528, 530, 531 (3/19/98 ID); Transcript (Gosney) at 2446:19-2454:4; IX 143C [Gosney rebuttal expert witness statement], ¶ 14. Having considered the parties' written submissions and the evidence of record, we conclude that, [

⁸⁰ *Atmel Corp.'s Pet. for Review* at 64 (Apr. 1, 1998) (citing 3/19/98 ID at 107).

⁸¹ The expert testimony in question discusses whether there is cooperation in the [] when the selecting means changes a line from being selected to unselected.

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], Atmel has not met its burden in establishing that [] infringes claim 1 of each of the '811 and '829 patents because the circuit lacks "switching means cooperating with said selecting means."

V. Validity

Having considered the parties' written submissions and the evidence of record, we affirm the ID's conclusion that "[i]t has not been established that each of the claims of the '811 and '829 patents is invalid under 35 U.S.C. § 102 or under 35 U.S.C. § 103," 3/19/98 ID at 436. We take no position on the ALJ's findings that (1) U.S. Letters Patent 4,451,748 ("the Amrany patent") is prior art, 3/19/98 ID at 90; (2) the Amrany patent does not disclose a "means for selecting," *see* FF 551 (3/19/98 ID); and (3) U.S. Letters Patent 4,048,632 ("the Spence patent") does not teach an "on-chip high voltage generating means," FF 567 (3/19/98 ID). *Beloit Corp. v. Valmet Oy*, 742 F.2d 1421 (Fed. Cir. 1984).

The ALJ found "nothing in the references which discloses per se or in combination increasing the voltage on a conductive line having 'inherent distributed capacitance,' as that conductive line has been construed by the administrative law judge." 3/19/98 ID at 90. As discussed above, we affirm the ALJ's construction of the "conductive lines having inherent distributed capacitance" and, consequently, affirm his conclusion that "it has not been established by clear and convincing evidence that the claimed subject matter is not valid," 3/19/98 ID at 90.

Further, we do not find the arguments of SST and Winbond concerning the Amrany and Spence patents persuasive in light of the evidence in the record identified by the ALJ in support of his factual findings that (1) the Amrany patent does not disclose the "switching means" (FF 551 (3/19/98 ID)), the "capacitive coupling means" (FF 554 (3/19/98 ID)), or "any unselected lines from which to distinguish a selected line nor teach its use on a plurality of lines" (FF 552 (3/19/98 ID)); and that (2) the Spence patent does not disclose the "switching means" (FF 566 (3/19/98 ID)). As to the inherency argument Winbond raised against the ALJ's finding that "[t]he Amrany patent does not disclose any unselected lines from which to distinguish a selected line nor teach its use on a plurality of lines," FF 552 (3/19/98 ID), Winbond fails to identify specific evidence supporting its assertion that "the Amrany circuit is *necessarily* switched 'line-to-line' within the memory."⁸² Finally, we reject SST's argument that the '829 patent claim is invalid as obvious under 35 U.S.C. § 103 in view of the '811 patent, because we affirm the ALJ's finding that the '811 patent is not invalid as anticipated under 35 U.S.C. § 102 and agree with Atmel that the patentee's terminal disclaimer is not an admission that the '829 claim is an obvious variation of the '811 claim. *Quad Envtl. Techs. Corp. v. Union Sanitary Dist.*, 946 F.2d 870, 874 (Fed. Cir. 1991).

In summary, we affirm the ALJ's findings and conclusions as to the validity of the '811 and

⁸² *Response of Winbond Elecs. Corp. and Winbond Elecs. N. Am. Corp. to Notice of Comm'n Decision to Review Portions of an ID* at 56 n.7 (May 26, 1998) (emphasis added); *see also Response of Winbond Elecs. Corp. and Winbond Elecs. N. Am. Corp. to Atmel's Pet. for Review* at 40 (Apr. 8, 1998).

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'829 patents, with the three exceptions noted above.

VI. Domestic Industry

As a prerequisite to finding a violation of section 337, Atmel must establish that "an industry in the United States, relating to the articles protected by the patent . . . concerned, exists or is in the process of being established." 19 U.S.C. § 1337(a)(2). The domestic industry requirement of section 337 consists of two prongs: the technical prong and the economic prong. *Certain Variable Speed Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, USITC Pub. 3003, Comm'n Opinion at 14-17 (1996). The technical prong involves whether the complainant practices the asserted patents; the economic prong involves investment activities, set out in section 337(a)(3), in a domestic industry with respect to articles protected by the asserted patents. Having considered the parties' written submissions and the evidence of record, we affirm the 3/19/98 ID's conclusion that "[a]n industry exists in the United States as required by subsection (a)(2) of section 337 that exploits the patents in issue," 3/19/98 ID at 436, and affirm the 3/19/98 ID's underlying findings as to this issue concerning the '811 and '829 patents.

[

] Having considered the parties' written submissions and the evidence of record, we affirm the ALJ's conclusions that the SEEQ parts practice the patents at issue and that Atmel has failed to establish that the AT45 or AT49 parts practice either patent. We note that the 3/19/98 ID's finding, FF 662 (3/19/98 ID), is further supported by IX 143C, "Rebuttal Expert Witness Statement of William Milton Gosney, Jr.," at 7-9.⁸³

[

⁸³ [

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] See *Certain Battery Powered Ride-on Toy Vehicles and Components Thereof*, Inv. No. 337-TA-314, Initial Determination (Order No. 6) (unreviewed portions) at 18-21 (1990) (finding that a domestic industry existed as to products that were no longer manufactured, but were formerly manufactured, in the United States and were being sold from inventory).

VII. SST's Motion for Issue Preclusion

On August 3, 2000, SST moved the Commission to accord issue preclusive effect to a U.S. district court order construing claim 1 of the '811 patent. Respondents Winbond and Sanyo, and the IA supported SST's motion; complainant Atmel opposed it. SST moved for leave to file a reply memorandum in support of its motion. We grant SST's motion for leave to file a reply and, for the reasons discussed below, deny SST's motion to accord preclusive effect to the district court decision.

The Federal Circuit has stated that --
[i]ssue preclusion is appropriate only if: (1) the issue is identical to one decided in the first action; (2) the issue was actually litigated in the first action; (3) resolution of the issue was essential to a final judgment in the first action; and (4) [the party against whom the estoppel is being asserted] had a full and fair opportunity to litigate the issue in the first action.

In re Freeman, 30 F.3d 1459, 1465, 1467 (Fed. Cir. 1994).

The parties contest the third factor. SST argued that the district court decision was sufficiently final to accord it issue preclusive effect because (1) the parties were fully heard, (2) the district court supported its decision with a reasoned opinion, and (3) the decision is subject to appeal "either in the near term (if summary judgment is requested and granted) or the longer term (after trial, currently scheduled for early 2001)."⁸⁴

The Federal Circuit discussed the third factor in *Freeman* as follows:

In the context of claim construction, this court has held that

judicial statements regarding the scope of patent claims are entitled to collateral estoppel effect in a subsequent infringement suit only to the extent that determination of scope was essential to a final judgment on the question of validity or infringement.

A.B. Dick Co. [v. Burroughs Corp.], 713 F.2d [700,] 704 [(Fed. Cir. 1983).] This court has warned, however, that statements regarding the scope of patent claims made

⁸⁴ *Intervenor Silicon Storage Tech., Inc.'s Mem. in Supp. of Its Mot. that the District Court Claim Construction of '811 Patent Be Accorded Issue Preclusive Effect* at 3 (Aug. 4, 2000).

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in a former adjudication should be narrowly construed. *Id.* Additionally, to apply issue preclusion to a claim interpretation issue decided in a prior infringement adjudication, "the interpretation of the claim had to be the reason for the loss [in the prior case] on the issue of infringement." *Jackson Jordan, Inc. v. Plasser American Corp.*, 747 F.2d 1567, 1577, 224 U.S.P.Q. 1, 8 (Fed. Cir. 1984).

Freeman, 30 F.3d at 1466. A recent district court case cited by the parties, *TM Patents, L.P. v. IBM Corp.*, raises the question of whether *Markman* should be viewed as changing the rule that issue preclusion applies to claim construction rulings only if the claim construction is the basis for the loss on the issue of infringement in the previous case. 72 F.Supp.2d 370 (S.D.N.Y. 1999).

In *TM Patents*, the district court applied issue preclusion to the claim construction rulings (issued after a *Markman* hearing) of the U.S. District Court for the District of Massachusetts, although the Massachusetts action settled during trial. The district court reasoned as follows:

The cases *TM* cites for the proposition that the collateral estoppel effects from claim construction should be narrowly limited to matters that were essential to a judgment (of validity or infringement)—cases such as *Jackson Jordan, Inc. v. Plasser Amer. Corp.*, 747 F.2d 1567 (Fed. Cir. 1984); *A.B. Dick Co. v. Burroughs Corp.*, 713 F.2d 700 (Fed. Cir. 1983); and *Studiengesellschaft Kohle v. Eastman Kodak Co.*, 616 F.2d 1315 (5th Cir. 1980)—are inapplicable in the post-*Markman* era, at least when the district court holds a special pre-trial hearing, as [in the Massachusetts action.] These authorities were decided at a time when patent claims were construed during jury deliberations. It therefore made perfect sense to limit the collateral estoppel effects emanating from a jury's judgment on issues of validity and infringement to matters of claim construction that were necessarily comprehended in the verdict. That rule makes no sense when a court, acting as a matter of law, draws binding conclusions about the meaning of disputed patent terms for the benefits of the litigants and the jurors.

72 F.Supp.2d at 378-379.

The district court in the more recent case of *Graco Children's Products, Inc. v. Regalo International LLC*, 77 F. Supp.2d 660 (E.D. Pa. 1999), followed *Jackson Jordan* and did not give issue preclusive effect to the previous claim construction issued after a *Markman* hearing by another district court. The *Graco* court stated that—

because *Graco* won on its claim of patent infringement, but lost on a claim interpretation issue, no issue preclusion attaches to the lost issue of claim interpretation since it could not by itself be appealed. *Hartley v. Mentor Corp.*, 869 F.2d 1469, 1472 (Fed. Cir. 1989) (where party wins on claim, but loses on issue, no issue preclusion attaches to lost issue which could not by itself be appealed).

Moreover, "to apply issue preclusion to a claim interpretation issue decided in a prior infringement adjudication, 'the interpretation of the claim had to be the reason

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for the loss [in the prior case] on the issue of infringement.'" *Freeman*, 30 F.3d at 1466 (citing *Jackson Jordan*, 747 F.2d at 1577) Significantly, Graco did not lose in the previous litigation, but instead, obtained a jury verdict in its favor based on the doctrine of equivalents, making the court's interpretation of the term within the patent claim not essential to the final judgment in that case."

77 F.Supp.2d at 664.

In the present investigation, it is not at all clear whether the claim construction order of the district court is subject to appeal "either in the near term (if summary judgment is requested and granted) or the longer term (after trial, currently scheduled for early 2001)" as asserted by SST.⁸⁵ Depending on the specifics of any summary judgment motion or decision after trial, Atmel may lose the right to appeal the claim construction in the district court order. This might happen, for example under the reasoning of *Jackson Jordan* and *Graco*, if Atmel prevailed on infringement.⁸⁶ Further, Atmel's suggestion that the district court could clarify or modify its claim construction in the course of considering infringement or invalidity is not unreasonable on its face.⁸⁷ In view of these uncertainties, we deny SST's motion for preclusive effect.

REMEDY

⁸⁵ The Federal Circuit disfavors direct appeals from *Markman* decisions. *See, e.g., Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1479 (Fed. Cir. 1998) (Newman J. and Mayer J. additional views) ("Although the district courts have extended themselves, and so-called 'Markman hearings' are common, this has not been accompanied by interlocutory review of the trial judge's claim interpretation. The Federal Circuit has thus far declined all such certified questions. Indeed, the certified question issue was an early warning of the difficulties that could flow from premature claim interpretation, for it was often apparent from the petition that the claims could not be finally and correctly interpreted without evidence beyond the patent documents. The absence of extrinsic evidence, of resolution of conflicting positions, and of detailed analysis and findings by the trial judge, inhibited claim interpretation by certified question. Thus, instead of conducting the expected dispositive de novo review, we simply declined the question.").

⁸⁶ The *TM Patents* court addressed a related issue, whether preclusion based on the Massachusetts *Markman* rulings was appropriate even though the *Markman* rulings from the Massachusetts action were never reviewed given that the case was settled at trial. The court stated that "the only reason [the Massachusetts rulings] were not reviewed on appeal is that the case was settled. A party who cuts off his right to review by settling a disputed matter cannot complain that the question was never reviewed on appeal. The *Markman* rulings were not vacated as part of the settlement." 72 F.Supp.2d at 378.

⁸⁷ Although the IA's argument that "Atmel cannot argue that the district court's construction of the single claim of the '811 patent is *dictum*, or that such construction was somehow unnecessary to the district court proceeding," is presently correct, the district court decision at issue *could become dictum* depending on how the district court action develops. *Response of the Office of Unfair Import Investigations to Intervenor Silicon Storage Tech., Inc.'s Mot. that Issue Preclusive Effect Be Accorded the Recent District Court Claim Construction of the '811 Patent* at 5 n.4 (Aug. 16, 2000); *see Phonometrics, Inc. v. Northern Telecom Inc.*, 133 F.3d 1459, 1464 (Fed. Cir. 1998).

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The Commission has broad discretion in selecting the form, scope, and extent of the remedy in a section 337 proceeding, and judicial review of its choice of remedy necessarily is limited.** In addition, the Commission has the power to make factual determinations in the remedy phase of a section 337 investigation, to the extent necessary, in order to reach its determination. These factual determinations may be made on the basis of the evidence of record in the violation phase of the investigation, or on the basis of information submitted by the parties in the remedy phase of the investigation.

In the event that the Commission finds a violation of 337, the ALJ recommended issuance of a limited exclusion order covering the accused semiconductor devices, and circuit boards containing those devices. 3/19/98 ID at 120. The ALJ recommended that the limited exclusion order not cover any other "downstream products" such as personal computers, disk drives, CD ROM drives, and cellular telephones. He also recommended that Customs be given discretion as to what import certification would be required. 3/19/98 ID at 120.

Complainant Atmel requested that the Commission enter a limited exclusion order, including a certification provision, that covers both infringing semiconductor devices and downstream electronic products incorporating those infringing semiconductors. Atmel points to evidence that the majority of Sanyo's and Winbond's EPROM, EEPROM, flash memory, and flash microcontroller memory products entered the United States in downstream products, such as CD players and personal computers. It contends that any exclusion order that does not address downstream products is inadequate. Atmel further seeks a cease and desist order directed to the two domestic respondents, Winbond Electronics North America and Macronix America, and to domestic intervenor SST, requiring that they refrain from marketing, selling, importing, or distributing the infringing devices in the United States. Atmel argues that the Commission normally issues cease and desist orders when the circumstances indicate that respondents have a "commercially significant" amount of infringing product in the United States which they can sell, thus undercutting the effect of any exclusion order. It contends that in the absence of authoritative inventory information from respondents the existence of "commercially significant" inventories may reasonably be inferred.

Respondent Winbond argues that Atmel is not entitled to an exclusion order covering downstream products, nor is it entitled to a cease and desist order against Winbond. Respondent Macronix asserts that if Atmel is entitled to any relief, it should not extend beyond a limited exclusion order. Respondent Sanyo argues that Atmel's only evidence on the issue of importation of downstream products is a single Matsushita CD-ROM drive, containing a single 1-megabit Sanyo memory chip, which CD-ROM drive had to be disassembled and the circuit board visually inspected before the presence of the Sanyo device could be determined. Sanyo argues that Atmel has thus failed to supply the kind of evidence that could justify an exclusion order extending to downstream products.

The IA states that the appropriate remedy is a limited exclusion order that is directed not only to the intervenor's and respondents' semiconductor devices that infringe the asserted patents, but also

** *Viscofan, S.A. v. United States International Trade Commission*, 787 F.2d 544, 548 (Fed. Cir. 1986) (affirming Commission remedy determination in *Certain Processes for the Manufacture of Skinless Sausage Casings and Resulting Product*, Inv. No. 337-TA-148).

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to the downstream products of Sanyo that contain the infringing semiconductors. The IA cites to evidence in the record that Sanyo's affiliates have been involved in the manufacture of downstream products such as digital cameras, cellular telephones, and PC cards. This evidence is in the record at CX-108, a table setting forth Sanyo's customers for the accused products, including several Sanyo affiliates or divisions, and JX-10, the deposition transcript of Sanyo's Matsuoka (JX-10, pp. 47-51 and 80-81).

The IA notes that in a prior section 337 case involving similar circumstances the Commission determined that its exclusion order should cover the downstream products manufactured by Hyundai, one of the respondents found to have violated section 337. *Certain Erasable Programmable Read Only Memories, Components Thereof Products Containing Such Memories, and Processes for Making Such Memories*, Inv. No. 337-TA-276, USITC Pub. 2196, Commission Opinion at 127-28 (May 1989), *aff'd sub nom. Hyundai Electronic Indus. Co., Ltd. v. U.S. Int'l Trade Comm'n*, 899 F.2d 1204, 1209 (Fed. Cir. 1990) ("EPROMs"). Specifically, the Commission decided in EPROMs that the appropriate remedy against respondent Hyundai was an exclusion order that prohibited the importation and sale not only of the infringing Hyundai memory chips, but also of computers, computer peripherals, telecommunications equipment, and automotive electronic equipment manufactured by Hyundai. *Id.* at 127-28. The IA therefore submits that if the Commission finds that Sanyo's semiconductor devices infringe the '903 patent, then Sanyo's downstream products that contain those infringing devices should also be excluded from entry by the limited exclusion order.

Having examined the record in this investigation, including the ALJ's recommendation and the briefs and responses thereto, we have determined that the appropriate form of relief is a limited exclusion order prohibiting the importation of semiconductor devices that infringe claims 1 or 9 of the '903 patent manufactured by or on behalf of Sanyo and Winbond,⁸⁹ and circuit boards containing such devices,⁹⁰ but not downstream products such as personal computers, disk drives, CD-ROM drives, and cellular telephones. We also determined that the limited exclusion order shall include a certification provision, and that no cease and desist order shall be issued in this investigation.

A central issue with regard to the limited exclusion order is whether any downstream products should be covered by the order. As noted, Atmel argues that the limited exclusion order should cover such products.⁹¹ It contends that those products are the most common and widespread applications for

⁸⁹ Sanyo is a foreign manufacturer and has a foundry agreement to manufacture the infringing semiconductor devices for domestic intervenor SST. Winbond is both a foreign manufacturer and a domestic importer of infringing devices.

⁹⁰ By "circuit board" the Commission means what is ordinarily understood by that term in the electronics industry, *viz.*, a flat piece of insulating material, often multilayered, on which electrical components are mounted and interconnected so as to form a circuit. Thus, the term includes what have been called "mother boards" and "daughter boards" in this investigation.

⁹¹ Atmel contends that the exclusion order should cover a wide range of electronic products such as computer motherboards, other peripheral computer boards and cards, personal computers, notebook computers, disk drives,

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non-volatile memory devices, and that most of the infringing semiconductor devices are imported in downstream devices rather than in bulk.⁹²

To determine whether a limited exclusion order should apply to downstream products, the Commission balances the factors outlined in the Commission's 1989 decision in *EPROMs*. In assessing these factors, the Commission balances the complainant's interest in obtaining complete protection from all infringing imports against the potential of a limited exclusion order to disrupt legitimate trade in products that were not in themselves the subject of a finding of a violation of section 337:

In performing this balancing, the Commission may consider such matters as the value of the infringing articles compared to the value of the downstream products in which they are incorporated, the identity of the manufacturer of the downstream products (*i.e.*, are the downstream products manufactured by the party found to have committed the unfair act, or by third parties), the incremental value to complainant of the exclusion of downstream products, the incremental detriment to respondents of such exclusion, the burdens imposed on third parties resulting from exclusion of downstream products, the availability of alternative downstream products which do not contain the infringing articles, the likelihood that the downstream products actually contain the infringing articles, the opportunity for evasion of an exclusion order which does not include downstream products, the enforceability of an order by Customs, etc. This list is not exclusive; the Commission may identify and take into account any other factors which it believes bear on the question of whether to extend remedial exclusion to downstream products, and if so to what specific products.

EPROMs at 125 -126.

As to the value of the infringing articles compared to the value of the downstream products in which they are incorporated, the record shows that the accused semiconductor devices at best represent only [] of the total cost of the downstream products, so that the value of the infringing articles compared to the value of the downstream products in which they are incorporated is quite small. For example, the average cost of a Winbond 1-megabit flash semiconductor (W29EE01 1-15) is about []RX465; CX190; WB001458R; 001460R; CX387), whereas the cost of a Pentium personal computer motherboard containing that semiconductor is about \$200. CX426. The cost of other downstream products, such as printers, ranges from several hundred dollars to several thousand dollars. RX194J.

As to the identity of the manufacturer of the downstream products, approximately 550

CD-ROM drives, scanners, modems, fax machines, and cellular telephones.

⁹² Respondents and intervenor generally challenge the sufficiency of Atmel's evidence on this point, which consisted of statements by an expert witness, and individual examples of imported downstream products that contain the accused semiconductor chips.

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electronics manufacturers, sellers, and purchasers would be affected by a limited exclusion order covering all downstream products identified by Atmel (3/19/98 ID at 428-34), and a limited exclusion order covering downstream products would thus affect a large segment of the electronics industry. Additionally, respondents account for a very small percentage of all EPROMs, EEPROMs, flash memory, and flash microcontroller semiconductor devices manufactured. IX 140 at p. 007219; IX 141 at p. 007225. Therefore, it is unlikely that any particular downstream electronic product cited by Atmel contains an infringing semiconductor. Based on this evidence, the ALJ found that a limited exclusion order covering downstream products is likely to disrupt a large volume of legitimate trade. 3/19/98 ID at 119.

Atmel and the IA argue for the a limited exclusion order covering Sanyo and its affiliates. However, with the exception of a CD-ROM drive, Atmel has not shown that any downstream product of Sanyo or its affiliates includes the accused Sanyo semiconductor. DeCaro, Tr. 1142:20-1143:9; CX 15 at attachment 15. Aside from the CD-ROM drive, Atmel has shown no direct link between the products of Sanyo's affiliates or divisions, listed in CX-108, and the infringing Sanyo semiconductors. Atmel has not demonstrated that the accused semiconductors are being used in the products manufactured by Sanyo's affiliates and divisions or that those downstream products are being imported into the United States, and the Commission has stated that it declines to assume the importation of downstream products. *Certain Integrated Circuit Telecommunication Chips and Products Containing Same Including Dialing Apparatus*, Inv. No. 337-TA-337, Comm'n Opinion at p. 25. Although the Commission did exclude the downstream products of respondent Hyundai in *EPROMs*, the facts of this investigation are distinguishable. The main distinguishing characteristic is evidentiary. As respondents and intervenor point out, Atmel has not demonstrated that the accused semiconductors are being used in the products manufactured by Sanyo's affiliates and divisions or that those downstream products are being imported into the United States.

As to the incremental value to Atmel of the exclusion of downstream products, Atmel has provided no evidence that it would receive any significant benefit from excluding downstream products. Atmel does not state that it makes any downstream products and it provides no evidence that U.S. manufacturers would buy devices from Atmel if they could not purchase respondents' or intervenor's devices. Since respondents and intervenor are not major manufacturers of the EPROMs, EEPROMs, flash memory, and flash microcontroller semiconductor devices at issue in this investigation,⁹³ the benefit to Atmel from an exclusion order covering downstream products would appear to be minimal.

As to the incremental detriment to respondents and intervenor, although a broad limited exclusion order of the type sought by Atmel could have a negative effect on respondents and intervenor sales, they provide no direct evidence of such harm. Only Winbond's brief addressed this factor.

[

⁹³ CX8, Q.12; CX262 (WBOOO767); IX140: IX141.

⁹⁴ CX369, Exhibits B and C.

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] However, Winbond has not demonstrated that its accused semiconductors are being used in downstream products which are then imported into the United States, and it therefore provides no direct evidence of harm.

As to the burdens imposed on third parties, a limited exclusion order covering downstream products would force the approximately 550 electronics manufacturers, sellers, and purchasers of the downstream products (3/19/98 ID at 428-34) to identify and segregate those products already manufactured with the infringing semiconductors to ensure they do not enter the United States. Most of the downstream products are encased or packaged, so the device containing the Silicon Signature circuitry is not normally visible without physically opening the product case and inspecting its contents. An Atmel employee took four to six days to disassemble and examine only 23 products. RX 579 at 34-35; CX 401 at 1-3. Atmel concedes that the number of potential downstream products might be very large: "[a]lmost all electronic products contain at least one EPROM, EEPROM, flash memories, or microcontroller device" CX15 at 3. Thus, the burden imposed on third parties would be substantial.

Additionally, the third parties who would be affected by Atmel's proposed relief are not, by definition, parties to this investigation. Those third parties would bear considerable burdens from a limited exclusion order covering downstream products because virtually every one of their products would be subject to Customs scrutiny, even if a certification provision is included in the exclusion order. That kind of burden, given the minimal benefit to Atmel of such an order, was one of the reasons the Commission denied third-party downstream product relief in *EPROMs*. *EPROMs* at 127. Atmel states that EPROMs, EEPROMs, flash memory and flash microcontroller memory devices are incorporated in a wide variety of electronic products, including cellular telephones, computer motherboards, desktop, and notebook computers, modems, hard-disk drives, CD-ROM devices, graphic cards, digital cameras, answering machines, flash cards for digital cameras, laser printers, scanners, fax machine, PCMCIA cards, and DVDs. CX8, Q.15; CX320; CX15, Q.6. Thus, all foreign manufacturers of these and other products would need either to provide certification or to risk delay by Customs.

As to the availability of alternative downstream products, as discussed above, Sanyo and Winbond account for a very small percentage of all EPROMs, EEPROMs, flash memory, and flash microcontroller semiconductor devices manufactured, and there is therefore a wide variety of noninfringing semiconductors available.

As to the likelihood that the downstream products listed by Atmel actually contain the infringing semiconductors, Atmel has failed to show that the imported downstream products it wishes covered by the limited exclusion order contain the accused articles. It is unlikely that any given imported downstream product contains the accused semiconductors because, as noted, the evidence shows that respondents and intervenor do not have a large share of the EPROM or EEPROM markets.

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The manufacturers of EPROMs, EEPROMs, and flash memories that sell such devices around the world include large companies like Intel, Advanced Micro Devices, Fujitsu, Sharp, SGS-Thompson, Texas Instruments, Fairchild, Xicor, Siemens, and Microchip. CX8, Q.12. Thus, the evidence shows that it is highly unlikely that imported downstream products would contain respondents' and intervenor's accused semiconductors.

Finally, we do not believe that Atmel has shown the likelihood that an exclusion order that does not cover downstream products would be evaded. Atmel has provided no evidence that respondents or intervenor would attempt to use some third party's downstream product as a vehicle for its sales.

The *EPROMs* decision also considered whether the complainant's patented technology was essential to the performance of the downstream products. The Commission refused to extend downstream product coverage in *EPROMs* to automobiles, since the infringing product in those automobiles was not essential to the automobiles' performance. *EPROMs* at 127. Similarly, the patented Silicon Signature technology of the '903 patent is not essential to the performance of the downstream products listed by Atmel. RX 523 at 75; Katz, Tr. 1104.

We therefore determine to issue a limited exclusion order for the duration of the '903 patent (until September 18, 2001) that covers infringing semiconductor devices, and circuit boards containing those semiconductors, but not downstream products such as personal computers, disk drives, CD ROM drives, and cellular telephones. The limited exclusion order shall also include a certification provision that gives Customs the discretion as to what imports certification would be required.

Under section 337(f)(1), the Commission has discretion to issue cease and desist orders in addition to, or in lieu of, an exclusion order. The Commission issues cease and desist orders when "commercially significant" inventories of infringing goods are present in the United States. *Certain Pressure Transmitters*, Inv. No. 337-TA-304, USITC Pub. 2392 Comm'n Op. at 37-40 (June, 1991). Atmel bears the burden of proving that respondents or intervenor has a commercially significant inventory in the United States, and that a cease and desist order is appropriate. *Certain Woodworking Machines*, Inv. No. 337-TA-174 (May 1987). The evidence at the hearing indicated that Winbond had [

]and Atmel did not establish that either Macronix or SST maintains significant inventories. The ALJ found that Atmel had not met its burden of demonstrating "commercially significant" domestic inventories, and recommended against issuance of cease and desist orders. He found that the value of the domestic inventories of infringing devices was *de minimis* when compared to Atmel's overall sales of the devices at issue. 3/19/98 ID at 121. While cease and desist orders are advocated by the IA, the paucity of evidence produced by Atmel concerning whether commercially significant inventories exist makes us reluctant to go behind the ALJ's finding that Atmel had not carried its burden on this point. We therefore determine that cease and desist orders should not be issued in this investigation.

THE PUBLIC INTEREST

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The Commission may issue an exclusion order "unless after considering the effect of such exclusion upon the public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers, it finds that such articles should not be excluded from entry." ⁹⁵

The IA submits that the entry of permanent relief in the form of the limited exclusion order would not raise any public interest concerns under section 337(d) (exclusion orders). He asserts that there is no evidence that the U.S. demand for such products could not be supplied by complainant or by non-infringing products from other suppliers. He also asserts that he is not currently aware of any other public interest concern that would militate against entry of his proposed remedial orders.

According to Atmel, entry of its proposed exclusion order would not have an adverse impact on the public health and welfare, competitive conditions in the U. S. economy, the production of like or directly competitive articles in the United States, or U.S. consumers. Atmel contends that its proposed limited exclusion order would not have any adverse impact on the public interest factors because it would exclude only those semiconductor devices that infringe Atmel' s patents and downstream products which incorporate the infringing semiconductor devices. Atmel argues that the record shows that noninfringing substitutes are readily available from numerous suppliers including Atmel, and that Atmel has the production capacity to satisfy the existing U.S. demand for semiconductor devices that it does not currently manufacture. CX 8, at 7, Q12; at 32, Q85; at 33, Q87.

Respondents and intervenor argue that the public interest does not support allowing Atmel to enforce the '903 patent, which they claim is in the public domain. They argue that it is not in the public interest to permit Atmel to enforce the claims of the '903 patent and exclude millions of dollars of semiconductor devices. They contend that competitive conditions in the U.S. economy and the interests of U.S. consumers would be injured by any exclusion order that reduces supply and increases prices, and that exclusion of parts and finished products containing the accused devices would disrupt established supply relationships and consequently markets and prices in the United States.

Macronix argues that Atmel will have difficulty supplying customers without a six to eight week delay if an exclusion order is entered. (RX 257 at SST012391; minimum 6-8 week lead time required to meet increased demand caused by any exclusion order.) In prior cases, Macronix contends, the Commission has declined to grant relief based on public interest grounds when the domestic industry was unable to supply existing demand within a commercially reasonable time, citing *Certain Automatic Crankpin Grinders, Inv. No. 337-TA-60*, USITC Pub. 1022 reprinted at 205 U.S.P.Q. 71, 79-80 (1979).

We are aware of no public interest considerations that should preclude the issuance of the limited exclusion order outlined above. The record indicates that there are numerous designs for

⁹⁵ 19 U.S.C. § 1337(d).

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EPROMs, EEPROMs, flash memory, and flash microcontroller semiconductor devices that do not infringe the claims in issue of Atmel's '903 patent, and the presence of many domestic manufacturers assures continued competition in the U.S. marketplace and an adequate supply of these semiconductor devices to U.S. consumers, regardless of the issuance of a limited exclusion order. Suppliers of non-infringing, non-volatile memory devices, the semiconductor devices at issue in this investigation, include Intel, Advanced Micro Devices, Fujitsu, Sharp, SGS-Thomson, Texas Instruments, Fairchild, Xicor, Siemens, Hitachi, and Microchip. CX 8, at 7, Q. 12; IX 141; IX 140. We therefore believe that the issuance of such an order would not raise any public interest concerns under section 337(d).

For the most part, respondents' and intervenor's public interest arguments relate to the merits of whether the '903 patent is enforceable rather than to the public interest. Additionally, Macronix has not provided persuasive evidence that Atmel would encounter significant delays in filling orders from domestic manufacturers for the products at issue, or that such delays would have any significant impact on the domestic economy in light of the existence of other major semiconductor manufacturers that are licensed under the patents at issue or that can otherwise provide interchangeable products. CX 427 at 16-17.

Thus, we do not believe that the statutory public interest factors preclude the Commission from issuing a limited exclusion order in this investigation.

BONDING

Section 337(j)(3) provides that if an exclusion order is issued respondents may, upon payment of bond, continue to import products subject to exclusion until the expiration of the 60-day Presidential review period. Pursuant to the statute, the bond is to be set at "an amount determined by the Commission to protect the complainant from any injury." 19 U.S.C. § 1337(j)(3).

In his ID of March 1998, the ALJ recommended a bond during the Presidential review period of \$0.50 per semiconductor device. The ALJ based this bond on the testimony of Atmel witnesses to the effect that Macronix, Winbond, and SST sell their accused devices at prices that are [] Accordingly, the ALJ recommended a bond of \$0.50 per device to protect Atmel from injury during the Presidential review period.

In its prehearing brief, Atmel requested a bond rate of \$0.50 per unit of covered products, without regard to whether the products were imported directly or as part of a downstream product. In its posthearing brief, Atmel requested a bond of 30 percent of the entered value of the accused chips when imported directly, and \$0.50 per unit (*i.e.*, per semiconductor device) when imported as part of a downstream product, and it argued in the alternative that a bond of \$0.50 per unit could also be applied to chips imported directly. In subsequent briefing to the Commission, Atmel maintained its position that a 30 percent bond was appropriate for chips and \$0.50 per unit for downstream products, as well as its alternative of \$0.50 per unit for all imported products.

Atmel now contends that the bond should be 100 percent of the entered value for the semiconductor devices imported separately, and \$1.00 per semiconductor device for downstream

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products. Atmel argues that since there is an absence of recent pricing information on the accused semiconductors, a 100 percent bond should be imposed. Respondents and intervenor state that Atmel has failed to demonstrate that any bonding would be appropriate, and argue that only a nominal bond should be required.

The IA argues, based on information submitted by Atmel regarding general price increases since 1998 (Exhibit C to Atmel's July 31, 2000 Review Brief), that the \$0.50 per unit bond recommended by the ALJ in 1998 is inadequate in 2000. According to Exhibit C (at p. 3) of Atmel's review brief, the average selling price for flash memories increased from \$3.35 in 1998 to \$5.19 in 2000, an increase of \$1.84 or 55 percent. The IA recommends that the Commission apply this 55 percent increase to the recommended 1998 bond of \$0.50 per unit, which results in a new bond amount of \$0.78 per unit.

We determine to set the bond at \$0.78 per unit. Atmel has submitted information regarding *general* price increases since 1998 (Exhibit C to Atmel's July 31, 2000 Review Brief) and the \$0.50 per unit bond originally recommended by the ALJ is a proportionally smaller bond than it would have been in 1998. Using Atmel's industry-wide price information, the amount of the bond should be higher than the \$0.50 that was appropriate for the prices in 1998. According to Exhibit C of Atmel's review brief, the average selling price for flash memories increased by \$1.84, or 55 percent. We therefore apply this 55 percent increase to the ALJ's recommended 1998 bond of \$0.50 per unit, and determine that the appropriate bond during the Presidential review period in this investigation is \$0.78 per semiconductor device.

REQUEST FOR STAY OF ANY REMEDIAL ORDER

Respondents and intervenor request that if the Commission finds a violation of section 337, that the Commission stay any remedial order in this investigation order pending appeal to the U.S. Court of Appeals for the Federal Circuit. Respondents and intervenor state that they have a strong likelihood of success on the merits, as detailed in their previous pleadings and briefs to the Commission. They argue that the '903 patent is invalid, not infringed, and unenforceable because of waiver, equitable estoppel, implied license and/or express license, lack of inventorship, and inequitable conduct. Respondents and intervenor also contend that the equities of the case weigh in their favor in that an order excluding their products from the U.S. market would completely shut them out of a very important market and disrupt customer relationships.

There is no provision in either section 337 or the Commission's rules that provides for a stay of Commission remedial orders pending appellate review. However, section 705 of the Administrative Procedure Act ("APA"), 19 U.S.C. § 705, provides that "[w]hen an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review." In general, proceedings under section 337 are subject to the requirements of the APA. Respondents' request could be viewed as a request under Commission rule 210.76(a) that the Commission modify its remedial orders with respect to the date upon which they become effective. Rule 210.76(a) provides that the Commission may modify its orders on any grounds that would permit relief from a judgment or court order under the Federal Rules of Civil Procedure ("FRCP"). FRCP 62(c) provides that federal district

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courts may grant stays pending appeal. The standard for such a stay, however, is essentially the same as the standard applied under section 705 of the APA.

In *Washington Metropolitan Area Transit Comm'n v. Holiday Tours, Inc.*, 559 F.2d 841 (D.C. Cir. 1977); the court ruled that in applying the "if justice so requires" standard of section 705, an agency should apply the standard four-prong test applied by courts in determining whether to grant a preliminary injunction. That test requires the moving party to demonstrate: (1) a likelihood of success on the merits of the appeal; (2) that the moving party will be irreparably harmed absent a stay; (3) that the issuance of a stay would not substantially harm other parties interested in the proceedings; and (4) that the public interest favors issuance of a stay. *Id.* at 843 citing *Virginia Petroleum Jobbers Ass'n v. Federal Power Comm'n*, 259 F.2d 921 (D.C. Cir. 1958). Recognizing that it would be difficult to ask an agency to find that its own decision is likely to be overturned on appeal, however, the *Holiday Tours* court found that the agency need only conclude that it has ruled on "an admittedly difficult legal question" in order to find that the first prong of the test is satisfied. *Id.* at 844-845.

In the present investigation the stay sought by respondents and intervenor is extraordinary. We do not believe there is "an admittedly difficult legal question" for the reasons discussed earlier in this opinion, but even more importantly, if a stay of the limited exclusion order were granted, Atmel would likely be completely denied relief under section 337. In denying a request for a stay pending appeal in *Tractors*,⁹⁶ the Commission stated that "[a] stay pending appeal prejudices the complainant by depriving it, in this case potentially for a year or more, of the relief to which it is statutorily entitled under section 337." *Tractors* at 16. Atmel filed its complaint almost three and a half years ago, on February 18, 1997. At the time of this final decision and the issuance of the limited exclusion order in October 2000, the '903 patent is within a year of expiration, *i.e.*, September 18, 2001. It is quite possible that the Federal Circuit would not decide an appeal by respondents and intervenor until after the '903 patent's expiration; thus, if the Commission were to stay the limited exclusion order issued in this investigation pending appeal, Atmel would be completely foreclosed from any section 337 relief.

Additionally, the limited exclusion order issued in this investigation prohibits the importation of semiconductor devices that infringe the claims at issue of the '903 patent, and circuit boards containing such devices, but not downstream products such as personal computers, disk drives, CD ROM drives, and cellular telephones. [

] CX 15 at 5-6, 12; CX 8 at 11-12; CX 369. Exhibits B and C; CX 108. Thus, we do not believe that a limited exclusion order covering semiconductor devices that infringe the claims at issue of the '903 patent and circuit boards containing such devices, but not downstream products, would "irreparably harm" Sanyo and Winbond. As to domestic intervenor SST, the record indicates that Sanyo and Winbond are not the major manufacturers of

⁹⁶ *Certain Agricultural Tractors Under 50 Power Take-Off Horsepower*, Inv. No. 337-TA-380, Commission Opinion Denying Respondents' Petition for Reconsideration and Motion for Relief Pending Appeal (Public Version, April 24, 1997) ("*Tractors*").

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EPROMs, EEPROMs, flash memory, and flash microcontroller semiconductor devices and there are numerous noninfringing alternatives. CX 8, Q12; IX 140; IX 141.

Finally, granting a stay pending appeal would not promote the public interest. The public interest generally favors the protection of intellectual property rights. One of the principal purposes of section 337 is to afford complainants with expeditious relief. S. Rep. No. 71, 100th Cong., 1st Sess. 128-29 (1987). Granting a stay pending appeal would undermine the purpose of the statutory scheme as designed by Congress. Thus, the type of relief that the respondents and intervenor seek would frustrate the public policy behind section 337, which is to provide U.S. intellectual property holders with rapid relief against unfair import practices. 19 U.S.C. § 1337(a).

We therefore deny respondents' and intervenor's request for a stay of our remedial order pending appeal.

MOTION FOR DISMISSAL OF ATMEL'S COMPLAINT FOR UNCLEAN HANDS AND MOTIONS FOR SANCTIONS AND ATTORNEY FEES

On June 21, 2000, intervenor SST filed a motion to dismiss Atmel's entire complaint, alleging that Atmel had unclean hands. Specifically, SST argued that Atmel's complaint should be dismissed based on (1) the ALJ's determination of inequitable conduct in the PTO correction proceedings concerning the '903 patent and his findings supporting that determination, (2) Atmel's filing of a petition for reconsideration asking the Commission to enforce the corrected patent, and (3) Atmel's simultaneous appeal to the Federal Circuit of the Commission's original decision that Jordan was not the sole inventor of the '903 patent. Respondent Sanyo joined in SST's motion to dismiss Atmel's complaint for unclean hands. The other respondents did not join in the motion. Atmel and the IA opposed SST's motion to dismiss.

In view of our determination that Atmel did not commit inequitable conduct in the PTO proceedings and our determination that the correct inventors are listed on the '903 patent's certificate of correction, we deny SST's motion to dismiss. In addition, we find that Atmel's appeal to the Federal Circuit of the Commission's original decision that Jordan was not the sole inventor of the '903 patent was protective, not frivolous, and that the Federal Circuit was aware of the facts concerning Atmel's appeal when it remanded the investigation to the Commission to consider Atmel's petition for reconsideration. Finally, SST made no showing that Atmel's alleged misconduct concerning the '903 patent infected the other patents asserted in this investigation by Atmel, the '811 and '829 patents, and thus has alleged no basis for dismissal of Atmel's complaint as to those patents. *See, Keystone Driller v. Gen. Excavator*, 290 U.S. 240, 245 (1933).

On June 30, 2000, SST filed a motion for sanctions against Atmel for filing what SST termed "baseless pleadings" in the reconsideration proceedings. On the same date, respondent Sanyo filed a motion for sanctions and attorney's fees against Atmel based on essentially the same grounds. Sanyo's motion was joined by Macronix and Winbond. The Atmel pleadings that formed the basis for the motions include: (1) Atmel's September 12, 1998, Petition for Relief from the Commission's July 9, 1999 Order, which led to the reconsideration proceeding, (2) Atmel's motion for summary

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determination of the inventorship issue filed on March 16, 1999, (3) Atmel's contentions that Gupta and Jordan are joint inventors of the '903 patent, which it made in September 1999 during the reconsideration proceedings, and (4) Atmel's contention that it did not commit inequitable conduct in correcting the inventorship of the '903 patent, which it first asserted in its February 10, 1999, Response to Order No. 44, and continued in its petition for review of the 5/17/00 ID on reconsideration. Respondents and intervenor also request sanctions based on Atmel's alleged discovery abuse in asserting attorney-client privilege and work product protection during discovery and Atmel's filing at the Federal Circuit of an appeal of the Commission's determination that Jordan was not the sole inventor.

Atmel and the IA opposed the motions on the grounds that they are untimely since Commission rules 210.4 and 210.5 require that a motion for sanctions be filed promptly after the alleged justification for sanctions became known. Moreover, they assert that respondents and intervenor did not comply with the "safe harbor" provision of rule 210.4(d)(1), 19 C.F.R. § 210.4(d)(1), which requires that any such motion be served on Atmel at least seven days before it was filed with the Commission. Atmel and the IA also argue that the Commission has no authority to issue sanctions based on allegedly frivolous filings made at the Federal Circuit. They also oppose the motions on the merits.

We deny the motions for sanctions and attorney fees on the merits. Our determination that Atmel did not commit inequitable conduct and our determination that the inventors listed on the '903 patent's certificate of correction are the correct inventors demonstrate that Atmel had an objectively reasonable basis for its positions on inequitable conduct and inventorship. Our decision to review ALJ Order No. 50 indicates our assessment that Atmel had a reasonable basis for its assertion of attorney-client privilege and work product protection. We agree with Atmel and the IA that the Commission has no authority to issue sanctions based on allegedly frivolous filings made at the Federal Circuit.

We also find the motions procedurally defective because Atmel was not served with the motions seven days before they were filed, as required by Commission rule 210.4(d)(1). Moreover, the motions for sanctions and attorney's fees are untimely because they were filed long after the reconsideration 5/17/00 ID issued. The Commission may award sanctions for abuse of discovery and abuse of process to the extent authorized by Rule 11 and Rule 37 of the Federal Rules of Civil Procedure. 19 U.S.C. § 1337(h). The comments to Fed. R. Civ. P. 11 make clear that a motion for sanctions should be filed prior to a decision related to the challenged pleading, paper, or contention, and that sanctions are not to be tied to the outcome of litigation.⁹⁷

⁹⁷ The Commentary to the 1993 Amendments to Fed. R. Civ. P. 11 states in part:

Ordinarily, the motion should be served promptly after the inappropriate paper is filed, and, if delayed too long, may be viewed as untimely. In other circumstances, it should not be served until the other party has had a reasonable opportunity for discovery. Given the "safe harbor" provisions discussed below a party cannot delay serving its Rule 11 motion until conclusion of the case (or judicial rejection of the offending contention).

Appendix A

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**UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.**

In the Matter of

**CERTAIN EPROM, EEPROM, FLASH
MEMORY, AND FLASH
MICROCONTROLLER
SEMICONDUCTOR DEVICES, AND
PRODUCTS CONTAINING SAME**

Inv. No. 337-TA-395

SUPPLEMENTAL VIEWS OF CHAIRMAN BRAGG

While the Commission has reached a "no violation" determination with respect to the '903 patent on the basis of a single dispositive issue, I believe it is appropriate to proceed to the other issues under review with respect to that patent. In recognizing the Commission's power to rest its determination on a single issue when it appears "inevitable and unassailable," the Federal Circuit cautioned that this practice carries a risk of duplicative effort and should be used judiciously.³² Moreover, the court cited precedent from a predecessor court (the U.S. Court of Customs and Patent Appeals) setting forth the precept that "it would be advisable for the Commission to render a decision on all appealable issues presented to it."³³

In view of the deference due to a determination of a federal district court, I view the risk of reversal and remand acceptable with respect to the '811 and '829 patents. Because I have no reason to believe that the inventorship of the '903 patent is not correctible, however, a discussion of the other violation issues with respect to that patent is in order and appropriate.

Therefore, I have further found as follows: (1) there is no basis in law for any contention that the '903 patent is unenforceable due to waiver and implied license by legal estoppel; (2) claim 1 and claim 9 of the '903 patent should be construed as set forth below; (3) the '903 patent is valid; (4) intervenor SST and respondents Sanyo and Winbond infringe the '903 patent, but respondent Macronix does not infringe that patent; and (5) complainant Atmel has established a domestic industry with respect to the '903 patent.

³² *Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984).

³³ *Id.* (quoting *Coleco Industries, Inc. v. United States International Trade Commission*, 573 F.2d 1247, 1252 (CCPA 1978)).

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(A) Whether The '903 Patent Is Unenforceable Due To Waiver And/Or Implied License

The '903 patent discloses auxiliary circuitry for providing identification information that can be obtained by applying an external electrical signal to the chip. SEEQ, the original assignee of the '903 patent, referred to this identification method and associated circuitry as "Silicon Signature."

In 1981, SEEQ proposed to JEDEC,³⁴ a committee of the Electronic Industries Association with responsibility for setting industry standards, that the identification method disclosed in the '903 patent be adopted as a standard. During the period from 1981 to 1984, most companies in the semiconductor industry apparently expected that Silicon Signature would be adopted as an official industry standard, and began behaving as if that assumption was an accomplished fact.

In addition to SEEQ's efforts to promote use of the '903 technology, a manufacturer of PROM programming machines, Data I/O, began advocating its usage in the industry. In cooperation with SEEQ, Data I/O designed its programming machines to exploit Silicon Signature, and began encouraging other semiconductor manufacturers to incorporate it into their chips.

SEEQ's proposal to establish an industry standard was initially evaluated by a group of industry personnel that was designated as the "JC 42.3 committee" of JEDEC. This group studied the matter for a period of approximately six months. Eventually, the JC 42.3 committee recommended the adoption of Silicon Signature as a JEDEC standard. Subsequently, SEEQ sought to represent in the trade press and in its annual reports that Silicon Signature was an industry standard enjoying wide acceptance in the electronics industry. JEDEC never implemented the recommendation of the JC 42.3 committee, however, opting instead simply to establish a set of identification numbers for various manufacturers without reference to the method of implementing the identification in semiconductor products.

During the pendency of JEDEC's evaluation, SEEQ attempted to address concerns about its patent rights in the technology. SEEQ repeatedly stated its willingness to grant a royalty free license to any manufacturer.³⁵ In fact, after JEDEC failed to adopt Silicon Signature as a standard, seven Japanese firms acquired such licenses for modest fees between

³⁴ JEDEC is an acronym for Joint Electronics Device Council.

³⁵ FF 92, 93, 96, 98, 105, 112, 113, 116. A royalty free license connotes a one-time fee, as opposed to a royalty assessed on every product manufactured or sold utilizing the patented technology.

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1985 and 1986.³⁶ In 1994 and 1995, respondent Macronix and complainant Atmel exchanged correspondence regarding a license for a one-time fee, but did not consummate a license agreement.³⁷ SEEQ's offer to make the '903 patent technology available for royalty free licenses was not explicitly qualified in any way until October 1983, when a letter from SEEQ's outside counsel to JEDEC referred to the offer as contingent on the acceptance of Silicon Signature as a JEDEC standard.

It is undisputed that neither SEEQ nor Atmel ever sued anyone for infringement between 1985, when the '903 patent issued, and the commencement of the present investigation in March 1997. In particular, complainant Atmel itself used the patent without license between 1985 and its acquisition of the patent from SEEQ in 1994. While SEEQ and Atmel were involved in several lawsuits during this period, none of them involved the '903 patent.

I am aware of no evidence that either respondents or intervenor heard any of SEEQ's statements before JEDEC in the first instance. Neither respondents nor intervenor points to any evidence that they later became aware of SEEQ's statements before JEDEC prior to making a business decision to incorporate the technology of the '903 patent into their respective products. In fact, there is evidence to the contrary. Intervenor SST was under the false impression that Silicon Signature was an official standard and implemented it in its products without any awareness that the technology was the subject of a patent.

The ALJ found that the totality of SEEQ's conduct in promoting usage of the '903 patent technology amounted to a unilateral, intentional waiver of the patent right. The Commission set forth review questions in an effort to determine whether there is any other legal or equitable basis upon which either respondents or intervenor may claim a right to practice the technology of the '903 patent.

I find no evidence that SEEQ's interaction with JEDEC ever rose to the level of a contractual relationship between those entities. Moreover, no one has pointed to any evidence that SEEQ's negotiations with JEDEC were structured in a way to confer any right to practice the patent, either on JEDEC members, or the industry at large existing at the time of the negotiations, much less respondents and/or intervenor.³⁸ Therefore, unless and until JEDEC approved Silicon Signature as an industry standard, and SEEQ formally renounced or

³⁶ FF 246, 256, 261, 269, 275, 282, 290.

³⁷ FF 316-340.

³⁸ In more recent times, standards boards in the electrical and electronics industries will not agree to consider the establishment of an industry standard covered by a patent unless the patentee agrees *a priori* to provide access to the technology on "a nondiscriminatory and reasonable basis." In this case, however, respondents/intervenor have pointed to no evidence that the negotiations between SEEQ and JEDEC were governed by any such understanding or protocol.

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abrogated its patent rights in that process, the individual members of the industry were on their own insofar as obtaining rights to practice the '903 patent were concerned.³⁹

I further note that the evidence does not support any contention that seeking to have patented technology adopted as an industry standard, without more, gives rise to any kind of implied license or to an estoppel precluding compensation for the use of the technology. There is undisputed evidence in this case that the Intel Corporation's microprocessor chip architecture is an industry standard, but Intel receives compensation for the use of that technology.⁴⁰

This case is also distinguishable from cases where an implied license was found after a patentee deliberately hid the existence of a patent from a standards board in order to have its patent accepted as an industry standard.⁴¹ In this case, there is no industry requirement that anyone employ Silicon Signature to identify their parts. Despite its widespread adoption, the use of the technology of the '903 patent by respondents/intervenor is essentially their choice. Moreover, whatever else SEEQ did before JEDEC, it certainly did not hide the existence of its patent application. SEEQ neither behaved fraudulently before JEDEC nor succeeded in its goal of having its technology accepted as a standard by the industry.

It would appear that SEEQ, during the period in which it was promoting adoption of Silicon Signature, made an offer to grant royalty free licenses to the '903 patent. The ALJ found that this offer was not contingent on establishment of an industry standard.⁴² At least as an initial matter, this finding appears to be correct. Indeed, SEEQ's behavior in granting seven licenses for a nominal fee even after the JEDEC negotiations failed is consistent with this finding.

Respondents and intervenor argue that acceptance of SEEQ's offer for a royalty free

³⁹ Two of the briefs contend that the proper view of the transactions is that SEEQ contracted with the entire industry, of which they are members. In particular, SST characterizes the "offer" made by SEEQ as free usage by the industry provided that JEDEC established a roster of manufacturer identification numbers (which it did). I regard this argument as tenuous at best, and note only that there is no evidence of record that such an offer was ever made. A royalty free license is not, by definition, the equivalent of "free."

⁴⁰ Hearing Tr. 2051:25-2052:12

⁴¹ Cf. *Stambler v. Diebold, Inc.*, 11 USPQ2d 1709 (E.D.N.Y. 1988)(implied license by equitable estoppel where patentee sat on standards board for its industry and resigned without bringing its patent to attention of board, which later adopted infringing standard); *Potter Instrument Co., Inc. v. Storage Technology Corp.*, 207 USPQ 763, 769 (E.D. Va. 1980), *aff'd.*, 641 F.2d 190 (4th Cir. 1981), *cert. denied*, 454 U.S. 832 (1981)(patentee did not disclose patent to standards board which adopted infringing standard with patentee's participation).

⁴² FF 122.

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license could be accomplished simply by incorporating the technology into their products. In support of this assertion, they point to a statement in the JEDEC minutes by SEEQ to the effect that it was willing to place the patent in the public domain so that users would have the right to the technology of the proposed standard without recourse to legal paperwork.⁴³

My view of the offer for royalty free licenses turns on three important considerations. First, there is nothing, either in JEDEC's procedures or in SEEQ's decision to offer such licenses, that legally bound SEEQ (or Atmel) to maintain this posture forever.⁴⁴ Second, an offer for a royalty free license is not, by its own terms, an invitation to use the patented technology free of charge. Both the promotional literature distributed on SEEQ's behalf by Data I/O and the seven royalty free licenses granted to Japanese manufacturers are clear indications that SEEQ expected some remuneration for use of its patent. Thus, acceptance of SEEQ's licensing offer could be accomplished by paying a one-time fee and signing an agreement, not simply by beginning to exploit the patent. The statement on which respondents/intervenor rely, quoted above, is that SEEQ would place the '903 patent in the public domain in the future if the JEDEC standard were established, not that it had already done so. The statement does not pertain to the offer for royalty free licenses, but rather to a further step that SEEQ contemplated it might undertake in the event its proposal was accepted by JEDEC. Paperwork free access to the technology of the '903 patent was similarly contingent and in the future. Third, the offer for a royalty free license, whether contingent or not,⁴⁵ pertains only to those companies who accepted the offer, which does not include respondents/intervenor in this case. They had no knowledge of it.

Thus, I am of the view that respondents/intervenor have no contractual right to practice the '903 patent. To escape liability for infringement, I believe they must show that some equitable doctrine prevents Atmel from enforcing the '903 patent against them.

⁴³ The text of the minutes reads:

Larry Jordan [the putative inventor of the '903 patent] reported that SEEQ would make that portion of their patent pertaining to the Electronic [*i.e.*, Silicon] Signature part of the public domain and therefore all users would have the right to the proposed standard without recourse to any legal or other paperwork.

FF 97.

⁴⁴ Indeed, SEEQ's statements near the end of negotiations with JEDEC that the offer was contingent on acceptance of Silicon Signature as a standard (FF 109, RX355, Attachment E) is a clear signal that SEEQ's licensing offer might terminate.

⁴⁵ This would be a different case if Atmel were arguing that the existing SEEQ licenses are void for failure of a condition subsequent (establishment of Silicon Signature as an industry standard) and that Atmel therefore has the right to enforce its patent against its current licensees.

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My analysis of equitable doctrines begins with *A.C. Aukerman Co. v. R.L. Chaides Construction Co.*, 960 F.2d 1020 (Fed. Cir. 1992)(*en banc*). That case discusses in detail the equitable doctrines of laches and equitable estoppel in the patent context. The plaintiff in *Aukerman* had initially contacted an accused infringer and suggested that he take a license. When the accused infringer declined to take a license, however, the patentee chose to forego litigation since the accused infringer was then a minor player in the market relevant to the patent. Approximately nine years later, the patentee learned that the accused infringer's business in the patented technology had grown considerably, and filed suit for infringement. The accused infringer raised defenses of laches and equitable estoppel, and the district court dismissed the suit on the basis of those defenses.

On appeal, the Federal Circuit held that laches, arising from delay in filing suit, is a bar only with respect to damages accrued prior to suit.⁴⁶ "[M]ore is required in the overall equities than simple laches if an alleged infringer seeks to wholly bar a patentee's claim."⁴⁷ The court went on to describe the requirements for equitable estoppel, which is one of four doctrines that wholly bars enforcement of a patent. Among the requirements to establish a defense of equitable estoppel is that the accused infringer must rely on some misleading communication. In particular, the court stated that in order to prove equitable estoppel, the alleged infringer cannot be unaware of the patent.⁴⁸ It also stated that mere silence on the part of the patentee concerning infringement will not create an estoppel unless there is a clear duty to speak.⁴⁹

The *Aukerman* case has several implications for resolution of the implied license issue in this investigation. First, all of the evidence concerning SEEQ's lack of enforcement of its rights under the '903 patent over the years is irrelevant. Without some conduct by the patentee that affirmatively misleads the infringer, the patentee's inaction concerning infringement can only serve to cut off damages retroactively. It cannot foreclose prospective relief after a complaint has been filed. Second, contrary to the arguments of respondents/intervenor, there is no basis on which an equitable estoppel can be established. Intervenor SST admits it was unaware of the patent prior to being contacted by Atmel in 1994, which, under *Aukerman*, forecloses the possibility of an equitable estoppel arising, at least with respect to that party.⁵⁰ Furthermore, in response to the Commission's review questions, neither respondents nor

⁴⁶ 960 F.2d at 1041.

⁴⁷ 960 F.2d at 1040.

⁴⁸ 960 F.2d 1042.

⁴⁹ 960 F.2d at 1043.

⁵⁰ In view of the analysis that follows, it is unnecessary for me to consider the implications arising from the fact that certain of the respondents act as foundries for SST.

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intervenor pointed to any evidence that they were aware of any of the statements on which they now rely before deciding to incorporate Silicon Signature into their products. In fact, there is evidence that intervenor SST and respondent Macronix were unaware of those statements.⁵¹ This fact forecloses the type of detrimental reliance that can support equitable estoppel, as contemplated by *Aukerman*. An infringer cannot detrimentally rely on a statement or representation of which it is unaware.

Neither respondents nor intervenor points to any evidence of statements or conduct on the part of SEEQ that was directed particularly to them. Instead, all rely on SEEQ's conduct toward "the industry" to support claims of equitable estoppel. Intervenor SST and respondent Winbond point specifically to the impressions of SST employees.⁵² Essentially, respondents/intervenor seek to rely on a general, albeit false, impression in the industry that the Silicon Signature technology was an industry standard. I am aware of no precedent for reliance on this type of general impression that is "in the air," as opposed to specific statements by the patentee to the accused infringer. I also find no indication that the Federal Circuit is disposed to enunciate such a new principle of law, one which it seems to have avoided in the past.⁵³

SST and Macronix argue that SEEQ's silence after the rejection of its proposal by JEDEC amounts to misleading conduct. Macronix additionally argues that SEEQ never withdrew its offer for royalty free licenses in a manner commensurate with the industry wide publication by which the offer was allegedly made. In view of the widespread adoption of Silicon Signature in response to SEEQ's promotion of the concept, both before JEDEC and in the marketplace, they contend that SEEQ had a duty to speak if it intended to enforce the

⁵¹ Hearing Tr. at 2013:20-2014:7 (Yui); 1982:22-1983:1-1984 (Yeh); RX 363.

⁵² To briefly summarize, Bing Yeh, the founder of SST had previously worked in the semiconductor industry for ten years, during which time he became aware of the widespread use of Silicon Signature, and was under the impression that JEDEC had adopted it as an industry standard. Additionally, Ping Wang, a circuit designer for SST, stated that in his experience he had never known SEEQ to assert any patent claims related to Silicon Signature and was unaware of any claims of ownership of "that standard." The ALJ characterized this testimony as establishing "that a relationship existed between SEEQ and SST, *through JEDEC*," and concluded that a license had been granted within that relationship. (ID at 39-40)(emphasis added). Winbond, as a foundry for SST, argues that it should get the benefit of any implied license by equitable estoppel obtained by SST.

⁵³ See *Wang Laboratories, Inc. v. Mitsubishi Electronics*, 103 F.3d at 1575, 1581-1582 (Fed. Cir. 1997) (court did not rely, as basis for equitable estoppel, on fact that Wang, in persuading JEDEC to adopt its design as industry standard, falsely stated it was not seeking patent rights and no license agreements would be involved; court instead focused on bilateral relationship between Wang and accused infringer).

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patent after the rejection of its proposal for a standard.

The answer to these arguments is twofold. First, SEEQ did indicate, near the conclusion of its negotiations with JEDEC, that its offer of royalty free licenses was contingent on acceptance of Silicon Signature as an industry standard.⁵⁴ While these statements might not be effective against anyone that had relied on its unconditional statements up to that point, it is fair warning to anyone viewing the totality of the record years later. SEEQ's final statements concerning the contingent nature of its offer are as public and accessible as some of those by which respondents/intervenor seek to find a waiver and/or estoppel. Second, no silence of SEEQ/Atmel was a factor in misleading respondents or intervenor, one of which was unaware of the very existence of the patent at the time it was making a business decision to practice the patented technology. If there was some duty to speak further, respondents/intervenor do not have standing to complain about SEEQ/Atmel's failure to perform that duty. That some of them were misinformed as to the existence of an industry standard is not the result of misleading conduct on the part of SEEQ/Atmel.

More recently, the Federal Circuit, surveying cases and commentators, has identified four "avenues to an implied license." *Wang Laboratories, Inc. v. Mitsubishi Electronics*, 103 F.3d 1571, 1580 (Fed. Cir.), *cert. denied*, 118 S. Ct. 69 (1997). None of the cases from which these four avenues were derived, however, involve anything other than bilateral transactions between the patentee and the putative licensee.⁵⁵

So far as the record discloses, respondents/intervenor did not even exist at the time the negotiations with JEDEC occurred.⁵⁶ Furthermore, neither respondents nor intervenor points to any evidence of record that they reviewed or were even aware of the statements made by SEEQ before JEDEC. The only conduct of the patentee toward either respondents or intervenor is eleventh-hour negotiations for a license under the patent.⁵⁷ Thus, there does not appear to be any conduct toward either respondents or intervenor upon which an implied license could be grounded. This fact presents a fundamental problem in finding any implied license of the '903 patent rights with respect to these parties.

The ALJ found that intervenor SST had an implied license by legal estoppel. According to *Wang*, a patentee is legally estopped from enforcing its patent if it licenses or assigns a patent, receives consideration, and thereafter seeks to derogate from the right

⁵⁴ FF 112, 116.

⁵⁵ This includes the so-called "doctrine of acquiescence," which Macronix raises in its review brief. Macronix seeks to extend this doctrine far beyond the rather narrow set of cases from which it was derived.

⁵⁶ FF 315, 354. I also take administrative notice that the Internet website of respondent Winbond states that it was not established until 1987.

⁵⁷ FF 316-340.

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granted.⁵⁸ In this case, there was no grant of a license with respect to any of the respondents or intervenor SST.⁵⁹ Furthermore, I do not believe that the widespread *ad hoc* adoption of the technology by the industry after initiation of negotiations between SEEQ and JEDEC can serve as consideration. JEDEC had no control over how rapidly the technology might be accepted in the industry during the pendency of its review of SEEQ's proposal. The parties could not possibly have bargained for such an outcome; it is a fortuity.⁶⁰ Therefore, the facts of this case do not support a finding of legal estoppel.

In addition to analyzing established doctrines of implied license, the ALJ applied contract principles of unilateral waiver. Except for a statutory procedure that was not employed in this case,⁶¹ there appears to be no law providing that a patentee's unilateral conduct can effectively dedicate its patent to the public. No party has cited any case involving a waiver of a patent right, as that term was used by the ALJ, and I know of none. Rather, the case law speaks uniformly in terms of implied license.

Application of the facts in this investigation to the ALJ's waiver analysis is also problematic. The next section of *Corpus Juris Secundum*, which is the authority cited by the ALJ, states that waiver by implication is not favored,⁶² and that such waiver will not be inferred from doubtful or ambiguous facts. Most of SEEQ's statements before JEDEC state a

⁵⁸ 103 F.3d at 1581.

⁵⁹ If Atmel sought to enforce its patent against one of its seven licensees, claiming a failure of a condition subsequent (obtaining an official JEDEC standard), those facts might present a case of legal estoppel.

⁶⁰ The ALJ, following a jury instruction recited in *Wang*, perceived a further requirement that there be an existing relationship between SEEQ and SST. He found that there was such a relationship *through JEDEC*. I do not read *Wang* to set forth such a requirement. Examination of the subordinate findings supporting the ALJ's conclusion, however, reveals only that the founder of SST, Bing Yeh, had a mistaken impression that Silicon Signature was an industry standard. This impression was gathered not from any familiarity with or review of the proceedings before JEDEC, but from his own experience with a former employer. (FF 357-359). Assuming such a bilateral relationship is a requirement, the facts of this case also do not support the ALJ's conclusion. There is no relationship between SEEQ/Atmel and SST, through JEDEC or otherwise.

⁶¹ 35 U.S.C. § 253 provides that a patentee may formally dedicate a patent to the public by filing appropriate papers with the PTO.

⁶² C.J.S. § 68.

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willingness on the part of the patentee to grant "a royalty free license."⁶³ By definition, a royalty free license does not imply an invitation to use the technology free of charge; the patentee has reserved the right to charge a one-time license fee. Furthermore, a license is a bilateral agreement that must be effected between the patentee and the licensee. It unclear to me – even assuming that SEEQ's statements were not contingent on JEDEC acceptance of the patentee's proposal – how these statements may be taken to signal an intention by SEEQ to give up the patent rights entirely.⁶⁴

A more fundamental difficulty with the ALJ's waiver concept is the strong implication of leading Supreme Court and Federal Circuit patent cases that the concept of implied unilateral waiver does not exist. An early case of the United States Supreme Court, cited by the ALJ, sets forth an important qualification that permeates all implied license analyses, which is the only basis in law for derogation of a patent right:

[implied license requires] language used by the owner of the patent, or any conduct on his part *exhibited to another* from which *that other* may properly infer that the owner consents to his use of the patent ... *upon which the other acts*, constitutes a license and a defense to an action for a tort.

DeForest v. United States, 273 U.S. 236, 241 (1927)(emphasis added). It is evident from this passage that licenses are not granted unilaterally to the public at large, but bilaterally to specific entities based on the patentee's conduct toward that particular entity.

Taken together, the *Aukerman* and *Wang* cases also seem to foreclose the possibility of unilateral waiver of the type found by the ALJ. The principle set forth in *Aukerman* is that mere neglect of one's patent rights does not result in a bar to prospective relief, absent some

⁶³ I am aware that at one point in the proceedings before JEDEC a representative of SEEQ is reported to have said words to the effect that the patent "was in the public domain." (FF 105). Two things should be noted about this alleged statement. First, assuming it was made, it evidently did not satisfy the concerns of those present on the JC 42.3 committee of JEDEC. The negotiations eventually broke down because the status of the patent rights were not sufficiently clear to the JC 42.3 committee members. (FF103). Second, the statement would have effect only as to those who were aware of it. See *generally* Restatement (Second) of Agency §§ 8, 27 & cmt. b (1958)(apparent authority of an agent to bind principal operative only as to those who learn of the representation).

⁶⁴ Even assuming that a waiver of the patentee's right to sue for infringement in a U.S. district court occurred, there is no evidence that the patentee's right to file a section 337 complaint against importation of infringing devices was ever discussed or contemplated. Actions under section 337 are separate and distinct from actions for patent infringement. 19 U.S.C. § 1337(a)(1).

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misleading and hence inequitable conduct directed specifically to the accused infringer on which the infringer is entitled to rely.⁶⁵ That reliance is simply not present with respect to respondents/intervenor in this investigation. While the *Wang* case describes ways other than equitable estoppel to obtain an implied license, all of them are grounded on conduct by the patentee directed specifically toward the accused infringer. In the absence of such conduct, Atmel is not barred from altering previous enforcement practice and asserting its patent rights prospectively against these respondents and intervenor.

(B) The Appropriate Claim Construction With Respect To The '903 Patent

(1) Primary Circuit

The '903 patent presents an instance where the patentee explicitly defined one of the critical disputed claim terms, both generally and specifically, with respect to a non-volatile memory chip. In the "Summary of Invention" section of the patent, the patentee stated that memory devices containing the identification information "are placed adjacent that portion of the chip which performs the primary function of that circuit." Col. 1, lines 66-69. This language generally indicates that the claim term "primary circuit" means the circuitry that performs the primary task for which the semiconductor chip is designed, and excludes the auxiliary circuitry that is added to furnish the identification capability.

With respect to a non-volatile memory chip, the specification even more specifically defines the primary circuit:

It is necessary that the data stored in the product information array 30 not interfere with the normal operation of the primary circuit on the chip, *i.e. the memory array 12 and associated decoders, gates and buffers.*

col. 3, lines 34-37 (emphasis added). This passage demonstrates that the patentee included everything but the product information array and the access circuitry in the definition of "primary circuit," and I find that this explicit definition of the patentee controls over any other meaning that might be attached to the claim term.⁶⁶

⁶⁵ The facts of this case suggest an attempt by respondents/intervenor to take what is essentially a laches defense and bootstrap it into prospective relief, which *Aukerman* holds to be impossible. The only remedies available under section 337, of course, are exclusion orders and cease and desist orders, both of which are forms of prospective relief.

⁶⁶ *Boehringer Ingelheim Animal Health, Inc. v. Schering-Plough Corp.*, 984 F. Supp. 239, 246 (D.N.J. 1997) ("where the patentee's meaning is clear, the court must adopt the special
(continued...)

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In addressing this passage, however, the ALJ found that, from a grammatical standpoint, at least one comma is missing from the passage, viz., the comma that should have been inserted after the term "i.e." He went on to find that a second comma should be inserted after the term "memory array 12," which would render the passage consistent with his interpretation that the primary circuit includes only the main memory array. Insertion of this missing comma creates two equally plausible interpretations of the claim term, he reasoned, and it was, therefore, appropriate to select the narrower interpretation.⁶⁷ (ID at 75).

I disagree with this analysis. That one comma may be missing in contradiction of some canon of punctuation does not, in my view, warrant inserting another comma in a different place, thereby changing the substantive meaning of a passage – particularly in a situation where the patentee's meaning is clear.⁶⁸

The ALJ's reasoning seems to have been based on the precept that, ordinarily, no circuit component can be part of two or more claim elements. Citing *In re Kelley*, 305 F.2d 909, 914 (CCPA 1962), the ALJ stated that a single structural element can be included in two separate claim elements only if it performs two separate functions. Having found that the specification of the '903 patent included the decoders in the access means, the ALJ found that nothing in the specification delineated how the access means could perform the claimed function of preventing access to the primary circuit if portions of the access means are included in the primary circuit. (ID at 71). The foregoing reasoning, however, contains both an error of law and an error of fact.

The *Kelley* case is an incomplete statement of the law. The dual function exception to the double recitation rule is but one of several exceptions. A more complete statement of the law of double recitation is found in *Palmer v. United States*, 423 F.2d 316, 319 (Ct. Cl.), *cert. denied*, 400 U.S. 951 (1970)(emphasis added):

double recitation of elements of inventions does not necessarily render a claim vague and indefinite, *particularly if the claim is drafted in terms of means clauses* under 35 U.S.C. §112, *or if an element performs more than one function or overlapping functions.*

⁶⁶ (...continued)

definition of the term.") (citing *Vitronics, supra*, 90 F.3d at 1582 ("a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history.")).

⁶⁷ *Athletic Alternatives v. Prince Mfg. Co.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996); *Ethicon Endo-surgery, Inc. v. U.S. Surgical Corp.*, 93 F.3d 1572, 1581 (Fed. Cir. 1996).

⁶⁸ See, e.g., *Becton Dickinson and Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 799 n.6 (Fed. Cir. 1990) ("Nothing in any precedent permits judicial redrafting of claims.")

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This passage suggests that inclusion of components⁶⁹ in two or more claim elements is not only permissible in the context of means plus function claim elements, it is to be expected.

Furthermore, the ALJ's conclusion that the specification placed the decoders in the access means appears to have been based on a misreading of the patent. The portion of the patent specification quoted by the ALJ reads as follows:

The *access to the memory* referred to above is provided through column decoder 14, row decoder 16 and column address gating 18, with the output from the array being presented via an output buffer 20.

Col. 2, lines 62-65 (emphasis added). In quoting this passage in FF 463, however, the ALJ inadvertently inserted the word "means" after the word "access," thereby changing the meaning of the passage. In the quoted passage, I find that the drafter of the '903 patent was merely describing the signal flow to access a particular location in memory. The passage has nothing to do with the *access means*, which is the circuitry that performs the claimed function of receiving external signals and selecting either the primary circuit or the product information array.

Thus, the ALJ's construction of the term "primary circuit" cannot be sustained. I conclude that the term "primary circuit" means any circuitry present in an integrated circuit chip before the addition of the rest of the circuitry that implements the invention.

(2) Product Information Array

The critical claim term to be construed in this element is the word "adjacent" in "product information array disposed on the semiconductor chip adjacent said primary circuit." The ALJ, referring to the preferred embodiment, found that it requires the product information array to be an extra row in the main memory matrix. I believe this finding to be an erroneous conclusion of law because it ignores the patentee's controlling definition of the primary circuit,⁷⁰ and it imports limitations into the claim from the preferred embodiment, which is

⁶⁹ In some cases, courts and parties use the term "element" to describe a component, which may have several elements or limitations in a patent law sense. "Element" may be used to mean a single limitation, but it has also been used to mean a series of limitations which, taken together, make up a component of the claimed invention." *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1259 (Fed. Cir. 1989).

⁷⁰ The primary circuit is all the circuitry making up the memory device, not merely the memory matrix. Therefore, requiring the product information array to be adjacent a particular component of the primary circuit is overly restrictive.

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generally impermissible.⁷¹

As the ALJ noted, the ordinary and accustomed meaning of "adjacent" is "close to; lying next to; lying near; adjoining." (ID at 78). All of these definitions indicate that the primary circuit and the product information array must be approximately contiguous. There is no suggestion in any of the meanings of this term that the two circuits may overlap. Use of the term "not interspersed" in the claim construction proposed in the review notice was intended to convey the notion that the product information array may not be simultaneously within and without the primary circuit.

It is for this reason that the Commission declined to review the ALJ's finding that claims 2-8 of the '903 patent are invalid. Claim 2, from which claims 3-8 depend, requires that the primary circuit be redefined to include only the memory matrix, which contradicts the explicit definition set forth in the specification. Furthermore, claim 2 requires that the product information array be *within* the primary circuit as properly defined, while claim 1 requires it to be adjacent or *without* the primary circuit. These claims are therefore fatally indefinite.

Upon review of the briefs, I am persuaded that the IA is correct that the word "interspersed" carries unintended connotations suggesting that the product information array needs to be broken up in order to be outside the meaning of the claim term. Clearly, a product information array could be a unified array and yet be placed within the primary circuit, which would violate the clear meaning of the term "adjacent." I would therefore modify the claim construction set forth in the notice of review by substituting the phrase "not overlapping" for "not interspersed" in order to more closely reflect the intended meaning of the term "adjacent." I interpret the term "adjacent" to mean that the memory devices necessary to contain the claimed product information are fabricated on the same integrated circuit chip as the primary circuit, lying near or next to the primary circuit, but not overlapping with the primary circuit.

Without citation to the specification or any other authority, Atmel argues that "adjacent" merely requires "that the product information array as a whole need only be 'near' some circuitry that is included in the primary circuit." (Atmel Br. at 173). It also argues that "adjacent" should be interpreted to mean "electrically near."⁷² I disagree with these proffered interpretations. There is no evidence that the meaning of the term "adjacent" may be expanded in this manner; indeed, Atmel's suggestion seems to contradict the plain meaning of the term. If the claim drafter's intent was to include all arrangements near any portion of the primary circuit, he could and should have written "product information array adjacent the primary

⁷¹ *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 867 (Fed. Cir. 1985). See also *American Permahedge, Inc. v. Barcana, Inc.*, 105 F.3d 1441 (Fed. Cir. 1997); *Electro Medical Systems v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1054-55 (Fed. Cir. 1994); *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 987 (Fed. Cir. 1988).

⁷² Atmel points to expert testimony that a circuit designer regards any location that adds an inordinate amount of capacitance to the output lines as being non-adjacent.

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circuit or any portion thereof." I also disagree with Atmel's definition based on the capacitance of the output line. The ALJ found that "adjacent" is not a term of art.⁷³

(3) Access Means

Since this element is drafted in means plus function form, special rules of interpretation must be observed. At this stage of the analysis, it is necessary to identify, and if necessary, to interpret the function identified in the claim element. Comparison of the particular means disclosed in the specification with that present in an accused device to determine if the structures are equivalent is part of the infringement analysis to follow.⁷⁴

"To meet a means-plus-function limitation literally, an accused device must (1) perform the *identical function claimed* for the means element, and (2) perform that function using the structure disclosed in the specification or an *equivalent structure* [citations omitted]."⁷⁵ Two things are evident from the *Intel* case. First, an infringement analysis in a means plus function context is a two step inquiry, in which the threshold question is whether the identical claimed function is performed in the accused device. The Federal Circuit has repeatedly employed this two pronged analysis.⁷⁶ Second, the function(s) that must be performed identically are defined by the claim language.

It follows that "*the first step* in interpretation of the [means plus function] claim is determination of the meaning of *the words used to describe the claimed function*, if such meaning is in dispute."⁷⁷ For this reason, the Commission first asked the parties to assume a

⁷³ FF 491.

⁷⁴ Several of the briefs erroneously suggest that the construction of certain disputed terms set forth in the review questions somehow disregards the structural analysis demanded by 35 U.S.C. § 112 ¶6. The review questions were structured to follow the requirements of section 112 ¶6, by addressing the issues in the order that is implicit in the statute and that the Federal Circuit has explicitly instructed us to follow.

⁷⁵ *Intel Corp. v. U.S. International Trade Commission*, 946 F.2d 821, 841 (Fed. Cir. 1991)(emphasis added).

⁷⁶ See, e.g., *Serrano v. Telular Corp.*, 111 F.3d 1578, 1582-83 (Fed. Cir. 1997)(more recent application).

⁷⁷ *Multiform Dessicants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1479 (Fed. Cir. 1998)(emphasis added); See also *Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 1998 WL 239335 at *3 (Fed. Cir. 1998)("determination of the claimed function [is] a matter of construction of the specific terms in the claim"); *Valmont Industries, Inc. v. Reinke*
(continued...)

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meaning for certain disputed terms critical to defining the claimed function. The Commission then asked the parties to analyze their accused devices, first from the standpoint of whether the identical function is performed, and second from the standpoint of whether the particular means employed is at least an equivalent of that disclosed in the patent specification.⁷⁸

In this instance, the access means element claims three functions: (1) receiving a first signal that causes the access means to select the primary circuit, (2) receiving a second signal by means of a logic means that causes the access means to select the product information array, and (3) "preventing access" to the primary circuit while the product information array is selected. These claimed functions define the threshold inquiry of the infringement analysis.

Both Atmel and the IA correctly point out that defining first and second signals as including zero or the absence of any input sweeps too broadly. This overbreadth creates validity problems, which should be avoided in claim construction.⁷⁹

The '903 patent teaches an overvoltage detection circuit that selects the output of either the product information array or the primary circuit, depending on whether a signal greater than the ordinary range of the power supply circuit is received. Therefore, the term "first and second signals" must be interpreted to require that one of the signals be in excess of the ordinary range of the power supply voltage of the semiconductor chip.

For a proper understanding of the third claimed function, one must interpret the term "preventing access." Some of the briefs argued that access to the primary circuit is not prevented in one circuit or another if it is possible to trace an electrical signal from any other claimed element into the primary circuit. It is important to remember, however, that the purpose of the invention is to enable a user to read either the data in the main memory or the product identification information by electrical interrogation of the integrated circuit chip. Allowing the information from both circuits to flow to the output pins at the same time would, at a minimum, yield unintelligible information, and perhaps even destroy the internal circuit devices.

In view of the foregoing facts, the patent drafter could not have intended the phrase "preventing access to said primary circuit" as setting up a barrier around the primary circuit across which no electrons from any other claimed element can penetrate. Rather, the access that is prevented is external access to the data contained within the memory matrix.

⁷⁷ (...continued)

Mfg. Co., Inc., 983 F.2d 1039, 1042 (Fed. Cir. 1993) ("The accused device must also perform the identical function *as specified in the claims.*") (emphasis added).

⁷⁸ This sequence is established in the questions dealing with the '811 and '829 patents, which are a matched triplet, and is implicit in the questions dealing with the '903 patent, which simply inquire about infringement.

⁷⁹ See, e.g., *Carman Industries, Inc. v. Wahl*, 724 F.2d 932, 937 n.5 (Fed. Cir. 1983) (claims should be construed, if possible, so as to sustain their validity).

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In order to suppress the output of the primary circuit in this manner, either a high or low logic signal must be received by a component of the primary circuit, typically a logic gate whose function is to suppress access to output leads. Thus, one can always trace some signal from the logic means into the interior of the primary circuit. That signal may even proceed through intermediate components of the primary circuit, such as logic gates and decoders, before reaching the internal component that suppresses the output of the memory array. Arguments that such "access" to the primary circuit negates infringement are inconsistent with a proper understanding of the claimed function of suppressing the output of the primary circuit.

(4) Output Means

The claim language speaks in terms of "providing signals *representative of the information stored,*" (emphasis added), which suggests some transformation occurs in the stored information. In view of this language, I believe the term "output means" should be interpreted to include only the output drive circuitry that transforms the signals constituting the stored information into a form suitable for interfacing with circuits external to the chip.

Some of the briefs argue as though the output means includes every component through which the output data signals pass as they proceed from the product information array to the output pins. Such arguments lose sight of the words used to describe the claimed function of providing representative signals. See *Chiuminatta, supra*, 1998 WL 239335 at *3 (structural aspects not related to recited function not part of claimed means).

(C) Whether The '903 Patent Is Valid Under The Above-Described Claim Interpretation

Several briefs argue that if the '903 patent is interpreted as set forth in the review notice, it is invalid by anticipation based on three patents: U.S. Letters Patent 4,055,802 to Panousis ("the Panousis patent"), U.S. Letters Patent 4,268,911 to Bell ("the Bell patent"), and U.S. Letters Patent 4,344,155 to Mollier ("the Mollier patent"). Winbond additionally argues that the '903 patent would be invalid as obvious in light of a combination of the Panousis patent, either U.S. Letters Patent 4,250,570 to Tsang or U.S. Letters Patent 3,753,244 to Sumilas, and the [[]].

(1) The Panousis Patent

The Panousis patent discloses two methods of obtaining identification information from a ROM chip. The first method is simply to place identification information in a row of memory and read it out with conventional addressing techniques. The second method uses transistors connected between the input address leads and ground. When the power supply leads are grounded, a negative voltage may be applied to the address leads and either one or two diode drops may be read by means of external resistors in a voltage divider network, or by

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means of an external voltmeter.

Neither of the Panousis methods anticipates the '903 patent under the Commission's claim construction, for several reasons. First, without a circuit layout diagram, which is not disclosed in the Panousis patent, it is impossible to assess the adjacency relationship between the putative information array and the primary circuit. Second, in the transistor configuration, there is no output means that furnishes a representative signal capable of driving any logic device, as required by the correct claim construction. Indeed, one cannot even read the output of the transistor array without external circuitry, and such voltage as there is on the input address pins is not a 5 volt logic signal employed by the chip in normal operation. Furthermore, the diode networks have very little current drive capability -- certainly not enough to match the output drive specifications of the ROM chip, as required by the Commission's claim construction. Third, there is no access means including logic circuit means as taught by the '903 patent in either method disclosed in Panousis. Even assuming that the diode and voltage divider network could somehow be considered a logic circuit, it could not be considered an equivalent structure to the logic gates employed in the '903 patent. In the other method taught by Panousis, there is no logic circuit making any decision as to whether to access the information array or the primary circuit. Rather, the information is accessed through the address pins, like any other location in memory.

(2) The Bell and Mollier Patents

If neither the first nor the second input signal referred to in the '903 patent claims were required to exceed the normal power supply voltage, then the IA might be correct that both the Bell and Mollier patents anticipate those claims as construed in the review notice.⁸⁰ What most clearly differentiates the '903 patent from the Bell and Mollier references is the high voltage detection circuit disclosed in the '903 patent. There is no high voltage detection circuit or its equivalent in Bell or Mollier. Therefore, there is no anticipation of the '903 patent by Bell or Mollier under the correct claim construction, which requires that one of the signals received by the access means employ a voltage in excess of normal power supply voltage.

Winbond's obviousness analysis based on a combination of several references fails because it is impermissible to combine references without some teaching, motivation, or suggestion in the references themselves to make the combination.⁸¹ Winbond points to no such

⁸⁰ Again, however, there is no circuit layout in Bell or Mollier to allow us to determine the adjacency relationship between the primary circuit and the product information array.

⁸¹ *In re Gorman*, 933 F.2d 982, 986 (Fed. Cir. 1991) (and cases cited therein). *See also Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir.), *cert. denied*, 498 U.S. 920 (1990) (insufficient that prior art disclosed components of patented device either
(continued...))

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teaching, motivation, or suggestion. It simply employs hindsight to argue that the combination could have been made.

(3) Conclusion

I conclude that the '903 patent, as interpreted according to the claim construction described above, is valid. None of the prior art references cited in the briefs anticipates the invention, and no combination of those references renders it obvious.

(D) Whether The Accused Devices Infringe The '903 Patent

SST does not contest infringement. It does not appear on the record that SST itself manufactures any of the accused devices.

Sanyo contends before the Commission that its circuits do not infringe the '903 patent claims at issue as interpreted by the Commission, and that Atmel presented no evidence of the layout of any of its devices. Sanyo also correctly asserts that its expert witness never admitted that its circuit layouts are identical to those of SST's devices.

In my view, Sanyo is precluded from raising these arguments at this juncture, however, by reason of the ALJ's groundrules under which the trial was conducted below. Judge Luckern's Rule 8(d) reads as follows (emphasis in the original):

[Each pre-hearing brief shall contain a] statement of the issues to be considered at the hearing that sets forth *with particularity* a party's contentions on each of the proposed issues, including citations to legal authorities in support thereof. Any contention not set forth in detail as required herein shall be deemed abandoned, or withdrawn, except for contentions of which a party is not aware and could not be aware in the exercise of reasonable diligence at the time of filing the pre-hearing statements. Pursuant to this requirement, each of the parties *and the staff* shall take a position on the issues it is asserting no later than the filing of its prehearing statement.

Examination of Sanyo's pre-hearing brief reveals that the only statement contained therein relating to infringement is a statement attempting to incorporate by reference the other respondents' positions on infringement. Such reliance by incorporation of other parties'

²¹ (...continued)

separately or used in other combinations; must be teaching, suggestion, or incentive to make combination made by inventor).

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positions hardly constitutes setting forth an issue "with particularity."⁸² Moreover, it is difficult to see how Sanyo can simply adopt other respondents' defenses to infringement if Sanyo's accused devices are different from the other respondents' accused devices, as Sanyo now asserts. While Atmel normally bears the burden of proof with respect to infringement, the ALJ's groundrule establishes that this burden accrues only with respect to issues set forth with particularity in the pre-hearing briefs.

The ALJ's groundrule is a salutary means for focusing the issues for trial, and for encouraging respondents to think through their arguments and formulate them with particularity before trial. This is especially true with respect to respondent-specific defenses like infringement. I therefore conclude that Sanyo has waived any right to contest infringement.

The accused Winbond devices store the product information [[]]⁸³ [[]]⁸⁴ [[]]

]] Contrary to Winbond's assertions, there is evidence that Winbond's devices contain circuits that are at least equivalent to the circuits of the '903 patent for the access means and the output means.⁸⁵ Since this evidence is essentially un rebutted,⁸⁶ I find that Winbond infringes the '903 patent.

It is clear from the layout drawings of the accused Macronix devices,⁸⁷ however, that the memory devices constituting the product information array [[]]

]] For this reason, I find that Macronix does not infringe the '903 patent.

⁸² Sanyo should not be heard to argue that it could not have anticipated the Commission's claim construction, and thus should be excused from the effect of the ALJ's groundrule. The very claim language in this case makes it obvious that the circuit layouts of the accused devices would be an issue, regardless of the construction of particular claim terms.

⁸³ Referring to a Sanyo document, [[]]

⁸⁴ RPX 17 and RPX 18.

⁸⁵ CX50; CX86; CX127 at 1-15.

⁸⁶ Winbond's comments in its reply brief are addressed to the ALJ's claim construction, not the proposed claim construction of the review notice.

⁸⁷ RX230, RX416, and RPX58B

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(E) Whether Atmel Has Established A Domestic Industry With Respect To The '903 Patent

Section 337 requires, as a condition of relief, that a domestic industry exists that exploits the patent at issue.⁸⁸ Satisfying any of three statutory criteria establishes the requisite domestic industry.⁸⁹

The domestic industry requirement is written in the present tense, and therefore requires that the domestic industry either currently exist or be in the process of being established. This requirement is jurisdictional. The date for determining whether the industry exists is the filing date of the complaint.⁹⁰

The domestic industry requirement of section 337 has two prongs: the *technical prong*,

⁸⁸ The pertinent statutory language is as follows:

(2) [The prohibitions of the statute] apply only if an industry in the United States, relating to the articles protected by the patent, copyright, [registered] trademark, or mask work concerned, exists or is in the process of being established.

(3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, or mask work concerned -

(A) significant investment in plant and equipment;

(B) significant employment of labor or capital; or

(C) substantial investment in its exploitation, including engineering, research and development, or licensing.

19 U.S.C.A. § 1337(a)2-3 (West 1998 Supp.).

⁸⁹ *Certain Integrated Circuit Telecommunications Chips and Products Containing Same, Including Dialing Apparatus*, Inv. No. 337-TA-337, USITC Pub. 2670, Initial Determination at 94 (Aug. 1993).

⁹⁰ *Texas Instruments v. United States International Trade Commission*, 988 F.2d 1165, 1181 (Fed. Cir. 1993); *Bally/Midway Mfg. Co. v. United States International Trade Commission*, 714 F.2d 1117, 1121 (Fed. Cir. 1983).

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and the *economic prong*. The former requirement is that the patent claims cover the articles of manufacture relied on to establish the domestic industry, i.e., that the complainant be practicing its own patent(s). The latter requirement is that one or more of the economic activities specified in section 337(a)(3)(A)-(C) be in place with respect to the articles identified by the technical prong.

The ALJ's finding that the Atmel AT29 parts practice the '903 patent⁹¹ is sufficient to satisfy the domestic industry requirement with respect to that patent. This finding is not challenged in any of the review petitions.

The ALJ further found, with respect to the '903 patent, that the technical prong of the domestic industry requirement is satisfied only by the Atmel AT29 parts. This conclusion is apparently based on the fact that [[

]] in the AT27 and AT49 parts.⁹² Given his construction of the term
[[placed the AT27 and AT49 parts outside the coverage of
the '903 claims.

While the IA is correct that the memory devices in the AT27 and AT49 parts are
[[

]]⁹³
I also believe that there is sufficient evidence that these parts contain the other elements of the '903 patent. Explaining various schematics, Atmel's expert testified that all of the circuit means are present in these devices, and that they are at least equivalent to the corresponding means disclosed in the '903 patent.⁹⁴ This evidence is not seriously contested by respondents and intervenor, who merely characterize it as "insufficient."

I therefore find that the AT27 and AT49 parts also practice the '903 patent. This finding does not alter the ALJ's ultimate conclusion that Atmel has established a domestic industry; it only provides additional support for that conclusion.

Issued: July 9, 1998

⁹¹ FF 760-764.

⁹² FF 761, 762.

⁹³ See CX139-CX144.

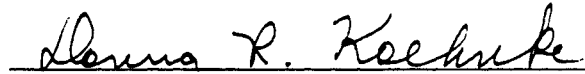
⁹⁴ See CX126 at 8-44.

**CERTAIN EPROM, EEPROM, FLASH
MEMORY AND FLASH MICROCONTROLLER
SEMICONDUCTOR DEVICES AND PRODUCTS
CONTAINING SAME**

337-TA-395

CERTIFICATE OF SERVICE

I, Donna R. Koehnke, hereby certify that the attached COMMISSION OPINION, was served upon the following parties via first class mail and air mail where necessary on December 11, 2000.



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**CERTAIN EPROM, EEPROM, FLASH
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337-TA-395

CERTIFICATE OF SERVICE

Page Two

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PUBLIC VERSION

**UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.**

In the Matter of)
)
EPROM, EEPROM, FLASH)
MEMORY, AND FLASH)
MICROCONTROLLER)
SEMICONDUCTOR DEVICES)
AND PRODUCTS CONTAINING)
SAME)

Investigation No. 337-TA-395

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OFFICE OF THE
SECRETARY
U.S. ITC

Initial Determination

Pursuant to the Order of the Commission dated January 25, 1999 this is the administrative law judge's initial determination. The administrative law judge, after a review of the record developed, finds that there was inequitable conduct with respect to inventorship in the correction proceedings before the United States Patent and Trademark Office; that the inventors shown on the Certificate of Correction are not the appropriate set of inventors; and that there was no deceptive intent and/or inequitable conduct with respect to inventorship in the original proceedings before the United States Patent and Trademark Office.

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ABBREVIATIONS

CDX	Complainant's Demonstrative Exhibit
CFF-R	Complainant's Proposed Finding
CPost	Complainant's Posthearing Brief
CPostR	Complainant's Rebuttal Brief
CRIPFF-R	Complainant's Proposed Rebuttal to Intervenor's Finding
CRSPFF-R	Complainant's Proposed Rebuttal to Sanyo's Finding
CX	Complainant's Exhibit
IPost	Intervenor's Posthearing Brief
IPostR	Intervenor's Rebuttal Brief
IDX	Intervenor and Respondents' Demonstrative Exhibit
IROCFF-R	Intervenor and Respondents' Objection to Complainant's Proposed Finding
IRRCFF-R	Intervenor and Respondents' Proposed Rebuttal Finding Unless Indicated To The Contrary In Proposed Rebuttal Findings
IX	Intervenor and Respondents' Exhibit
JX	Joint Exhibit
MPost	Macronix's Posthearing Brief
MpostR	Macronix's Rebuttal Brief
SPost	Staff's Posthearing Brief
SPostR	Staff's Rebuttal Brief
SX	Staff Exhibit From Underlying Investigation Designated

By Intervenor And Respondents

SANPost	Sanyo's Posthearing Brief
SANPostR	Sanyo's Rebuttal Brief
Tr.	Transcript From 12/97 and 2/00 Hearings
WPost	Winbond's Posthearing Brief
WPostR	Winbond's Rebuttal Brief

I. PROCEDURAL HISTORY

On September 8, 1998, Atmel Corporation (Atmel) filed with the Commission a "Petition For Relief From Final Determination Finding U.S. Patent No. 4,415,903 (the '903 patent) Unenforceable" (PETITION). In the PETITION, Atmel asked the Commission to take administrative notice of the action of the U.S. Patent and Trademark Office (PTO) in correcting the inventorship of the '903 patent, and to issue "the appropriate exclusion order and cease and desist orders."¹ All of the respondents and intervenor filed responses in opposition to Atmel's PETITION. The staff filed a response generally opposing reconsideration in favor of a new investigation.

The Commission in an Order dated January 25, 1999 responding to the PETITION stated that it had determined to treat Atmel's petition as a motion for reconsideration under rule 210.47, and to waive the 14-day time limit thereunder for good and sufficient reason pursuant to rule 210.4(b).² It then granted Atmel's PETITION and the record in this investigation was reopened "for the limited purpose of resolving the issues arising from the issuance of the Certificate of Correction to the '903 patent," including the issues of whether there was deceptive intent and/or inequitable conduct with respect to inventorship in the original proceedings before the PTO or in the correction proceedings before the PTO and whether the inventors shown on the Certificate of Correction are the appropriate set of inventors. The investigation was remanded to this

¹ Included with the PETITION and attached, as Exhibits A-P, were the documents filed by Atmel with the PTO which included the PTO's decision granting Atmel's request for a Certificate of Correction of the inventorship on the '903 patent, and the executed assignment by the "co-inventor" to Atmel. The PETITION was not under the protective order and was served on all parties to the investigation.

² The order was accompanied by a "Notice Of Commission Decision To Reconsider Portions Of Final Determination" (NOTICE). On February 2, 1999 the Commission issued a Commission Opinion which was under the protective order.

administrative law judge.

The Commission in its January 25, 1999 Order noted that there is a developed record bearing on the issue of whether the inventorship is correct as stated in the Certificate of Correction. It also stated that whether, and to what extent, further discovery is appropriate on that issue and/or any subsidiary issue raised by the Certificate of Correction is left to the discretion of the presiding administrative law judge; and that the administrative law judge shall issue an initial determination limited to the issues for which the record was reopened.

The Commission instituted the underlying investigation on March 18, 1997, based on a complaint filed by Atmel (62 Fed. Reg. 13706). The complaint named five respondents: Sanyo Electric Co., Ltd. (Sanyo), Winbond Electronics Corporation and Winbond Electronics North America Corporation (Winbond), Macronix International Co., Ltd., and Macronix America, Inc. (Macronix). Silicon Storage Technology, Inc. (SST) was later permitted to intervene.³ Atmel, in its complaint, alleged, inter alia, that respondents violated section 337 by importing into the United States, selling for importation, and/or selling in the United States after importation certain electronic products and/or components that infringe claim 1 of the '903 patent which named as the sole inventor Larry T. Jordan. The hearing on violation was conducted in December 1997. Atmel argued and presented evidence that Jordan was the sole inventor on the '903 patent. This administrative law judge issued his final initial determination (ID) on March 19, 1998, in which he found, inter alia, for Atmel on the inventorship issue of the '903 patent and further found that "Macronix, Winbond and SST have the burden and failed to even proffer the specific identity of

³ Winbond and Sanyo manufacture semiconductor products abroad for SST, which products are sold by SST in the United States.

the other alleged co-inventor(s) on . . . ‘key features’ and [a] ‘host of other claim elements’” (ID at 102) (Emphasis added).

On July 2, 1998, the Commission issued a “Notice of Final Determination” which was not subject to the protective order. The notice stated, inter alia, that the Commission “finds that the ‘903 patent is unenforceable for failure to name a co-inventor.” On July 2, 1998 the Commission issued an order, which also was not subject to the protective order. It found, inter alia, no violation of Section 337 and that the ‘903 patent was unenforceable for “failure to name an inventor.”⁴ A Commission Opinion issued on July 9, 1998 which opinion was subject to the protective order. Also on July 9, 1998 the Commission issued the “Supplemental Views of Chairman Bragg” which, like the Commission Opinion, was subject to the protective order.⁵

The petition to correct the inventorship of the ‘903 patent under PTO rule 324 (JX-39) was filed by Atmel at the PTO on August 12, 1998.⁶ Specifically, Atmel requested that the PTO issue a certificate for the ‘903 patent naming Anil Gupta⁷ as an actual inventor. It was represented that Gupta was not originally named as inventor through error, and without deceptive

⁴ The Commission consisted of Chairman Bragg and Commissioner Crawford, Vice Chairman Miller having recused herself.

⁵ As Atmel acknowledges (CPost at 93) public versions of the July 9, 1998 Commission opinion and the “Supplemental Views of Chairman Bragg” did not issue until October 13, 1998.

⁶ Atmel has maintained, without objection, that the petition was filed in the PTO on August 12, 1998. See FF 99. {

} Thus, it appears that when Atmel maintained the PTO Petition was filed on August 12 it meant that August 12 was the date on which the PTO Petition left Atmel’s hands for filing with the PTO on August 13.

⁷ Gupta is presently Managing Director for Data Flash at Atmel and was an Atmel employee in 1998. (CX-642 at 2; IX-270 at 8).

intention. On August 28, 1998, the petition was granted by the PTO (JX-40).⁸ On October 6, 1998 the PTO issued a Certificate of Correction which formally amended the '903 patent to identify Gupta as an inventor, in addition to Jordan.⁹ Atmel submitted the Certificate to the Commission with a letter dated October 14, 1998.

On August 28, 1998, on the same day that the PTO issued its decision granting Atmel's petition for a certificate of correction and two weeks after Atmel submitted papers to the PTO agreeing with the Commission that the '903 patent incorrectly named Jordan as the sole inventor on the '903 patent, Atmel filed a notice of appeal with the United States Court of Appeals for the Federal Circuit (Federal Circuit), from the Commission's July 2, 1998 final determination in this investigation (Appeal No. 98-1580). This appeal challenged the Commission's determination that the '903 patent was unenforceable because Jordan was not the sole inventor.

On October 26, 1998, Atmel notified the Federal Circuit and the other parties in the case of the following issue for appeal pursuant to Federal Circuit Rule 30(b):

1. Is the conclusion of the United States International Trade Commission that United States Patent No. 4,451,903 ("the '903 patent") is unenforceable for failure to name an inventor erroneous? [IX293]

However it expressly noted that the Commission's disposition of the PETITION, which had asked the Commission to take administrative notice of Atmel's correction proceedings in the PTO, could possibly render Atmel's appeal moot as to that issue. (Id.)

Intervenor and respondents, who were intervenors in the appeal, first became aware of

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⁹ The Certificate of Correction states that "it is hereby certified that the correct inventorship of [the '903] patent is Larry T. Jordan and Atmel Gupta."

Atmel's efforts to obtain, and its success in obtaining, a certificate of correction on or about September 8, 1998, when Atmel filed its PETITION with the Commission and served the parties with a copy of the PETITION.¹⁰ According to Atmel's papers filed in support of its PETITION, Atmel represented to the Commission that "the issue of the '903 patent's inventorship is now moot." (IX-438 at Ex. C (Atmel Reply Br. dated October 14, 1998 at 16)).

Winbond, upon learning that the PTO had granted Atmel's petition to correct the inventorship of the '903 patent and in light of Atmel's representation of mootness, moved before the Federal Circuit in a filing dated November 6, 1998 for a partial dismissal of Atmel's appeal regarding the '903 patent. (IX-438). Atmel, in opposition, acknowledged to the Federal Circuit that the "question of whether Larry Jordan is the sole inventor is no longer at issue." (IX-439 at 1 and 2). However Atmel opposed Winbond's motion for partial dismissal. Instead, Atmel argued that the Federal Circuit should "vacate" the Commission's decision with respect to inventorship of the '903 patent, and remand the case so that the Commission may consider the outstanding '903 patent issues in the first instance. (Id at 4).

On November 6, 1998, respondents Sanyo and Winbond filed motions to dismiss the inventorship issue as moot. The Commission took no position on those motions "in order not to prejudice the deliberations on Atmel's PETITION" filed September 8. (NOTICE at 2).

The Federal Circuit on December 8, 1998 declined to resolve the issue for a partial dismissal of Atmel's appeal regarding the '903 patent based on the parties' briefing in their respective motion papers. Rather, the Court determined that:

¹⁰ Because the proceedings in the PTO was ex parte there was no requirement that intervenor and respondents receive a copy of the petition when it was filed, on Aug. 12, 1998, in the PTO by Atmel.

[t]he arguments concerning dismissal, vacatur, and remand relates to the merits of this appeal, e.g., whether Atmel can argue on appeal that the ITC erred in its inventorship determination in view of the Patent and Trademark Office's recent correction of inventorship Thus, rather than deciding the issues by motion, these issues should be addressed in the briefs.

Atmel Corp. v. U.S. Int'l Trade Comm'n, No. 987-1580 (Fed. Cir. Dec. 8, 1998) (public order).

The Court in its order of December 8, 1998 stayed Appeal No. 98-1580 "pending the ITC's disposition" of the PETITION. The Court further invited the parties to suggest how it should proceed with the appellate case once that disposition had been made.¹¹

On February 10, 1999, Winbond, joined by Sanyo, Macronix and SST, moved in Motion No. 395-76C that the Commission stay its January 25, 1999 Order¹² pending judicial review by the Federal Circuit of that order, which Winbond intended to seek through a petition for a writ of mandamus "in the next few days." Motion No. 395-76C also had the proviso that to avoid injustice, any stay should toll the time period for completion of the reconsideration proceeding should the Commission's Order be upheld by the Federal Circuit.¹³ Order No. 45 granted Motion No. 395-76 and also suspended the response time to Atmel's Motion No. 395-80 for summary

¹¹ The issue of mootness and the propriety of Atmel's appeal in light of Atmel's actions before the PTO was never briefed on the merits to the Federal Circuit.

¹² This administrative law judge on January 27, 1999, in his Order No. 44, following the issuance of the Commission's January 25 Order, directed the parties to respond regarding discovery and a procedural schedule.

¹³ Motion No. 395-76C was initially before the Commission. On March 1, 1999, the Secretary redesignated "Motion No. 395-76C" as "Motion No. 395-76" and hence said motion started its pendency before this administrative law judge. As Order No. 45, which issued on March 19, 1999, stated the administrative law judge was in telephone contact with the clerk's office at the Federal Circuit on each of March 2, March 4, March 9, March 11, March 16, March 18 and March 19 to determine the status of Winbond's filing and in each call was told that no decision had been made on Winbond's filing.

determination filed on March 16.¹⁴ Order No. 45 further ordered Winbond to notify the administrative law judge of any decision by the Federal Circuit on Winbond's writ.

On April 19, 1999 counsel for Winbond notified the attorney advisor that the Federal Circuit had issued an order denying Winbond's writ. In Re Winbond Electronics Corporation and Winbond Electronics North America Corporation, Miscellaneous Docket #579 (April 16, 1999).

Said order of the Federal Circuit read in part:

In 1998, Atmel appealed the ITC's final determination regarding Atmel's complaint asserting a violation of 19 U.S.C. § 1337 against various respondents. The ITC had determined (1) that two patents were invalid on the basis of issue preclusion, and (2) that a third patent was unenforceable for failure to name an inventor. The ITC declined to review the administrative law judge's determination regarding invalidity of claims 2-8 of the third patent. Atmel petitioned the Patent and Trademark Office to correct inventorship of the third patent. The PTO issued a certification of correction and Atmel petitioned the ITC for relief from its final determination.

Atmel informed this court, in appeal no. 98-1580, of the pending petition for relief at the ITC. This court stayed proceedings in the appeal "pending the ITC's disposition of Atmel's petition for relief." On January 25, 1999, the ITC determined that the PTO's certification of correction presented a "new question" and that the case should be remanded to the administrative law judge for the limited purpose of considering issues arising from the certificate of correction of inventorship.

Winbond's petition for a writ of mandamus suggests that the ITC was without authority to grant relief from its final determination because the case had been appealed to this court. However, the ITC stated that this court implicitly granted the ITC leave to consider the petition for relief when this court stayed proceedings in appeal no. 98-1580 "pending the ITC's disposition of Atmel's petition for relief." In view of the our action today formally remanding the case and allowing further proceedings, we need not decide the correctness of the ITC's

¹⁴ Atmel's Motion No. 395-90 requested that the administrative law judge find (1) that the inventors named on the Certificate of Correction, issued on October 6, 1999, by the PTO for the '903 patent are the correct inventors, (2) that there was no inequitable conduct or deceptive intent in naming Jordan as the sole inventor of the '903 patent in 1981 and (3) that there was no inequitable conduct in obtaining the Certificate of Correction in 1998.

statement.

The remaining question relates to how the case should proceed. Because part of the case that is on appeal is, in reality, now before the ITC for further proceedings, we deem the better course is to remand this case to the ITC so that all of the issues may be merged for the efficiency of judicial review.

Order No. 46, which issued on April 19, then terminated the suspension of response time to complainant's Motion No. 395-80 for summary determination.

Order No. 47, which issued on April 29, 1999, denied Atmel's Motion No. 395-80 for summary determination. Order No. 48, which also issued on April 29 set a procedural schedule for discovery. It also set a date of August 16 for submissions by the parties on the necessity of any hearing. Moreover, in view of the fact that the stay was in effect for approximately one month, the due date for the final initial determination was extended from October 25, 1999 to November 24, 1999.

Order No. 49, which issued on June 4, 1999, granted Macronix's request for a thirty (30) day enlargement of discovery time in which to complete discovery on the ground that Macronix's "present" counsel did not file its notice of appearance until May 20, 1999 and it was not until May 17 that Macronix's present counsel received approximately sixty-four (64) file boxes of material from Macronix's former counsel. Order No. 49 also modified the discovery schedule and set a date of September 17 for submissions as to the necessity of any hearing. In addition, in view of Order No. 49 extending the discovery period by thirty days, the due date for filing of the final initial determination was extended to December 23, 1999.

On July 9, 1999, pursuant to a telephone conference, SST moved for an order that:

- a. Atmel has waived any claim of attorney-client privilege as to communications on the subject of the "proper inventorship" of the '903 patent;

- b. Information in the possession of Atmel's counsel on the subject of the "proper inventorship" of the '903 patent, whether or not communicated to Atmel, are not protected from discovery by the work product doctrine; and
- c. Compels Atmel to produce all documents listed on its Privilege Log and Amended Privilege Log, provide substantive answers to interrogatories requesting the substance of oral communications on this subject and direct Atmel that it may not instruct its witnesses not to answer questions at deposition or trial on this subject.

(Motion Docket No. 395-82). Order No. 50, which issued on July 20, 1999, granted Motion No. 395-82 and ordered Atmel to produce (1) all withheld communications on the subject of "proper inventorship" of the '903 patent listed on Atmel's privilege log and Atmel's amended privilege log, (2) all information in the possession of Atmel's counsel on the subject of the "proper inventorship" of the '903 patent whether or not communicated by Atmel, and (3) substantive answers to interrogatories requesting the substance of oral communications on the "proper inventorship" of the '903 patent. Moreover, depositions of any Atmel's witnesses were to be carried out pursuant to that Order.

The administrative law judge granted Order No. 50 on the grounds (1) that Atmel's assertion of privilege had resulted from Atmel's affirmative action of petitioning for reconsideration of the inventorship issue based on the Certificate of Correction to the '903 patent filed in the PTO, (2) that in this proceeding the administrative law judge is acting under a mandate of the Commission which mandate involved the issues arising from the issuance of said Certificate of Correction, (3) that Anil Gupta in a "Statement Of Anil Gupta" dated August 11, 1998, and filed at the PTO in support of Atmel's petition for correction of inventorship of the '903 patent stated in part:

1. I have reviewed the above-identified U.S. Patent No. 4,451,903 (hereinafter "the '903 patent").
2. I have reviewed the Petition for Correction of Inventorship under 37 C.F.R. 1.324 requesting the correction of inventorship of the '903 patent to include Anil GUPTA as a co-inventor (which, on information and belief, is being filed on even date herewith), and the Statement of Larry T. JORDAN indicating that he agrees to the change of inventorship (which, on information and belief, is also being filed on even date herewith).
3. The standard for inventorship as it relates to the '903 patent has been explained to me. Based on my understanding of that standard, I hereby state that I have made an inventive contribution to the subject matter claimed in the '903 patent, whereby I am a co-inventor of the claimed subject matter of the '903 patent.
4. I further state that the inventorship error occurred without any deceptive intention on my part. [Emphasis added]

and (4) that Gupta testified that his reason for changing sworn testimony which had been made before this administrative law judge was "the advice given to him by Atmel's counsel."

Order No. 51, which issued on July 21, 1999, granted Atmel's oral motion for a stay of Order No. 50, and a stay of the dates in the then procedural schedule, including the due date for the final initial determination set in Order No. 49, until resolution by Atmel of the determinations made in Order No. 50. Order No. 52, which issued on August 24, 1999, denied Atmel's Motion No. 395-86 for leave to apply for interlocutory review of Order No. 50. Order No. 53, which issued on September 16, 1999 modified the procedural schedule which modification was proposed by the parties because of the effect of the stay granted in Order No. 51. As Order No. 53 stated, the staff and Atmel then believed the date for the final initial determination to be February 4, 2000.

Order No. 56, which issued on October 14, 1999, as a result of the administrative law judge's in camera review of documents produced to the administrative law judge by Atmel with its letter dated October 12, 1999, ordered production of certain of those documents and further ordered Atmel to submit a reasonable procedural schedule.

Order No. 57, which issued on November 2, 1999 provided Atmel with the opportunity for discovery and set a new procedural schedule which included a date of December 22 for submissions as to the necessity for a hearing.¹⁵

Order No. 66, which issued on December 23, 1999, set a procedural schedule which involved a motion period and hearing dates of February 22-25, 2000. Order No. 68 reset the hearing dates to February 14-17, 2000.

Order No. 69, which issued on January 13, 2000, set the burdens and standards of proof, and directed the parties regarding the hearing. Order No. 79, which issued on February 10 denied Atmel's Motion No. 395-101 for reconsideration of Order No. 69.

Order No. 70, which issued on January 13, 2000 extended the due date for the initial determination until May 17, 2000 at the latest.

A hearing was conducted on February 14-17, 2000. The parties, after the hearing, jointly proposed that the initial posthearing submissions be due on March 14 and the reply

¹⁵ Footnote 5 of Order No. 57 stated:

In the October 1 telephone conference the administrative law judge volunteered that he could not imagine that there would be any need for experts in this proceeding (Tr. at 15). However Atmel stated that it may have testimony from expert(s) (Tr. at 16).

posthearing submissions be due on March 28.¹⁶ Accordingly those dates were put in effect on February 17.¹⁷

The matter is now ready for a decision.

The Final Initial Determination is based on the record compiled at the hearing, as well as the exhibits admitted into evidence. The administrative law judge has also taken into account his observation of the witnesses who appeared before him during the hearing. Proposed findings submitted by the parties not herein adopted, in the form submitted or in substance, are rejected as either not supported by the evidence or as involving immaterial matter and/or as irrelevant. The findings of fact included herein have references to support evidence in the record. Such references are intended to serve as guides to the testimony and exhibits supporting the findings of fact. They do not necessarily represent complete summaries of the evidence supporting said findings.

¹⁶ The parties, including the staff, have filed a total of about 416 pages of initial post hearing briefs and some 3000 proposed findings with Atmel submitting some 961 proposed findings. In addition the parties, including the staff, filed a total of about 246 pages of reply briefs.

¹⁷ The administrative law judge received a copy of a letter by Atmel's counsel to the Secretary dated February 24, 2000 which stated in part:

The initial post-hearing submissions are due on March 14, 2000; reply post-hearing submissions are due on March 28, 2000. This schedule was jointly proposed by the parties. We bring this schedule to the attention of the Commission in case it affects the disposition by the Commission of Atmel's pending Petition for Review re Order No. 70, regarding the target date for the Administrative Law Judge's initial determination.

The Commission, in an Order dated April 3, 2000, denied Atmel's Petition for Review re Order No. 70.

II. OPINION

Pursuant to the Commission Order of January 25, 1999 the investigation was reopened for the limited purpose of resolving the issues arising from the issuance of the Certificate of Correction for the '903 patent, including the issues of whether there was deceptive intent and/or inequitable conduct with respect to inventorship in the original proceedings before the PTO or in the correction proceedings before the PTO, and whether the inventors shown on the Certificate of Correction are the appropriate set of inventors.¹⁸

A. There Was Inequitable Conduct With Respect To Inventorship In the Correction Proceedings Before The PTO

Each of intervenor SST and respondents Macronix, Sanyo and Winbond argued that Atmel procured the Certificate of Correction, which included Anil Gupta as a co-inventor in the 903 patent, through inequitable conduct. Each of Atmel and the staff argued that there was no inequitable conduct with respect to inventorship in the correction proceedings. Moreover Atmel argued that the March 19, 1998 ID of the administrative law judge and the Commission's opinion of July 9, 1998 "permit" the administrative law judge to find that Gupta is the co-inventor

¹⁸ Intervenor and respondents have raised the issues of unenforceability, unclean hands, dismissal of the complaint and/or abuse of process. The abuse of process issue relates to Atmel's filing an appeal in the Federal Circuit from the Commission's opinion of July 9, 1998. See Procedural History, supra, which relates in detail facts relating to the appeal. The appeal, as the Procedural History states, was filed after the PTO had granted the Certificate of Correction. Atmel argued that said issues go beyond the scope of the reconsideration proceedings as set out in the Commission's January 25, 1999 Order (CPost at 122-125). The administrative law judge agrees based on the "limited purpose" for which this investigation was reopened, and the specific language in the Order that the initial determination shall be limited to the issues for which the record was reopened. In light of this holding SST's motion to strike and for negative inference dated March 30, 2000 and which relates to Atmel's "frivolous appeal" to the Federal Circuit is granted as it relates to striking certain arguments and denied with respect to any negative inference.

(CPostR at 13-15); and that “Atmel relied upon the Commission’s ruling in proceeding to correct the inventorship of the ‘903 patent” (CPost at 52). The staff referred to the Commission opinion of July 9, 1998 as “binding on this proceeding.” (SPost at 9).

Inequitable conduct before the PTO includes affirmative misrepresentations of a material fact, failure to disclose material information, and/or submission of false material information, coupled with intent to deceive. To succeed in a claim of inequitable conduct before the PTO, respondents and intervenor must prove by clear and convincing evidence that any misrepresentations, withholding and/or false statements satisfy a threshold level of materiality and next that said conduct satisfies a threshold showing of intent to mislead. See Baxter Int’l Inc. v. McGaw Inc., 149 F.3d 1321, 1327, 47 U.S.P.Q.2d 1225, 1228-29 (Fed. Cir. 1998); Key Pharmaceuticals v. Hercon Labs. 161 F.3d 709, 719, 48 U.S.P.Q.2d 1911, 1919 (Fed. Cir. 1998); see also Order 69 at 11-12. Assuming satisfaction of the thresholds, the administrative law judge must balance materiality and intent, the more material the omissions, false statements and/or misrepresentation’s, the less culpable the intent required, and vice versa. Haliburton Co. v. Schlumberger Tech. Corp., 925 F.2d 1435, 1439, 17 U.S.P.Q.2d 1834, 1838 (Fed. Cir. 1991). In the words of the Federal Circuit, there must be a determination whether the conduct “in its totality manifests a sufficiently culpable state of mind to warrant a determination that it was inequitable.” See Molins PLD v. Textron, Inc. 48 F.3d 1172, 33 U.S.P.Q.2d 1823, 1826-28 (Molins).

It is fundamental that all applicants and their representatives, who appear before the PTO, must observe the highest candor in disclosing all relevant facts and the highest degree of good faith and care in making factual statements. As the Supreme Court in Precision Instrument Mfg.

Co. v. Automotive Maintenance Mach. Co., 324 U.S. 806, 816, 818 (1945), stated:

A patent by its very nature is affected with a public interest. As recognized by the Constitution it is a special privilege designed to serve the public purpose of promoting the “Progress of Science and useful Arts.” At the same time, a patent is an exception to the general rule against monopolies and to the right to access to a free and open market. The far reaching social and economic consequences of a patent [19] therefore, give the public a paramount interest in seeing that patent monopolies spring from backgrounds free from fraud or other inequitable conduct and that such monopolies are kept within their legitimate scope. The facts of this case must accordingly be measured by both public and private standards of equity.

* * *

Those who have applications pending with the Patent Office or who are parties to Patent Office proceedings have an uncompromising duty to report to it all facts concerning possible fraud or inequitable conduct underlying the applications in issue. Cf. Crites, Inc. v. Prudential Co., 322 U.S. 403, 415. This duty is not excused by reasonable doubts as to the sufficiency of the proof of the inequitable conduct nor by resort to independent legal advice. Public interest demands that all facts relevant to such matters be submitted formally or informally to the Patent Office, which can then pass upon the sufficiency of the evidence. Only in this way can that agency act to safeguard the public in the first instance against fraudulent patent monopolies. Only in that way can the Patent Office and the public escape from being classed among the “mute and helpless victims of deception and fraud.” Hazel-Atlas Glass Co. v. Hartford-Empire Co., [322 U.S. 238, 246]. [Emphasis added]

The district court in Semiconductor Energy Lab. Co. v. Samsung Electronics Co., 4 F.Supp.2d 477 (E.D.Va 1998), aff'd 204 F.3rd 1368, 54 U.S.P.Q.2d 1001 (Fed. Cir. 2000) stated:

¹⁹ In the PETITION filed on September 8, 1998 Atmel requested an exclusion order and cease and desist orders based on the “corrected” ‘903 patent. Exclusion orders and cease and desist orders certainly have far reaching economic consequences, and should not be put in effect if there is inequitable conduct in the correction proceedings.

The vital importance of this [upcomprising] duty cannot be overstated. Without it, the edifice of patent law cannot stand. Indeed, the cornerstone presumption of an issued patent's validity, and the placement of a heavy burden on the infringer to show invalidity, both rest on the proper fulfilment of this duty.

Similarly, in Kingland v. Dorsey, 338 U.S. 318, 319 (1949), the Court quoted with approval the following statement made by a Patent Office Committee on Enrollment and Disbarment:

By reason of the nature of an application for patent, the relationship of attorneys to the Patent Office requires the highest degree of candor and good faith. In its relation to applicants, the Office . . . must rely upon their integrity and deal with them in a spirit of trust and confidence. . . . [Emphasis added]

This special relationship stems from the fact that the PTO must rely on information furnished by applicants and their attorneys. See, e.g. Norton v. Curtiss, 433 F.32d 779, 794 (CCPA 1970).

1. March 19, 1998 ID

Atmel argued that the ID of March 19, 1998 “supports the conclusion [that] Mr. Gupta is the appropriate co-inventor of the ‘903 patent.” (CPostR at 15). The administrative law judge finds Atmel’s argument in direct conflict with the findings of said ID.

The ID stated that “[e]ach of respondents Macronix, Winbond and intervenor SST has argued a nonjoinder defense, viz., that the ‘903 patent is invalid and/or unenforceable under 35 U.S.C. §§102(f), 116 and/or 256 because it allegedly does not identify other actual inventors in addition to Larry Jordan.” (ID at 94). It made reference to Atmel’s argument that “the evidence supports the legal presumption that Jordan is the sole inventor of the ‘903 patent” and the staff’s argument that “the evidence, taken as a whole, does not establish clearly and convincingly that another person made such a substantive contribution to the conception of the ‘903 patent so as to

have required joinder of such a person as a co-inventor of Jordan.” (ID at 95). It then specifically found that “Macronix, Winbond and SST have the burden and failed to even proffer the specific identity of the alleged co-inventor(s) on . . . ‘key features’ and [a] ‘host of other claim elements” and that “intervenor SST, Macronix and Winbond have not sustained their burden in establishing that the ‘903 patent is invalid and or unenforceable, under 35 U.S.C. §§102(f), 116 and/or 256, because it does not identify, as an inventor, others in addition to Jordan.” (ID at 102, 104).²⁰

Atmel makes reference to certain passages of the ID and argued that those passages “plainly show that [this administrative law judge]. . . when considering the issue of inventorship, looked exclusively to the contribution of Mr. Gupta.” (CPostR at 15). However nowhere in the cited passages nor anywhere else in said ID, which this administrative law judge authored, did he find, expressly or impliedly, that Gupta was the first to implement Silicon Signature in a chip. To the contrary, in said ID, this administrative law judge expressly found that the 5133 EPROM was the first SEEQ device to implement Silicon Signature. (ID, FF 205). It is undisputed that Gupta did no work on the first 5133 EPROM chip. Hence, according to the March 19, 1998 ID, Gupta cannot be an inventor on the ‘903 patent.

2. Commission’s July 9, 1998 Opinion

Atmel argued that, in filing in the PTO on August 12, 1998 its “Petition For Correction Of Inventorship Under 37 C.F.R. 1.324,” and requesting that Gupta be named as co-inventor of the

²⁰ The ID of March 19, 1998 also made reference to Macronix’s arguments that “SEEQ engineers, not Mr. Jordan, chose to use a row of the memory array to be used as the product information array;” that “SEEQ engineers, not Mr. Jordan, chose pin A9 as the address pin; that SEEQ engineers, not Mr. Jordan, chose what voltage to supply to pin A9.” (ID at 101, 102) (Emphasis added).

'903 patent it "relied upon the holding and discussion regarding the standard for inventorship as it applied to the '903 patent in the Commission's July 9, 1998 Opinion" (CFF-R 697). The staff argued that Gupta's "changed opinion" is the direct result of the binding "intervening Commission opinion of July 9, 1998 [7/9/98 Op.]" (SPost at 9, SPostR at 9).

The arguments of Atmel and the staff are in conflict with the subsequent action taken by the Commission in remanding these proceedings to this administrative law judge to resolve the issue of "whether the inventors shown on the Certificate of Correction are the appropriate set of inventors." Moreover the sole inventorship issue before the Commission when the 7/9/98 Op. issued was whether "the '903 patent is void for failure to name a co-inventor," viz., can "Mr. Jordan be the sole inventor of a patent with claim elements drafted in means plus function format?" Notice of Commission Decision to Review Portions of An Initial Determination" at 4, 5 (May 6, 1998). The only finding in the 7/9/98 Op., was the following:

We find that named inventor Jordan's involvement in the particulars of the circuit design in this investigation did not rise to the level of the sole inventor's involvement in Sewall. Jordan neither selected nor simulated the performance of any circuit means. Therefore, we conclude that the above stated exception in Ethicon does not apply [footnote omitted].

(Op. at 14).

Atmel and the staff in this reconsideration proceeding have argued that the first chip at SEEQ which implemented manufacturer's identification (Silicon Signature) and the actual implementation of the circuitry was an EEPROM 5213 which is in direct conflict with the position they took before this administrative law judge in the initial hearing where they argued that the first chip to implement Silicon Signature was an EPROM 5133. The 7/9/98 Op. does not use the words "EEPROM" and "EPROM" much less find that the first chip at SEEQ to implement Silicon

Signature was an EEPROM 5213 chip and not an EPROM 5133 chip. As the Chief Judge of the Commission's Office of Administrative Law Judges, who retired in late spring 1995, stated in a "Notice To All Parties" (May 30, 1995) at 1 in In The Matter Of Certain Microsphere Adhesives, Process For Making Same, And Products Containing Same Inv. No. 337-TA-366 the "Commission can make its own findings of fact, reversing or supplementing the findings of the ALJ." The administrative law judge can find no finding in the 7/9/98 Op. that the first chip at SEEQ to implement Silicon Signature was an EEPROM 5213.

Atmel argued that the Commission, as a "corollary" to its holding that Jordan was not the sole inventor of the '903 patent, held that "the person(s) who selected particular circuit structures for each of the means plus function claim elements [in the '903 patent] . . . is a co-inventor"²¹ (Op. at 13); that according to the Commission, the person who selected these circuit structures made an inventive contribution to the '903 patent by doing more than simply reducing to practice Jordan's broader concept (Op. at 13, 14);²² that the Commission also went further, stating that the

²¹ The complete phrase reads "[t]he question is whether the person(s) who selected particular circuit structures for each of the means plus function claim elements (presumably Gupta) is a co-inventor." [Emphasis added].

²² The law of this investigation is that Jordan is not the sole inventor because he "neither selected nor simulated the performance of any circuit means." However since issuance of the 7/9/98 Op., only under the names of Chairman Bragg and Commissioner Crawford, discovery in this reconsideration proceeding has produced a July 29, 1998 memo of Atmel's litigation counsel which stated (FF 45):

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} (FF 51). Moreover in deposition on 10/24/97 Gupta, when he had no motive to misrepresent, testified (JX-5 at 27-28):

Q. Do you recall whether the 5213, again as part of the Silicon Signature function, had a high voltage detector to detect the high voltage on a particular pin?

* * *

THE WITNESS: Yes, that is correct, because the Pin A9, I believe, is the pin which was used to access Silicon Signature. Address 9 had to be taken to high voltage to get into the Silicon Signature read mode.

Q BY MR. YOCHES: Did you design the circuitry to detect the high voltage on Pin A9?

* * *

A 5213, like a lot of other nonvolatile memories, had high voltage detection circuit on a couple of other pins which manufactures use for their own internal testing, so the circuitry used to detect this high voltage on Pin A9 was same circuitry. It wasn't anything new and different than what was used on some other pins.

Q Do you know whether anyone at Seeq designed that circuitry that was used for the high voltage detection on either A9 or the other pins they already had?

person who selected the particular circuit structures was “presumably Gupta” (Op. at13); that when discussing the testimony before the administrative law judge, the Commission referred to

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THE WITNESS: Some of the circuitry was common between EPROM and E square. Both of them used high voltage detection on various pins for internal testing and test modes. There were different people working on the EPROM design. There was a high voltage detection circuitry which was, I believe, nothing novel, but it existed. But who really did that, I don't know. [Emphasis added]

Also Gupta on November 15, 1999 even admitted (IX 270 at 165-166):

Q Was your selection of which existing circuits to use to implement Silicon Signature [in the 5213 EEPROM] something that anyone of your level of skill would not also have been able to select?

* * *

THE WITNESS: Somebody at my level or another person of this level of experience would have been able to implement those with things, you know, well known, existing in the art. I'm talking of each circuit by itself, not the totalities of the whole thing. [Emphasis added]

The conception of an invention is sufficiently “definite and permanent” when “only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation.” Ethicon, Inc. v. United States Surgical Corporation 135 F.3d 1456, 54 U.S.P.Q.2d 1545, 1548 (Fed. Cir. 1998) citing Burroughs Wellcome Co. v. Barr Lab, Inc., 40 F.3d 1223, 1228, 32 U.S.P.Q.2d 1915 (Fed. Cir. 1994).

While the 7/9/98 Op. is the law of the case, a Statement of Commissioner Crawford, which issued September 28, 1998, did conclude that the “Commission decision would have been different had the General Counsel provided me accurate information. Because the parties appear to have taken action in response to the Commission’s determination, I regard it as my responsibility to inform them of what I consider to be an incorrect conclusion regarding the ID.”,

Gupta as “the engineer . . . who testified that he implemented Jordan’s idea into silicon” (Op. at 10); that the Commission also noted that “[e]ngineer Gupta testified that he implemented the elements of the invention of the ‘903 patent using well known circuit techniques.” (Op. at 10); and that the Commission quoted Gupta’s testimony that he was “sort of the technician, you can say, implemented it [Silicon Signature] into silicon.” (Op. at 11 n.20). Accordingly Atmel contended that although the Commission did not make a “formal” finding that Gupta was the co-inventor, the Commission’s “emphasis” on Gupta’s contribution to the ‘903 patent in effect established a “rebuttable presumption” that Gupta is the co-inventor of the ‘903 patent. (CPost at 13, 14). However not only has Atmel provided no Commission precedent to support what Atmel has contended, as seen supra, the Commission in its 7/9/98 Op. never addressed the issue as to whether the first chip at SEEQ to implement Silicon Signature was either an EEPROM 5213 chip or an EPROM 5133 chip.²³

3. In Petitioning To Change Inventorship, Atmel Made Material Misrepresentations By Failing To Submit Contradictory Inventorship Information, By Submitting Misleading Declarations, And By Submitting A Misleading Petition

²³ Atmel has argued that it relied on the “holding” in the 7/9/98 Op. in naming Gupta as the co-inventor in the PTO Petition (CFF-R 697). The staff has argued that Gupta’s “changed opinion” is the direct result of the “binding” Commission opinion (SPost at 9, SPostR at 9).

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Atmel, in its Correction Proceedings before the PTO filed on August 12, 1998 a "Petition For Correction Of Inventorship Under 37 C.F.R. 1.324" (PTO Petition) signed by William J. James, who was then a member of the trial team of Atmel's outside counsel. (FF 13).²⁴ The PTO Petition had accompanying statements of Gupta and of Jordan. There was also filed a Request for Certificate of Correction and a proposed Certificate of Correction.

(a) PTO Petition

As the Procedural History supra states, on July 2, 1998 the Commission issued not only a "Notice of Final Determination" but also an order, neither of which was under the protective order. As the Procedural History also states on July 9, 1998 the Commission issued its opinion and the "Supplemental Views of Chairman Bragg" both of which were subject to the protective order. Each of the notice and order issued on July 2, as they relate to the '903 patent, stated only that "[t]he Commission also finds that the '903 patent is unenforceable for failure to name a co-inventor." The PTO Petition, read in pertinent part:

Patentee respectfully requests that a certificate be issued for the ... U.S. Patent No. 4,451,903 (hereinafter "the '903 patent"), naming the actual inventors by adding the following inventor who was not originally named as inventor through error, and without any deceptive intention:

Anil GUPTA, a citizen of the United States of America, whose post office address and residence is 5542 Bigoak Drive, San Jose, California 95129.

This petition is accompanied by a Statement of Anil

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GUPTA that the inventorship error occurred without deceptive intention on his part; a Statement of Larry T. JORDAN agreeing to the change of inventorship; the fee set forth in 37 C.F.R. 1.20(b); and the written consent of the Assignee.

Patentee notes that this patent has been involved in litigation before the International Trade Commission (ITC) in an action styled as In the Matter of EPROM, EEPROM, Flash Memory, And Flash Microcontroller Semiconductor Devices And Products Containing Same, Investigation No. 337-TA-395. The ITC issued an opinion on July 9, 1998, holding that the above-identified patent is unenforceable due to failure to name a co-inventor, and that the co-inventor is the person who designed the particular circuit structures corresponding to each of the means-plus-function claim elements. The ITC indicated that it did not have the power to correct inventorship, but indicated that the Patent and Trademark Office or a court could correct the inventorship of the '903 patent provided there was no deceptive intent. The separate statement of the ITC Chairman stated that there was no reason to believe that the inventorship of the '903 patent could not be corrected.

From the above, it is noted that the ITC made no finding on the issue of deceptive intention in the failure to name Anil GUPTA as a joint inventor of the '903 patent, but has indicated that any correction of inventorship should proceed before the Patent and Trademark Office or a court. Accordingly, the instant Petition is being filed to have the correction of inventorship entered at the Patent and Trademark Office.

Patentee further notes that this patent is currently involved in litigation before the Northern District of California in an action styled as Atmel Corporation v. Silicon Storage Technology, Inc., No. C-96-0039 SC.

Patentee further notes that a Request for Certificate of Correction and a proposed Certificate of Correction are being filed herewith requesting the correction of the inventor information on the patentee to include Anil GUPTA as a co-inventor.^[25]

²⁵ The 7/9/98 Op. and the "Supplemental Views Of Chairman Bragg" of July 9, 1998 were under the protective order when Atmel filed its petition with the PTO on August 11, 1998. Public versions of those documents did not issue until October 13, 1998. The Federal Circuit, in Akzo N.V. v. International Trade Commission 808 F.2d 1471, 1 U.S.P.Q.2d 1241, 1248 (Fed.

Cir. 1986), in denying a respondent's challenge to a protective order made reference to the Commission's decision in Certain Rotary Wheel Printers, Inv. No. 337-TA-145, 5 ITRD 1933, 1935 (Nov. 4, 1983) which stated:

[p]rotection of confidential information is crucial to the Commission's ability to carry out its statutory responsibilities. In addition, review after discovery and the evidentiary hearing are completed would provide an inadequate remedy. The inappropriate release of confidential information can never be fully remedied.

The Commission has traditionally been reluctant to release confidential information where not absolutely necessary.

Atmel's counsel in the PTO Petition did not quote verbatim from the 7/9/98 Op. However it appears that certain information from said opinion was accurately abstracted and conveyed not only to the PTO but to others who had not subscribed to the protective order (see FF 26, 27, 54, 65, 80, 83, 84, 93). Atmel even represented that "Atmel accurately stated the relevant and material portions of the Commission's Opinion" on August 12, 1998 when the PTO petition was filed in the PTO. (CPost at 92). Moreover, the staff quoted a portion of the 7/9/98 Op. and then argued that the portion of the Commission opinion, "is an accurate description of the relevant portion of the Commission's opinion." (SPost at 15).

The administrative law judge is unable to find anything in the record to support the conclusion that on August 12, 1998 when Atmel filed its PTO petition any abstracted information, which Atmel and the staff have referred to as the relevant and material portions of 7/9/98 Op., was a matter of public record. As the Procedural History indicated it appears that the only information public with respect to the Commission action on the '903 patent, when Atmel filed on August 12, 1998 the PTO Petition, was that the Commission found that the '903 patent is unenforceable for failure to name an inventor. See Commission Notice and Order which issued on July 2, 1998. The administrative law judge does not read a protective order as permitting one party to an investigation, unilaterally, to abstract any information from a document, subject to a protective order, and make that information public. Such procedure would make a protective order in a Section 337 investigation a sham.

Paragraph 3 of the protective order, in force in this investigation, states in part:

In the absence of written permission from the supplier or an order by the Commission or administrative law judge, any confidential information submitted in accordance with the provisions of paragraph 2 above shall not be disclosed... [Emphasis added]

Paragraph 2 of the protective order in force in this investigation states in part:

[Emphasis added]

The administrative law judge finds that Atmel's PTO Petition not only concealed the existence of an ongoing inventorship dispute but was affirmatively misleading in implying that (a) the Commission in its 7/9/98 Op. had made a finding that there was a single co-inventor which was Gupta and (b) the Commission had made findings on the issue of deceptive intent. Specifically, as seen supra, Atmel in the introductory portion of the PTO Petition requested that a certificate be issued for the '903 patent naming Gupta as an added inventor and immediately thereafter reported to the PTO that "[t]he ITC issued an opinion on July 9, 1998, holding that the above identified ['903] patent is unenforceable for failure to name a co-inventor, and that the co-inventor, is the person who designed the particular circuit structures corresponding to each of the means-plus-function claim elements." The introductory portion and this quoted statement were affirmatively misleading because the 7/9/98 Op. only found that "Jordan's involvement in the particulars of the circuit design in this investigation did not rise to the level of the sole inventor's involvement in Sewall [and] Jordan neither selected nor simulated the performance of any circuit means", supra, and accordingly held that "the '903 patent is unenforceable for failure to name an inventor." (Op. at 14). That the 7/9/98 Op. did not find that there was a single co-inventor, which was Gupta, is further shown by the response to the following question:

The administrative law judge or the Commission may determine that information alleged to be confidential is not confidential, or that its disclosure is necessary for the proper disposition of the proceeding, at any time before, during or after the close of the hearing herein. [Emphasis added]

The administrative law judge can find nothing in the record that shows that the Commission made any determination regarding the non-confidentiality of any information contained in the 7/9/98 Op. prior to October 13, 1998.

[t]he question is whether the person(s) who selected particular circuit structures for each of the means plus function claim elements (presumably Gupta) is a co-inventor [Op. at 13] [Emphasis added]

That response was only that Jordan is not the sole inventor (Op. at 14).

Atmel, in the PTO Petition, then compounded its misrepresentation that Gupta was the sole co-inventor by conveying the impression that the Commission was simply referring the matter for pro forma correction by the PTO or the courts as seen from the following:

The ITC indicated that it did not have the power to correct inventorship, but indicated that the Patent and Trademark Office or a court would correct the inventorship of the '903 patent provided there was no deceptive intent. The separate statement of the ITC Chairman stated that there was no reason to believe that the inventorship of the '903 patent could not be corrected.^[26]

In addition, the PTO Petition then stated that "the ITC made no finding on the issue of deceptive intention in the failure to name Anil Gupta as a joint inventor of the '903 patent," which suggests that the 7/9/98 Op. found Anil Gupta to be the omitted joint inventor, and that the issue of deceptive intent was addressed by the 7/9/98 Op. To the contrary the 7/9/98 Op. never reached the issue of deceptive intention because it made no finding that Gupta was a co-inventor. Atmel's misrepresentation of the 7/9/98 Op. in addition improperly bolstered the credibility of the Statements of Jordan and Gupta that formed a portion of the PTO Petition.

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²⁶ The "separate statement of the ITC Chairman" does not express the views of the Commission, which for the 7/9/98 Op. consisted of Chairman Bragg and Commissioner Crawford, and this fact was not pointed out to the PTO. {

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BY MR. BEERS:

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(JX-47 at 32 to 35). (Emphasis added). On December 11, 1997, Perlegos testified under oath at the hearing before this administrative law judge concerning the first reduction to practice of

Silicon Signature:

Q . . . I believe you have already testified that you were familiar, while you were at SEEQ, with the '903 patent; is that correct? Excuse me, that you were familiar with a method or device for manufacturer's identification while you were at SEEQ?

A Yes. I was very familiar with the Silicon Signature. I think what I had testified before was that I was not familiar with the, any patent work that was going on.

Q Putting aside any patent work, we will get to that, you were familiar, when you were at SEEQ, with the concept of Silicon Signature?

A Yes.

Q Isn't it true that EPROM was the first chip at SEEQ that implemented manufacturer's identification?

A Yes.

Q Were you involved with the implementation of that chip?

A I was the manager for that design, but we had somebody else working on that chip.

Q But did you oversee the implementation of that?

A Yes.

Q Isn't it true, sir, that Silicon Signature came from the marketing department, the idea for Silicon Signature?

A Yes.

Q The actual implementation of the circuitry was done by the engineering department under your supervision?

A We implemented the idea but the idea on how to implement I believe came from the marketing – from Larry Jordan.

Q I am asking a very specific question, sir. That is, that the actual implementation of that idea, circuitry, was done under your supervision by engineers at SEEQ; is that correct?

* * *

A I don't understand what you mean. I mean, we implemented the – we implemented Silicon Signature on the first EPROM device, yes.

(Perlegos, Tr. at 928-929). (Emphasis added)

In 1997 Perlegos gave no indication that he was having trouble or difficulty remembering the implementation of Silicon Signature in the first 5133 EPROM.²⁷ {

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In addition, Atmel failed to disclose in its PTO Petition that this administrative law judge specifically found in Finding of Fact 205 of his March 19, 1998 ID based on sworn credible testimony of Atmel's President Perlegos that "EPROM was the first chip at SEEQ that implemented manufacturer's identification and the actual implementation of the circuitry was done under George Perlegos's supervision," (Emphasis added) which is in direct conflict with what Atmel was telling the PTO in its PTO Petition. To the contrary inventorship was considered by Gupta before this administrative law judge in 1997.

(b) Statement Of Gupta

The PTO Petition included a statement in declaration form of Gupta. That statement failed to disclose to the PTO that Gupta had testified under oath in 1997 before this administrative law judge that he was not a co-inventor which was directly contrary to what Atmel was seeking to establish in its PTO Petition:

Q3: Did you play any role in conceiving or developing the invention covered under the ['903] patent?

A: No, I did not.

* * *

Q6: Do you reaffirm today the statement to which you testified at your deposition, that Larry Jordan invented the '903 circuit?

A: Yes, I do. To the best of my knowledge, Larry Jordan invented the '903 circuit.

(CX-554). Moreover Gupta's language in the statement by the PTO that "[t]he standard for inventorship as it relates to the '903 patent has been explained to me" and based on "my understanding of that standard.... I am a co-inventor" inaccurately implies that the issue of inventorship as it relates to the '903 patent was never considered by Gupta until he prepared his statement for the PTO Petition. To the contrary the record establishes that Gupta considered inventorship, before this administrative law judge, in 1997.

(c) Statement Of Jordan

The PTO Petition also included a statement of Jordan, agreeing to the change of inventorship. Atmel and Jordan however failed to disclose that Jordan had testified under oath in 1997 in deposition and at the hearing in 1997 that he worked with "SEEQ engineers" to decide on the actual circuitry used in Silicon Signature and on the description of that circuitry in the '903 patent (CX-478; Tr. at 3116-3117); that the only individual Jordan recalled specifically was Dado Banatao (Tr. at 3118-19); and that while the engineers may have included Perlegos, Jordan did not recall working with either Smarandoiu or Gupta. (Tr. at 3118-19).

(d) Materiality Of Atmel's Misleading And False Statements And Of Atmel's Withholdings

In PTO proceedings 37 C.F.R. § 1.56 (1995) (PTO rule 56) defines information as material to patentability when:

[I]t 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^[28]

The Manual of Patent Examining Procedure (MPEP) explains the standards for materiality, noting that the language of PTO rule 56 was changed in 1992 “to emphasize that there is a duty of candor and good faith which is broader than the duty to disclose material information.” MPEP § 2001.04.²⁹ The MPEP also provides guidance in establishing the type of information necessary to satisfy the duty of candor.³⁰ Thus MPEP § 2001.04 states that “[m]ateriality [as] defined in 37 CFR 1.56(b)... includes, for example, information on ... inventorship conflicts, and the like” (Emphasis added).³¹ MPEP § 2001.06(c) further requires full disclosure of “information from

²⁸ Prior to a 1992 amendment, PTO rule 56 defined information as material when “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 “37 C.F.R. § 1.56 (1989). The standard for materiality adopted in 1992 was the one in effect at the PTO in 1998 when Atmel filed its PTO Petition.

²⁹ The MPEP does not have the force and effect of law. It is entitled to judicial notice as the PTO’s official interpretation of statutes or regulations, provided that it is not in conflict with the statutes or regulations. Molins, 48 F.3d at 1180 n. 10, 33 U.S.P.Q.2d at 1282, 1828 n. 10, citing Litton Sys., Inc. v. Whirlpool Corp., 728 F.2d 1423, 1439, 221 U.S.P.Q. 97, 107 (Fed. Cir. 1984).

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³¹ Pursuant to 35 U.S.C. § 256, a patentee may not short-circuit inventorship conflicts by changing inventorship unilaterally. While Atmel argued any conflict pertains only to a conflict among potential inventors, the PTO and the public has a right to know the truth and not merely a story that potential co-inventors may have manufactured collectively for purposes of expediency.

related litigation.” Hence it states:

Where the subject matter for which a patent is being sought is or has been involved in litigation, the existence of such litigation and any other material information arising therefrom must be brought to the attention of the Patent and Trademark Office; such as, for example possible prior public uses or sales, questions of inventorship Such information might arise during litigation in, for example, pleadings . . . depositions and other documents, and testimony.

(Emphasis added). In MPEP § 2004, under a section titled “Aids To Compliance with Duty of Disclosure” the MPEP offers “helpful suggestions for avoiding duty of disclosure problems,” noting that:

It is desirable to ask questions about inventorship. Who is the proper inventor? Are there disputes or possible disputes about inventorship? If there are questions, call them to the attention of the Patent and Trademark Office.

(Emphasis added).³²

Courts considering whether contradictory information must be submitted to the PTO to comply with PTO rule 56 have said that “there is a duty to disclose or to even go so far as to ‘red flag’ contradictory information” because the PTO is incapable of verifying the contradictory nature of certain information and has to rely on the candor of the parties submitting that information. Golden Valley Microwave Foods, Inc. v. Weaver Popcorn Co., Inc., 837 F.Supp. 1444, 1475, 24 U.S.P.Q.2d 1801, 1826 (N.D. Ind. 1992), aff’d 11 F.3d 1072 (Fed. Cir. 1993), cert. denied 511 U.S. 1128 (1994); see Rohm & Haas Co. v. Crystal Chemical Co. 722 F.2d

³² While Atmel argued that MPEP § 1481 at 1400-45 states that in any inventor correction proceeding nothing more is required than what is specifically set forth in PTO rule 324 (CPost at 80-81) there is no language in MPEP § 1481 which states that a petitioner may disregard PTO rule 56 and other MPEP sections. {
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1556, 1572-73, 220 U.S.P.Q. 289, 301-02 (Fed. Cir. 1983). The district court in Golden Valley, concluding that the patentee violated its duty of candor under PTO rule 56, stated that

Any assertion that is made by a litigant ... during litigation, which is contradictory to the assertions made by [that party] to the patent examiner, comprises material information, representations, and contradictions that should have been brought to the attention of the [examiner].

Golden Valley, 837 F.Supp at 1477, 14 U.S.P.Q.2d at 1827. In addition, the district court reasoned that it “is the ‘material information’ and not the mere existence of a lawsuit that needs to be brought to the attention of the examiner with regard to a related litigation.” Id. Also, both the MPEP and the Federal Circuit emphasize that petitioners may not rely on self-serving judgments on materiality. MPEP § 2001.04 states that “[i]t is the patent examiner who should make the determinations” of materiality “after considering all the facts involved in particular case.” Likewise, the Federal Circuit has held that where materiality is questionable, all doubts must be resolved by disclosure to the PTO, “not unilaterally by the applicant.” Critikon at 1257, 1669.³³ Moreover as the Federal Circuit has noted, concealment of information that the Examiner “has no way of securing on his own” can be “particularly egregious.” Paragon Podiatry Laboratory, Inc., v. KLM Laboratories, Inc., 984 F.2d 1182, 1193, 25 U.S.P.Q.2d 1561, 1570 (Fed. Cir. 1993) (Paragon Podiatry).

³³ Atmel argued that Critikon is “outdated in view of the later issued OddzOn Products, Inc. v. Just Toys, Inc., 122 F.3d 1396, 43 U.S.P.Q.2d 1641 (Fed. Cir. 1997) (OddzOn). Assuming arguendo that there is a close case for materiality (which the administrative law judge finds there is not) and assuming arguendo OddzOn is in conflict, the first Federal Circuit case to address the issue establishes the law of the circuit unless overruled by the Court en banc. See Texas American Oil Corp. v. United States Dept of Energy, 44 F.3d 1557, 1561 (Fed. Cir. 1995). Moreover public policy requires that petitioners in a PTO correction proceeding disclose all arguably material information to the PTO. A rule to the contrary would discourage candor in the PTO’s ex parte proceedings.

In filing its PTO Petition, Atmel took the position that its '903 patent was not invalid, despite its non-joinder error because: (1) the error was correctable, i.e., the omitted inventor bore no deceptive intent in the original application proceeding, and (2) the addition of Gupta would correct that error. However at the same time that Atmel was trying to make the '903 patent enforceable in order to obtain an exclusion order and cease and desist orders, it concealed information from the PTO. Referring to PTO rule 56, this information was not "cumulative to information already of record" before the PTO, and was "inconsistent" with the facts Atmel was seeking to establish in its PTO Petition. Atmel also made statements in support of PTO Petition and relative to the inventorship issue that were at least misleading, distorted the record, and were based upon half-truths. Accordingly the administrative law judge finds that the information not told to the PTO was "material" as defined in PTO rule 56, either as amended in 1992 or as defined in the pre 1992 standard, and further commented on in M.P.E.P. §§ 2001.04, 2001.06(c), and 2004.

Also MPEP § 1402, which relates to reissue applications,³⁴ states that the PTO will issue a certificate of correction only where "all the parties are in agreement and the inventorship is not contested" (Emphasis added). At the time Atmel filed the PTO Petition Atmel knew that the inventorship of the '903 patent was contested. Also in an inventor correction proceeding PTO rule 48 in its subparagraph (g) states that "[t]he Office may require such other information as may be deemed appropriate under the particular circumstances surrounding the correction of

³⁴ PTO rule 75, which relates to reissue oaths or declarations, was cited by Atmel. (CPost at 79).

inventorship.”³⁵ The commentary to PTO rule 48 and quoted by Atmel (CPost at 79) states, inter alia “[a] request to change inventorship, however, often requested by the current inventors or assignee on their own initiative is not seen to be inherently fraught with deceptive intent as to warrant a close and detailed examination absent more.” See 62 Fed. Reg. 53138 Response to Comment 11 (Emphasis added). Certainly an inventorship contest, in which Atmel’s alleged co-inventor testified, under oath, before this administrative law judge that he was not an inventor, is something “more.”

Atmel argued that any information or documents, in addition to that required by PTO rule 324, are not material. (CPost at 76-90).³⁶ The staff argued that “while not entirely clear,”

³⁵ PTO rule 48, relating to correction of inventorship in a patent application, was cited by Atmel. (CPost at 79).

³⁶ PTO rule 324 reads:

(a) Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his or her part, the Commissioner may, on petition, or on order of a court before which such matter is called in question, issue a certificate naming only the actual inventor or inventors.

(b) Any petition pursuant to paragraph (a) of this section must be accompanied by:

(1) A statement from each person who is being added as an inventor and from each person who is being deleted as an inventor that the inventorship error occurred without any deceptive intention on his or her part;

(2) A statement from the current named inventors who have not submitted a statement under paragraph (b)(1) of this section either agreeing to the change of inventorship or stating that they have no disagreement in regard to the requested change;

(3) A statement from all assignees of the parties submitting a statement under paragraphs (b)(1) and (b)(2) of this section agreeing to the change of inventorship in the patent, which statement must comply with the requirements of § 3.73(b) of

information other than that which is listed in PTO rule 324 is not considered by said rule to be material and the Examiner would not expect to receive such information. (SPost at 11-12).

By relying on the “plain language” of PTO rule 324, Atmel and the staff seek to create a “safe harbor” from Atmel’s duty under PTO rule 56 to disclose material information concerning the inventorship of the ‘903 patent because the specific information in Atmel’s possession was not listed in PTO rule 324. However PTO rule 324 provides neither a safe harbor nor a shield against allegations of inequitable conduct under PTO rule 56. See Semiconductor Energy Lab. Co. v. Samsung Electronics Co., 204 F. 3rd 1368, 54 U.S.P.Q.2d 1001 (Fed. Cir. 2000) (SEL). In SEL the Federal Circuit considered a patentee’s technical compliance with PTO rule 98 regarding disclosure of non-English prior art references.³⁷ The patentee had submitted a partial translation

this chapter; and

(4) The fee set forth in § 1.20(b).

³⁷ Pertinent portion of PTO rule 98 reads:

Rule 98 (“Content of information disclosure statement”) provides in pertinent part:

(a) Any information disclosure statement filed under § 1.97 shall include:

.....

3. A concise explanation of the relevance, as it is presently understood by the individual designated in § 1.56(c) most knowledgeable about the content of the information, of each patent, publication, or other information listed that is not in the English language. The concise explanation may be either separate from the specification or incorporated therein.

.....

(c) If a written English-language translation of a non-English document, or portion thereof, is within the possession, custody, or control of, or is readily available to any individual designated in § 1.56(c), a copy of the translation shall accompany the statement.

of a foreign language reference that omitted certain teachings. SEL, in defense of its conduct, argued that the patentee “meticulously complied” with PTO rule 98 regarding submission of non-English language references and that MPEP § 609 establishes “permissive,” “non-burdensome,” “free of risk,” and “gently suggestive at best, and certainly not mandatory” standards for foreign language references. SEL 54 U.S.P.Q. at 1006. The Federal Circuit however concluded that the patentee committed inequitable conduct even though it may have technically complied with the PTO rule 98 regarding submission of foreign language translations; that considering the patentee’s “defense” of compliance with PTO rule 98, PTO rule 98 “provides neither a safe harbor nor a shield against allegations of inequitable conduct” SEL 54 U.S.P.Q. at 1007; that instead, as the district court explained, the rule “merely ‘provides a floor for required submissions of translations of foreign applications, not a ceiling . . . [and] it is by no means an excuse or license for concealing material portions of a prior art reference,’” that a patentee, as the district court found, could not post facto hide behind the MPEP guidelines to argue that what the patentee did with a purpose should be disregarded, quoting Refac Int’l v. Lotus Dev. Corp., 81 F. 3d 1576, 1584, 38 U.S.P.Q.2d 1665, 1672 (Fed. Cir. 1996); that although the MPEP “allows the applicant some discretion in the manner in which it . . . [presents translations to the PTO], it nowhere authorizes the applicant to intentionally omit altogether key teachings of the reference.” SEL, Id.; and that if the PTO rules were construed in the manner suggested by SEL, “applicants could easily mislead the examiner by explaining all but one of the relevant elements, thereby leaving the examiner with the impression that the reference did not anticipate, render obvious, or otherwise make unpatentable the claimed subject matter.” Id. Here as in SEL, Atmel’s alleged compliance with a

(SEL 54 U.S.P.Q.2d at 1006) (Emphasis added by Federal Circuit).

PTO rule did not give it a license to mislead the PTO. Like the patentee in SEL, Atmel knew that candid disclosure of material information could decrease the likelihood of the success of the PTO Petition, or, at the very least, could have complicated the PTO proceedings. Thus despite being advised to the contrary by his outside legal counsel, Atmel's President Perlegos determined, one day before the PTO petition was filed that any inclusion of prior testimony "would complicate the matter unnecessarily and could potentially lead to delay in the Patent Office." (FF 84, 85).

Moreover the administrative law judge finds that adverse information is "material" to a PTO rule 324 petition even though said rule does not purport to assess the merits of inventorship claims in a petition. Thus although the PTO in its current PTO rule 324 defers substantive analysis of the "proof of facts" supporting inventorship correction to "subsequent reviewers (tribunals or otherwise)," 62 Fed. Reg. 53138, Response to Comments 11 and 12,³⁸ the PTO nonetheless has the inherent power to grant or deny inventorship petitions where the PTO has reason to believe that the petition may warrant a close and detailed examination. In other words while the PTO will not decide who is an inventor, the PTO does not allow petitioners to conceal adverse facts that may reveal the need for closer and more detailed examination, than the PTO will provide, by a federal district court. Where adverse "substantive" information suggests that inventorship may be disputed, the PTO has discretion to reject a correction petition. Accordingly, the PTO's refusal to make inventorship decisions does not, ipso facto, render all adverse inventorship material "immaterial" to the PTO. Rather a petitioner must disclose adverse facts to the PTO to allow the Examiner to determine whether either to grant the petition or to deny the petition and defer entirely to "subsequent reviewers," like the federal district court, which has the

³⁸ See pages 52, 53 infra.

power to correct inventorship. If the petitioner fails to disclose adverse facts, the PTO cannot even make this threshold determination. To find otherwise would lead to the absurd result in which the PTO, in effect, would have absolutely no discretion to reject a PTO rule 324 petition, provided that the petitioner complied with the few procedural formalities of PTO rule 324. If so, PTO rule 324 would reflect a “don’t ask, don’t tell” standard that effectively would eliminate the duty of candor, under PTO rule 56, as it applies to inventorship correction proceedings. Under this standard, the PTO would be powerless to deny a certificate of correction to a petitioner, no matter what the circumstances, so long as the petition was procedurally correct.

Atmel argued that the administrative law judge give “proper effect to the presumption of validity under 35 U.S.C. § 282” (CPost at 1); that the presumption of validity routinely applies to issues like inventorship where the PTO performs no substantial review; and that the lack of substantive review of inventorship changes in the PTO does not undermine the applicability of the presumption of validity to the ‘903 patent as it now stands. (CPost at 66). Atmel also argued that “[a]ny information or documents in addition to that required by Rule 324 are not material.” (CPost at 76). (Emphasis added). In this scenario, a petitioner could intentionally misrepresent in its PTO affidavits submitted under PTO rule 324 and conceal proof of those misrepresentations, without running afoul of either PTO rule 324 or the PTO rule 56 duty of candor and obtain a patent having the presumption of validity under 35 U.S.C. § 282. Moreover under Atmel’s and the staff’s construction, the petitioner would not be running afoul of either PTO rule 324 or the duty of candor under PTO rule 56 because the misrepresentations would not be material since the PTO did not ask for adverse information which the PTO is “powerless” to consider. Accordingly the petitioner who made intentional misrepresentations to the PTO would not only obtain a

correction certificate but, according to Atmel, a presumption of validity. On later challenge, the petitioner's adversaries could not argue inequitable conduct had occurred in the PTO proceedings because, according to Atmel, and the staff, no inventorship information is "material" to a PTO rule 324 petition and thus the petitioner did not conceal any "material" information. The administrative law judge does not believe that the Supreme Court in Precision Instruments, supra, intended that result.

Atmel argued that a duty of candor to the PTO under PTO rule 56 does not apply to a correction proceeding but applies only to the examination of an application. (CPost at 119-121). Accepting this argument, because a patent application is not in issue a patentee may present half-truths and withhold relevant information from the PTO to obtain an "enforceable patent" and secure from the Commission an exclusion order and cease and desist orders which can have far reaching economic consequences. The Supreme Court in Precision however has imposed on all practitioners before the PTO a duty to conduct their business with candor, good faith and honesty. There is no indication in Precision that the duty of candor is limited to a patent application. There should be no reprieve from the duty of square dealing and full disclosure that rests on the patent practitioner in dealings with the PTO. KangaROOS U.S.A. Inc. v. Caldor, Inc. 778 F.2d 1571, 228 U.S.P.Q. 32, 35 (Fed. Cir. 1985).

The administrative law judge finds no merit in Atmel's argument that the testimony of record in the initial investigation is consistent with Gupta's co-inventorship role (CPost at 82-87) or the staff's argument that there is not a substantial likelihood that a reasonable Examiner would have considered that said testimony "in its actual context" important in granting or not granting the PTO Petition. See Section II B infra.

The administrative law judge further rejects Atmel's argument that Finding of Fact 205 in the ID is not material. (CPost at 85). Finding of Fact 205 reads, in part, "EPROM was the first chip of SEEQ that implemented manufacturer's identification and the actual implementation of the circuitry was done under Perlegos's supervision." Atmel argued that Finding of Fact 205 is no longer the law of the case and that the 7/9/98 Op. in overturning the holding of the administrative law judge that Jordan was the sole inventor of the claimed subject matter of the '903 patent, necessarily vacated any of the factual findings that "contradicted the Commission's decision."

The Federal Circuit has defined the law of the case doctrine as:

The law of the case is a judicially created doctrine, the purpose of which is to prevent the re litigation of issues that have been decided and to ensure that trial courts follow the decisions of appellate courts.

Jamesbury Corp. v. Litton Industrial Products Inc., 5 U.S.P.Q.2d 1769, 1783 (Fed. Cir. 1988) (Emphasis added) (citing Moore's Federal Practice, ¶0.404[1] at 117-18 (2d ed. 1984)). Moore's Federal Practice further discusses the law of the case doctrine and states that "[t]he law of the case doctrine applies to an issue or issues that have actually been decided. The doctrine does not apply to statements made by a court in passing, or stated as alternatives." Moore's Federal Practice, § 134.20[4] (3d ed. 1998) (Emphasis added). Thus, the law of the case only applies to issues that have been decided. The 7/9/98 Op. found that Jordan was not the sole inventor. However, 7/9/98 Op. as Atmel admits (CPostR at 14), never addressed the administrative law judge's Finding of Fact 205. Thus, the 7/9/98 Op. never found, one way or the other, that the 5133 EPROM was or was not the first Seeq device to incorporate Silicon Signature. While Finding of Fact 205 is not the law of the case neither is a finding contrary to Finding of Fact 205

the law of the case. Significantly Finding of Fact 205 is not contrary to the 7/9/98 Op.'s finding that Jordan is not the sole inventor. The 7/9/98 Op. did state that "the person(s) who selected particular circuit structures for each of the means plus function claim elements... is a co-inventor," (Op. at 8-9). Therefore, if a 5133 EPROM was the first Seeq device to contain Silicon Signature then consistent with the that statement, whoever selected the particular circuit structures for each of the means plus function elements on that 5133 EPROM is a co-inventor. Also while the 7/9/98 Op. stated that Gupta testified that he implemented Jordan's idea in silicon, the 7/9/98 Op. did not find that Gupta was the first to implement Jordan's idea in silicon, nor did the 7/9/98 Op. find that Gupta was the only individual to implement Jordan's design in silicon. See supra.

The administrative law judge rejects Atmel's argument that information regarding inventorship does not relate to the patentability of the '903 patent and is therefore not material (CPost at 89). The inventorship issue very much concerns "patentability" because the '903 patent was found in the 7/9/98 Op. to be unenforceable for "failure to name an inventor" and as such it was concluded that no remedy based on infringement of the '903 patent can be issued. The patent statute, 35 U.S.C. § 102(f), makes the naming of the correct inventor or inventors a condition of patentability and the failure to name them renders a patent invalid.³⁹

Atmel argued that Atmel does not make the claim that statements that are submitted in the PTO Petition may be untruthful. (CPost at 90-91). While Atmel so argued, the administrative

³⁹ Section 102(f) of Title 35 reads "[a] person shall be entitled to a patent unless he did not himself invent the subject matter to be invented." Section 102 of Title 35 is within part II of Title 35, which is entitled "conditions for patentability; novelty and loss of right to patent." Hence 35 U.S.C. 102(f) mandates that a patent accurately list the correct inventors of a claimed invention. Pannu v. Iolab Corp. 155 F.3d 1344, 1348-49, 47 U.S.P.Q.2d 1657, 1662-63 (Fed. Cir. 1998). Id. at 1349-50 ("Section 102(f) still makes the naming of the correct inventor or inventors a condition of patentability, failure to name them renders a patent invalid").

law judge finds that the record, as to Atmel's statements in the PTO Petition, including the accompanying statements of Gupta and Jordan, does not support the argument.

Atmel argued that Gupta's testimony under oath before this administrative law judge in 1997 that he was not an inventor of the '903 patent was a legal conclusion. (CPost at 42). The staff argued that in 1997 Gupta, under oath before this administrative law judge, "testified to his legal opinion that his implementation did not give rise to inventorship." (Emphasis by staff) (SPost at 10). There is nothing in the record which establishes that when Gupta was testifying before this administrative law judge in 1997 he was giving his "legal" opinion. The record does not show that Gupta is a lawyer and neither Atmel nor the staff cited anything in the record to show that he is a lawyer. Moreover the ground rules of this administrative law judge prevents a witness from testifying to a legal opinion. This administrative law judge, who heard the testimony of Gupta in 1997, did not consider that the testimony was Gupta's legal opinion as the staff has so represented. If the administrative law judge had been put on notice that Gupta's testimony under oath before this administrative law judge in 1997 was his "legal" opinion the administrative law judge would have stricken the testimony pursuant to his ground rules.⁴⁰

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⁴⁰ Although this administrative law judge can not read into the minds of Atmel and the staff, it would appear that each intended to argue that the factual testimony that Gupta gave before this administrative law judge in 1997, under oath, at some later date became Gupta's legal opinion.

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⁴¹ Turk did not testify live at the hearing in February 2000.

The staff, relying on Fritsch v. Lin, 21 U.S.P.Q.2d 1737, (Bd. Pat. App. & Int. 1991) (Fritsch) argued that PTO rule 324 does comply with the “proof of facts” requirement of 35 U.S.C. § 256. It then argued that the affidavits required by PTO rule 324 constitute prima facie evidence of inventorship, and thus comply with the proof of facts requirement of 35 U.S.C. § 256 (SPost at 28). Atmel agrees with the staff. (CPostR at 46). The enabling statute for PTO rule 324 is 35 U.S.C. § 256.⁴² Pursuant to the enabling statute a patent’s inventorship statement may be corrected to add a co-inventor only by the PTO and a federal district court. According to the enabling statute, the standard is the same in both fora. See Stark v. Advanced Magnetics, Inc., 119 F.3d 1551, 1552, 43 U.S.P.Q.2d 1321, 1322 (Fed. Cir. 1997). As 35 U.S.C. § 256 states, in each fora, absent deceptive intent, the putative inventor may be added to an issued patent “upon proof of facts and such other requirements as may be imposed.” 35 U.S.C. § 256. This proof entails “clear and convincing evidence of supporting facts, including corroborating evidence.”

⁴² 35 U.S.C. § 256 reads:

Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his part, the Commissioner may, on application of all the parties and assignees, with proof of the facts and other such requirements as may be imposed, issue a certificate correcting such error.

The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Commissioner shall issue a certificate accordingly. [Emphasis added]

See C.R. Bard Inc. v. M3 Systems, Inc., 157 F.3d 1340, 1353, 48 U.S.P.Q.2d 1225, 1233 (Fed. Cir. 1998). This “clear and convincing” evidence must prove that:

- (i) the omitted person was a joint inventor;
- (ii) the omission was the result of error; and
- (iii) the omission was without deceptive intent.

Applied Medical Resources Corp. v. United States Surgical Corp., 967 F. Supp. 867, 871 (E.D. Va. 1997), appeal dismissed, 129 F.3d 133 (Fed. Cir. 1997). An alleged co-inventor’s testimony alone cannot satisfy this standard. Price v. Symsek, 988 F.2d 1187, 1194, 26 U.S.P.Q.2d 1031, 1036 (Fed. Cir. 1993) (Price).

Prior to 1997, for obtaining an inventorship correction certificate PTO rule 324 required the petitioner to provide “proof of facts” as mandated by 35 U.S.C. § 256. See 37 C.F.R. §1.324 (1997). Effective December 1, 1997, PTO rule 324 however was amended to omit previous language that had stated that the petitioner should provide “satisfactory proof of the facts” establishing when the error in inventorship without deceptive intent was discovered and how it occurred, replacing it with the requirement in Rule 324(b)(1) that the omitted inventor submit only a statement that the inventorship error occurred without deceptive intent on his part. Thus the administrative law judge rejects staff’s argument that current PTO rule 324 complies with the “proof of the facts” requirement of 35 U.S.C. § 256. Also the administrative law judge finds Fritsch not relevant. In Fritsch, Fritsch asked the Board to find Lin’s claims unpatentable under 35 U.S.C. § 102 (f) because Lin took no part in developing certain procedures. Lin argued that it was not essential for the inventor to be personally involved in carrying out process steps defined by a count where implementation of those steps did not require the exercise of inventive

skill. The Board in Fritsch stated:

... Initially, we note that statements in patent applications as to sole or joint invention are prima facie evidence of such fact; and a party, relying upon his application, does not have to prove such facts. Thus, a party who wishes to dispute sole inventorship as stated in an application, as Fritsch does in this case, has the burden of overcoming the prima facie effect of the application. [Emphasis added]

Fritsch 21 U.S.P.Q.2d at 1739. However it also stated:

Fritsch has failed to satisfy the burden so imposed since Fritsch has adduced no evidence suggesting that the work done at Amgen relating to expression of the EPO gene in mammalian host cells and isolation of the resulting glycoprotein product involved anything other than the exercise of ordinary skill by practitioners in that field.

In the correction proceedings in issue if Atmel had complied with PTO rule 56 and had provided the material information to the PTO, any prima facie effect of the Gupta and Jordan statements would have been put in issue before the PTO.

(e) Atmel's Intent to Mislead

As noted supra and as the Federal Circuit stated, in addition to materiality, “[t]o be guilty of inequitable conduct [before the PTO], one must have intended to act inequitably.” FMC Corp. v. Manitowoc Co., 835 F.2d 1411, 1415, 5 U.S.P.Q.2d 1112, 1115 (Fed. Cir. 1987). Because “smoking gun” evidence is rarely available to prove inequitable conduct, the applicant’s “intent to deceive” may be inferred generally from the applicant’s overall conduct. Paragon Podiatry, 984 F.2d at 1189-90, 25 U.S.P.Q.2d at 1567; Merck & Co. v. Danbury Pharmacal, Inc., 873 F.2d 1418, 1422, 10 U.S.P.Q.2d 1682, 1686 (Fed. Cir. 1989). For example, an inference of intent arises where a patent applicant knew, or should have known, that omitted information would be material to the patent application. Critikon at 120 F.3d at 1668, 43 U.S.P.Q.2d at 1256. Intent is

a judgment that must be made on the totality of the circumstances; and courts must determine whether an applicant's conduct, when "viewed in light of all the evidence, including evidence indicative of good faith ... is culpable enough to require a finding of intent to deceive."

Halliburton, 925 F.2d at 1443, 17 U.S.P.Q.2d at 1841.

The 7/9/98 Op. issued on July 9, 1998. Approximately one month later on August 12, 1998, a date set only by Atmel, Atmel filed its PTO Petition.⁴³ {

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⁴³ Atmel was under no filing deadline.

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⁴⁴ The staff (SPost at 16-18) although it represents the public interest, does not address any of the documentary evidence or testimony that deals with the actions of Atmel's counsel and employees in July and August 1998{

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⁴⁷ Atmel{

}not only referenced the litigation

before the International Trade Commission (ITC) in an action styled In the Matter of EPROM, EEPROM, Flash Memory, And Flash Microcontroller Semiconductor Devices And Products Containing Same, Investigation No. 337-TA-395 but affirmatively mislead the PTO in implying that (a) the Commission in its 7/9/98 Op. had made a finding that Gupta was the sole co-inventor on the '908 patent and (b) the Commission made findings on the issue of deceptive intent. See supra.

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}⁵² Atmel in the PETITION filed with the Commission on September 8, 1998 asked the Commission to take administrative notice of the action of the PTO in correcting the inventorship of the '903 patent and to issue "the appropriate exclusion order and cease and desist orders." If the PTO had denied the PTO Petition, there would have been nothing for the Commission to take administrative notice of thus nullifying the reason for the PETITION.

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⁵² As set forth in Section A 3(d), supra a patent under 35 U.S.C. § 256 can be corrected to add an omitted co-inventor only by the PTO granting an application under PTO rule 324 or by order of a federal district court.

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⁵⁵ The 7/9/98 Op. and the separate statement of Chairman Bragg, { } were at that time under the protective order.

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The language of the Gupta Statement that was filed by Atmel with the PTO Petition{

} Thus it reads:

I, the undersigned, Anil GUPTA, a citizen of the United States of America, whose address is 5542 Bigoak Drive, San Jose, California 95129, do solemnly declare, as follows:

1. I have reviewed the above-identified U.S. Patent No. 4,451,903 (hereinafter "the '903 patent").

2. I have reviewed the Petition for Correction of Inventorship under 37 C.F.R. 1.324 requesting the correction of inventorship of the '903 patent to include Anil GUPTA as a co-inventor (which, on information and belief, is being filed on even date herewith), and the Statement of Larry T. JORDAN indicating that he agrees to the change of inventorship (which, on information and belief, is also being filed on even date herewith).

3. The standard for inventorship as it relates to the '903 patent has been explained to me. Based on my understanding of that standard, I hereby state that I have made an inventive contribution to the subject matter claimed in the '903 patent, whereby I am a co-inventor of the claimed subject matter of the '903

patent.[⁵⁶]

4. I further state that the inventorship error occurred without any deceptive intention on my part.

The undersigned further declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States code, and that such willful false statements may jeopardize the validity of the above-captioned application or any patent issuing therefrom.

August 11, 1998

Anil GUPTA

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⁵⁷ The administrative law judge finds that the employee number does not shed light on when either employee was hired, or what length of time existed between their respective hire dates. Moreover, there is nothing in the record to support a July 1981 hire date for Banatao.

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⁵⁸ The 7/9/98 Op. was under the protective order.

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Significantly the Federal Circuit in SEL under the subheading “intent” reiterated its prior holdings that intent need not be proven by direct evidence and it is most often proven by a showing of acts, the natural consequence of which are presumably intended by the actor; that generally intent must be inferred from the facts and circumstances surrounding the applicant’s conduct; that since the fact-finder has personally heard and observed the demeanor of witnesses, the Federal Circuit accord deference to the fact-finder’s assessment of a witness’s credibility and character; that proof of high materiality and that the applicant knew or should have known of that materiality makes it difficult to show good faith to overcome an inference of intent to mislead; that the more material the omission or the misrepresentation, the lower the level of intent required to establish inequitable conduct, and vice versa; and that in evaluating whether the district court clearly erred in its factual finding of deceitful intent, the Federal Circuit must assure itself that the district court did not overlook mitigating factors, citing Akron Polymer Container Corp. v. Exxel Container, Inc. 148 F.3d 1380, 1384, 47 U.S.P.Q.2d 1533, 1536 (Fed. Cir. 1998) (Akron)⁶⁰ SEL. 54 U.S.P.Q.2d at 1005, 1006.

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⁶⁰ Akron stands for the proposition that when examining intent to deceive, a court must weigh all the evidence including evidence of good faith. 148 F.3d at 1384, 47 U.S.P.Q.2d at 1536.

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⁶¹ Atmel admitted that “simple ‘technical compliance’ with a PTO rule does not excuse the withholding of material information simply because that rule fails to mention such information.” (CPostR at 52).

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} Haslam was also present for Perlegos's hearing testimony
before this administrative law judge on December 11, 1997, in which Perlegos testified that the
EPROM was SEEQ's first chip to implement Silicon Signature. (Tr. at 928-929).{

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(f) Balancing Materiality And Intent Atmel Committed Inequitable Conduct

The administrative law judge has found that intervenor and respondents have satisfied by clear and convincing evidence the threshold level of materiality and the threshold showing of intent to deceive. Once the thresholds of materiality and intent are established, the administrative law judge must balance them and determine as a matter of law whether the scales tilt to a conclusion that inequitable conduct occurred. J.P. Stevens & Co v. Lex Tex., Ltd. 223 U.S.P.Q. 1089, 1092 (Fed. Cir. 1984) (Stevens).

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} Balancing materiality and intent the

administrative law judge finds that inequitable conduct occurred.

B. The Inventors Shown On The Certificate Of Correction Are Not
The Appropriate Set Of Inventors

Atmel argued that Jordan and Gupta are the proper inventors of the '903 patent because, working with Jordan, Gupta selected all of the circuit structures disclosed in the '903 patent while designing SEEQ's 5213 EEPROM. (CPost at 22).

The staff argued that the evidence establishes that Gupta is a co-inventor under the

Commission's interpretation of Ethicon (SPost at 21) because the evidence adduced at trial in this reconsideration proceeding indicates that the circuit structures depicted in Fig. 3 of the '903 patent are identical to the circuit structures Gupta selected when he implemented Silicon Signature into the design of the 5213 EEPROM. (SPost at 21).

SST argued that the actual circuits to implement Silicon Signature were designed by Perlegos and Smarandoiu. (IPost at 14).

Sanyo argued that, based on the testimony from numerous Atmel witnesses, Silicon Signature was first designed into the SEEQ 5133 device, on which Smarandoiu and Perlegos worked and on which Gupta did not work. (SANPost at 8-12).

Macronix argued that Perlegos and Smarandoiu developed Silicon Signature circuits for the 5133 EPROM before the 5213 EEPROM was developed. (MPost at 33).

Winbond argued that the only clear and convincing evidence demonstrates that Perlegos and Smarandoiu are co-inventors. (WPost at 54).⁶³

⁶³ Atmel argued that respondents and intervenor are judicially estopped from asserting that Gupta is not an inventor (CPost at 45-54). The staff argued that the respondents and intervenor "should, at a minimum, be bound by their statements that Mr. Gupta was an inventor of the '903 patent under the law applied by the Commission, which was the law they were advocating" (SPost at 11). Judicial estoppel however only prevents a party from taking a certain position in a legal proceeding if it "succeed[ed] in maintaining" an inconsistent position in another proceeding. Wang Labs., Inc. v. Applied Computer Sciences, Inc., 958 F. 2d 355, 358, 22 U.S.P.Q.2d 1055, 1058 (Fed. Cir. 1992). Without judicial acceptance, there is "no risk of inconsistent results, no effect on the integrity of the judicial process, and no perception that the court has been misled." Water Technologies Corp. v. Calco, Ltd. 850 F. 2d 660,666, 7 U.S.P.Q.2d 1097, 1101 (Fed. Cir. 1998). As Atmel acknowledged (CPost at 50), this administrative law judge rejected respondents' and intervenor's contentions as insufficient to prove by clear and convincing evidence that Jordan was not the sole inventor. As the ID of March 19, 1998 stated Macronix, Winbond and SST "failed to even proffer the specific identity of the other alleged co-inventor(s) [in addition to Jordan]" (ID at 102). According to the 7/9/98 Op. at

1. Gupta Is Not A Co-Inventor

Atmel was founded by Perlegos and other former SEEQ employees in 1984. In February, 1994 Atmel purchased the nonvolatile memory business assets of SEEQ, including the '903 patent. (March 19, 1998 ID, FF 201, 210, 298, (findings not currently disputed by any party)).

It is undisputed that Jordan joined SEEQ on January 5, 1981. (Jordan, Tr. at 4684).

Jordan admitted that he "came up with the concept for Silicon Signature in early 1981, during the first few months after SEEQ was incorporated." (CX-644 Q&A17). Jordan also admitted that "...my recollection is that I thought of Silicon Signature in the first two months," and further testified that by the phrase "first two months" he meant the first two months after he joined SEEQ on January 5, 1981. (Jordan, Tr. at 4683-84). In addition, Jordan admitted that he even "might have" come up with the Silicon Signature idea within his first two weeks of joining SEEQ.

(Jordan, Tr. at 3121). Thus, according to Jordan's own admissions, Jordan came up with his idea for Silicon Signature at least by the end of February 1981, if not earlier. Perlegos, who joined SEEQ in February of 1981 (Jordan, Tr. at 4706, IX-445 at 316), testified, in deposition testimony

13, the question of inventorship turned on "whether the person(s) who selected particular circuit structures" corresponding to Silicon Signature is a co-inventor. At no time in the history of this investigation have intervenor and respondents carried the burden of proving or purporting to prove that Gupta was a co-inventor of the '903 patent. Rather, intervenor and respondents successfully carried the burden of proving that Jordan could not have been the sole inventor of the '903 patent. Thus the Commission recognized that more than one person should be a co-inventor of the '903 patent and found that respondents and intervenor proved their non-joinder defense by clear and convincing evidence (7/9/98 Op. at 13). While the Commission noted that such a person could "presumably" be Gupta, the administrative law judge finds that this statement does not constitute a ruling that Gupta was a co-inventor. Moreover it is clear that the Commission did not find that Gupta was a co-inventor or the sole co-inventor because the Commission in its Order dated January 25, 1999 remanded the investigation to this administrative law judge to resolve the issue of whether the inventors shown on the Certificate of Correction are the appropriate set of inventors. Accordingly the administrative law judge finds that judicial estoppel does not apply.

dated October 29, 1997,⁶⁴ that “[a]s I stated, I think Larry Jordan had already invented the Silicon Signature when I got to SEEQ.” (IX-444 at 159). Perlegos further testified that:

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(IX-444 at 164-165). Perlegos also testified, in deposition testimony dated October 29, 1997,⁶⁵ that with respect to Jordan coming up with Silicon Signature{

} (IX-445 at 316). Perlegos joined SEEQ in

February of 1981. (Jordan, Tr. at 4706, IX-445 at 316). Thus, according to Perlegos’s testimony Jordan had come up with Silicon Signature by the end February of 1981.

⁶⁴ This testimony was entered into evidence only in the February, 2000 hearing.

⁶⁵ This testimony was first entered into evidence in the February, 2000 hearing.

Atmel argued that Jordan, as of February 1981, had “not yet developed his general idea for Silicon Signature to the point where he was considering including Silicon Signature” in any product because Jordan testified that an entry in his notebook of February 1981 lists “product definitions” which were ideas that he was going to design as part of his “key results” and that his entry for the 64 K EPROM included security and 10 MS program pulses but did not include Silicon Signature. (CFF-R256, citing CX-292, Jordan, Tr. at 4785-86). CX-292 is Jordan’s notebook and page 055740 of that notebook is dated February 19. On said page Jordan does not list Silicon Signature under the “product definition” for the 64 K EPROM. Jordan’s testimony at the February 2000 hearing (Tr. at 4785-86) that Silicon Signature is not listed because he had not yet developed his “general idea” for Silicon Signature is inconsistent with his own admissions supra and is also inconsistent with Perlegos’s testimony supra. Moreover, even if Jordan’s testimony were accepted, CX-292 only shows that Jordan did not come up with his “general idea” for Silicon Signature prior to February 19, 1981, and therefore does not refute the finding that Jordan came up with the “general idea” for Silicon Signature before the end of February 1981 and before Perlegos arrived at SEEQ.

Jordan’s idea of Silicon Signature, as claimed in the ‘903 patent, was to use a high voltage applied to one of the chip’s address pins to trigger a circuit that would deselect or disable the chip’s main memory array while accessing a separate memory row containing manufacturer’s identification data. Jordan’s idea included having a high voltage detection circuit to recognize the super high voltage and to trigger a secondary super voltage mode which would access the manufacturer’s identification information. Thus Jordan testified in the original hearing:

Q. Okay, please explain that.

A. This is an implementation of a block diagram. I conceived the elements that are in it. I did not draw the document.

Q. Let's talk about that, then. What elements in figure 1 did you conceive?

A. The fact that there would be a high voltage input on a high address, line A9 in this case.

Q. Okay.

A. And that it would, by applying a high voltage signal, which is outside the normal operating range of the product, that it would access additional information array to bring out the stored information about the manufacturer's ID and the information on how to program it.

Q. Now, did you, then, conceive of row decoder 16, that element?

A. I did not conceive something called row decoder 16. I had a concept that said there is an input line which is shown as A9, and that input line has a high voltage detector on it that then puts it into the programming, the signature read mode. And how it was implemented in terms of the physical implementation, I did not have any concern about.

Q. Perhaps could we put up figure 3, then. Mr. Jordan, Exhibit 16, do you recognize figure 3 from your patent?

A. Yes, I do.

Q. Do you see high voltage detection circuit 102?

A. Yes.

Q. Did you conceive high voltage detection circuit 102?

A. I conceived the concept that said there has to be a high voltage input detection circuit so that you can recognize the high voltage and do a different operation.

Q. All right. Did you conceive of the fact that it had to have inverters, high voltage detection circuit 102 had to have inverters?

A. No, I did not.

Q. With regard to the high voltage detection circuit, were you familiar with the use of high voltage on an address pin before you joined SEEQ?

A. Yes.

Q. What was your familiarity?

A. There were a number of instances where high voltage has been used in test environments, and I believe also in some reliability or QA environments.

Q. Is that how you knew that you could put a high voltage on an address pin to implement the concept?

A. I knew that it was quite possible or practical to have a high voltage detection circuit designed into a normal product which then allowed it to have a secondary function.

Q. Now, did you conceive the use of element 204, which is NOR gate, as part of the implementation of your concept?

A. No, I did not.

Q. All right.

A. I conceived only that with the high voltage input, when it goes into a , what we call a super voltage, or called super voltage mode, outside of the normal range, that it turns off the normal functioning of that pin and the device and goes into secondary mode, which is to read out the product information array.

Q. Now, let's go back to figure 1 which is RPX 14.

A. Yes.

Q. Did you determine how, or did you conceive how that high voltage was going to, I think you said stop the normal operation of the array; is that correct?

A. Yes.

Q. So my question--

A. To disable the normal operation of the device.

Q. Now, did you conceive of how to disable the normal operation of the device?

A. No.

Q. All right. Did you determine at all whether the column decoder 14 should be involved in being disabled?

A. Yes, I conceived that the only pin, A9, not the pin but the address pin in the A9 area, meaning the high address pin, would be the one that affects what information is being read out and that none of the other pins would be affected in their normal operation. They would still do their normal thing.

(Jordan, Tr. at 3107-3110, see also CX-644 at Q&A 10-11). In addition, Gupta, in the February 2000 hearing, admitted that:

Well, the concept of Silicon Signature would be that you take a pin outside the normal operation of the part, and you can access certain information, which can be used by, you know, customer, user, and in development phase, you would perhaps define what that information can be. It can be manufacturer ID, it can be a mask derivation ID, it can be programming pulses, levels, their pulse widths, and that's my answer for those phrases.

(Gupta, Tr. at 4175-4176). Gupta further admitted that “[w]hen I talked to Mr. Jordan, that’s where he was. He had finished these two phases, the conceiving and the developing phase.” Id.

Thus, as seen from the above testimony, Jordan came up with the need to use a high voltage detection circuit and circuitry that would disable the main array while accessing the separate memory row. In fact, Jordan even identified the address pin A9 as the appropriate pin for this high voltage. (Gupta, Tr. at 4184). Gupta admitted that Jordan came up with the invention as shown in block diagram form in Fig. 1 of the ‘903 patent, including incorporating the product information array into the memory array. (Gupta, Tr. at 4180-4183). Moreover, Jordan admitted

that he came up with the idea of “putting a row in the device to carry the [product] information.” (CX-644, Q&A22). Thus, the administrative law judge finds that Jordan came up with the use of the high voltage detection circuitry disable circuitry for Silicon Signature by at least the end of February 1981, if not earlier.

Although Jordan came up with the idea of a high voltage applied to one of the chip’s address pins to trigger a circuit that would deselect or disable the chip’s main memory array while accessing a separate memory row containing manufacturer’s identification data, the design of the particular high voltage detection circuit and the design of the particular disable circuitry, which was routine and trivial,⁶⁶ was not done by Jordan. (See, Tr. at 3107-3110 supra). The evidence, however, establishes that SEEQ’s first 5133 EPROM used the high voltage detection circuit and the disable circuit. Thus, Gupta admitted concerning the high voltage detection and disable circuitry:

It was very common, well known circuitry, and it was used by 5133 perhaps and used by a lot of other parties in the industry.

(Gupta, Tr. at 4188, see also IX- 270 165-168).

Perlegos has testified, with respect to the 5133 EPROM, that:

Q. Were you involved with the implementation of that chip?

A. I was the manager for that design, but we had somebody else working on that chip.

Q. But did you oversee the implementation of that?

A. Yes.

(Perlegos, Tr. at 927-929, Emphasis added). While Atmel argued that Perlegos only supervised

⁶⁶ See supra at n. 22.

the design of the 5133 EPROM and that he did not select or design any particular circuit structures on the 5133 EPROM (CPost at 47), the evidence is directly contrary to that argument and establishes that not only did Perlegos oversee the implementation of the design of the 5133 EPROM, but that he actually designed some of the circuits on that chip. Thus, Smarandoiu testified in the February, 2000 hearing that:

Q. In fact George Perlegos started designing circuits on that first 5133 EPROM before you arrived?

A. I believe so.

Q. So he did some of the detail design work on that first 5133 EPROM?

A. Yes.

(Smarandoiu, Tr. at 4470). {

} Thus, the administrative law judge finds that Perlegos and, pursuant to Perlegos's testimony supra, "somebody else" designed the particular circuitry of the 5133 EPROM.

The administrative law judge finds that the "somebody else" was Smarandoiu. Thus, Smarandoiu testified at the February 2000 hearing that he "started working for SEEQ in May 1981 as a part time consultant. As a part time consultant, I went to SEEQ perhaps once a week. Then on June 15, 1981, when I had finished teaching at Berkeley, I started at SEEQ full time as a consultant and started going to SEEQ daily." (CX-643, Q&A4). Smarandoiu also testified at the February 2000 hearing that he began designing circuits for SEEQ "[s]ometime in the summer of 1981;" that the 5133 EPROM was the first part on which he began his design work, (CX-643,

Q&A 14-15); and that he began designing circuits on the 5133 EPROM in either June or July 1981. (Smarandoiu, Tr. at 4441). Smarandoiu also testified at the February 2000 hearing that he worked with Perlegos on the design of the 5133 EPROM, (CX-643, Q&A16).⁶⁷

With respect to the timing of the design of the 5133 EPROM with the high voltage and disable circuitry necessary for Silicon Signature, Perlegos testified that the target specification (spec) for the 5133 EPROM was developed in February or March 1981. (IX-444 at 160). Jordan has defined a target spec as a document where marketing and engineering agree on the product that is going to be designed, and marketing is going to specify what characteristics it has. (Jordan, Tr. at 4738). Smarandoiu testified at the February, 2000 hearing, that he and Perlegos “finished the design of the first 64K EPROM in August 1981,” and that he remembers the date because “[o]n August 18, 1981 we taped out the 64 K EPROM design. I have a champagne bottle with this date on it to commemorate that tape out date. The tape out is what contains the final design.” (CX-643, Q&A 22-23, see also IX 447 at 10; JX-20 at 19, 21-22; CX-305 at 56791).

Based on the foregoing, the administrative law judge finds that the first version of the 5133 EPROM, which contained the high voltage and disable circuitry necessary for Silicon Signature, was designed beginning in March of 1981 by Perlegos, and the design work continued by Perlegos and Smarandoiu from April of 1981 until its completion on August 18, 1981.

The administrative law judge further finds that the record establishes that the first 5133

⁶⁷ While Atmel argued that Smarandoiu did not model non-volatile memory transistors (CFF-R342), Smarandoiu testified that no one other than Perlegos or Smarandoiu did the design work on the 5133 EPROM, (Smarandoiu Tr. at 4470), and that any circuits designed on the 5133 EPROM were designed either by Perlegos or Smarandoiu, (Smarandoiu, Tr. at 4471). In addition, it is undisputed that Gupta was not involved in any way with the 5133 EPROM.

EPROM, with the circuitry necessary for Silicon Signature, was designed prior to the first 5213 EEPROM. Thus, Gupta admitted that he joined SEEQ in April of 1981, one month after Smarandoiu began working at SEEQ. (CX-642, Q&A4). Gupta admitted that he was responsible { } (CX-642, Q&A8). He also admitted that Perlegos supervised his work on the 5213 EEPROM. (CX-642, Q&A11). Unlike the 5133 EPROM, which Smarandoiu specifically recalled was completed, viz., taped out, on August 18, 1981 because of the Champagne bottle commemorating the event, Gupta has no specific recollection of the date on which the 5213 taped out.

Gupta, who is not only an employee of Atmel but has Atmel's in-house counsel reporting to him (FF 7, IX-266 at 31), testified at the February 2000 hearing that he finished his design of the 5213 EEPROM circuitry { } (CX-642, Q&A12). {

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The administrative law judge finds that the evidence of record, including evidence compiled in the December, 1997 hearing and in the February, 2000 hearing, establishes that the

first 5133 EPROM, for which Perlegos and Smarandoiu designed the high voltage and disable circuits and which was designed prior to the 5213 EEPROM, contained Silicon Signature. The '903 patent itself, the application of which was filed on September 18, 1981 and which is the Silicon Signature patent, states that:

With reference to FIG. 1 there is shown therein an exemplary semiconductor circuit 10 with which the present invention can be effectively used. More particularly, the circuit 10 may be a device such as a 2564 erasable, programmable, read only memory (EPROM) such as manufactured by a number of semiconductor vendors.

(CX-50, col. 2, ll. 45-52, Emphasis added). Thus, while the '903 patent specifically refers to the EPROM as the exemplary device for the invention disclosed in the '903 patent, it mentions the EEPROM in passing in the statement "the present invention is particularly applicable to byte-wide memories such as RAMs, EPROMs and E²PROM [EEPROM], and is preferably implemented in single row format." (CX-50, col.4, ll. 65-68). The application filing date of September 18, 1981 is a date subsequent to the August 18, 1981 design completion date of the first 5133 EPROM but prior to the end of September design completion date for the first 5213 EEPROM.

In addition, IX-50 is the minutes from a May 8, 1981 JEDEC (Joint Electron Device Engineering Council) meeting. IX-50 is a contemporaneous document which predates the filing of the '903 patent application on September 18, 1981. IX-50 states at p. J000283:

Electrical Identification of EPROMs

Larry Jordan described a "signature in silicon" method for providing a form of identification....

(IX-50, Emphasis in original). Hence IX-50 clearly identifies the 5133 EPROM as a product which contained Silicon Signature. The administrative law judge finds that IX-50 does not

address Silicon Signature in the 5213 EEPROM.

An August 6, 1981 target specification for the 5133 EPROM describes the 5133 EPROM as containing Silicon Signature. (IX-280). In fact, Atmel does not dispute that IX-280 lists the 5133 EPROM device as containing Silicon Signature. (CPost at 35). Atmel argued that IX-280 does not relate to the first 5133 EPROM, but rather to a subsequent version, which version was designed after the 5213 EEPROM. (CPost at 35). IX-280 is a target spec for the QS106 version of the 5133 EPROM. (IX-280 at 1). While Atmel relied on Smarandoiu's testimony that the QS106 was a subsequent version of the 5133 EPROM (CX-643, Q&A36-39), Smarandoiu further testified that "I don't recall to which version of the 5133 the QS106 refers to." (Smarandoiu, Tr. at 4461).

Atmel also argued that IX280 is a subsequent version of the 5133 EPROM because IX-280 mentions a security feature that was not part of the first version of the 5133 EPROM. (CFF-R297). However, Atmel's CFF-R256 cites Jordan's testimony that CX-292, under the heading "product definitions" has an entry "64K EPROM with security..." which reflects that Jordan wanted to include security in the first 64K EPROM. Moreover, even if the QS106 target spec refers to a subsequent version of the 5133 EPROM, Jordan's notebook (CX-292) states that the QS106 5133 EPROM was taped out the week of September 7, 1981. (CX-292, at 055844-45). Hence the QS106 5133 EPROM, which device's target spec clearly demonstrates that it contained Silicon Signature, was taped out, viz., the design was completed, the week of September 7, 1981, a date prior to the completion of the design of the 5213 EEPROM at the end of September 1981.

Moreover, while Atmel argued that IX-280 "does not even indicate that Silicon Signature

was actually designed in the version of the 5133 that it represents because target specifications only define features that are going to be designed into a product in the future,” (CPostR at 37, n.32), Smarandoiu testified with respect to the development of target specs at SEEQ:

Q. And in fact, that they were developed in parallel with the actual circuit design?

A. Yes.

(Smarandoiu, Tr. at 4460). Hence, according to Smarandoiu the August 6, 1981 target spec accurately reflects the fact that the QS106 version of the 5133 EPROM contained Silicon Signature.

In addition to the '903 patent, IX-50, and IX-280 discussed supra, there is also a SEEQ Private Placement Memorandum of June 21, 1982 (IX-63) which, although not dated prior to the filing of the '903 patent application, supports the conclusion that the first 5133 EPROM was the first SEEQ device to incorporate Silicon Signature. Thus, the Private Placement Memorandum at 019450 states “SEEQ’s EEPROM products have the following proprietary features...” The Memorandum then lists the following features: Oxynitride Dielectric, Row Redundancy, 5V Erasure or 21V Erasure, Traceability, and Four-transistor cell design. (IX-63 at 019450). Significantly, the Memorandum does not list Silicon Signature as a feature of the 5213 EEPROM. However, the Memorandum, on the next page states “SEEQ’s EPROM products have the following proprietary features...” (IX-63 at 019451), and then lists the following features: 64K density, Redundancy, Arsenic source and drain, 10 millisecond programming, and Silicon Signature. (Id. Emphasis added).

Atmel and the staff argued that the Memorandum (IX-63) was never intended to contain

an exhaustive list of the features on the 5213 EEPROM and the 5133 EPROM because it was a private document used to raise money from venture capitalists and to highlight for those investors the features that would be most significant for each product. (CPost at 36-37, SPost at 25). It is argued that the EEPROM section of the Memorandum did not mention Silicon Signature because, in June 1982, SEEQ did not believe that Silicon Signature was going to be an important feature on the EEPROM; that because SEEQ's 5213 EEPROM was a 5-volt only device that did not require an external high voltage signal to program it, it was an ideal candidate for being programmed as part of a circuit board, without the need for an external programmer, and SEEQ intended to market the EEPROM as such a device; that however, SEEQ's belief in June 1982 that its EEPROMs would be programmed primarily in-circuit did not come true, and almost all of SEEQ's EEPROM ended up being programmed with an external programmer, and taking full advantage of Silicon Signature; and that, therefore, the decision not to list Silicon Signature as a feature of the EEPROM in the Memorandum was only a strategic business decision. (CPost at 36-37).

The Memorandum (IX-63), however, does not state or suggest that it is a list of only "some" of the features of SEEQ's EPROM and EEPROM devices as Atmel suggests. Rather, the Memorandum states what the features of the products are and establishes that the 5133 EPROM had Silicon Signature at that time but that the 5213 EEPROM did not. The only support Atmel cites for its argument that the Memorandum's failure to mention Silicon Signature with respect to the 5213 EEPROM was a business decision is the testimony of Jordan at the February 2000 hearing. The administrative law judge, based on the demeanor of Jordan at the February 2000 hearing, does not find Jordan's testimony credible. Moreover, Jordan's testimony conflicts with

the statement of the Memorandum and is further contradicted by Jordan's admission that marketing documents "contained as much puffery as Seeq's marketing group could get away with." (Jordan, Tr. at 4704-05). In addition, Atmel's argument that SEEQ, at the time the Memorandum was created in June 1982, did not think Silicon Signature was important to the 5213 EEPROM but only pertained to the 5133 EPROM is contrary to Atmel's argument that the first 5133 EPROM did not have Silicon Signature because it was intended to be "plain vanilla" and would not have had any "bells and whistles" like Silicon Signature. (CPost at 34, discussed infra). If, as Atmel asserts, Silicon Signature was not important to the 5213 EEPROM until after the Memorandum was created in June 1982, then SEEQ's interest in Silicon Signature would have been directed towards the 5133 EPROM. Moreover, if SEEQ really wanted the first 5133 EPROM to be "plain vanilla" and if Silicon Signature was not important to the 5213 EEPROM then why did SEEQ apply for a patent on Silicon Signature on September 18, 1981, and refer to EPROM as the exemplary device.

In addition to the documentary evidence that the 5133 EPROM was the first device to incorporate Silicon Signature, Jordan admitted, at the February, 2000 hearing that:

[t]he idea came out of a problem I was trying to solve relative to program memories, EPRoMs in particular, and the programmer manufacturers not liking the paperwork process that was involved for correctly matching programming algorithm with device.

(CX-644, Q&A18, Emphasis added). He also admitted, in his December 6, 1999 deposition, that "[b]ut the EPROM absolutely had to have Silicon Signature because it couldn't be programmed in circuit because it needed the high voltage applied externally, so I always identified that the EPROM needed Silicon Signature as a necessity. The E squared device [EEPROM], it was nice,

but not necessary.” (Jordan, Tr. at 4690, Emphasis added). Furthermore, Jordan, admitted in prior deposition testimony that he stated:

Question: Did the first run of the E squared have a Silicon Signature?

Answer: I don't remember. I believe that the first run of the EPROM had a Silicon Signature, but you'd have to check. You'd have to check the mask and the data. There ought to be data.

(Jordan, Tr. at 4656, Emphasis added). In addition, Perlegos, in a deposition dated October 29, 1997, testified that:

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(IX-444 at 163, Emphasis added). {

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In addition to Jordan's testimony, Perlegos testified unambiguously at the violation hearing{ }that the first device to contain Silicon Signature was the 5133 EPROM, see Section A3(a) supra. {

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(CX-305 at 056764; IX-446 at 29). Perlegos testified, in a deposition dated December 9, 1997,⁶⁸

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(IX-446 at 35, Emphasis added). {

} See Section A3(a) supra.

The administrative law judge rejects Atmel's and the staff's argument that the prior testimony of Atmel's own witness Perlegos was incorrect and should not be relied upon. (CPost at 37-38, SPost at 26). As discussed supra, there are documents including contemporaneous documents, that support and corroborate Perlegos's testimony that the 5133 EPROM was the first device to incorporate Silicon Signature. Moreover, as discussed supra, Smarandoiu testified that Perlegos did actual design work on the 5133 EPROM. In fact, Perlegos had lengthy experience in the design of EPROMs (Perlegos, Tr. at 927-930) and was considered by Intel engineers⁶⁹ to be a "guru" of EPROM design. (JX-16 at 35). Furthermore, IX-129-134, Intel target specs and internal correspondence, reflect that Perlegos was familiar with high voltage detection circuits being attached to address pins for placing an EPROM into a test mode and

⁶⁸ This deposition was entered into evidence in the February, 2000 hearing.

⁶⁹ Perlegos worked for Intel prior to joining SEEQ. (March 19, 1998 ID, FF201).

disabling its normal functioning, which was routine and trivial.⁷⁰ Thus, Perlegos was not merely a supervisor, as Atmel asserts, and his testimony of the first implementation of Silicon Signature on the 5133 EPROM is based on his actual design work on the 5133 EPROM and his first hand knowledge.

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⁷⁰ See supra at n. 22.

In addition to the testimony of Perlegos and Jordan that the 5133 EPROM was the first device to incorporate Silicon Signature, {

}(IX-340 at

061939). Moreover, Smarandoiu, in a deposition dated November 11, 1999, testified that:

Q. Mr. Smarandoiu, do you have any reason to believe that someone other than you or you in conjunction with George Perlegos may have implemented the silicone [sic] signature in the 5133 chip?

A. No, I don't.

Q. Do you have any reason to believe that someone other than you or the combination of you and George Perlegos would have designed the silicone [sic] signature circuits in the 5133 chip?

A. No, I don't. Like I said, it's a straightforward operation.

(IX-447 at 69-70). The administrative law judge finds that Smarandoiu's testimony fully supports the conclusion that the 5133 EPROM was the first SEEQ device to contain Silicon Signature.

2. The First Chip At SEEQ To Implement Silicon Signature Was Not An EEPROM 5213

The administrative law judge rejects Atmel's and the staff's contention that a 5213 EEPROM chip was the first SEEQ device to incorporate Silicon Signature. Gupta testified that:

Q. Was the 5213 the first device to incorporate Silicon Signature?

A. Yes.

(CX-642, Q&A37). Atmel asserted that Gupta's testimony, which relies on certain schematics and publications, support its argument that Gupta first implemented Silicon Signature on a 5213 EEPROM chip. However, the administrative law judge finds that not only does Gupta's testimony directly contradict the testimony of Jordan and Perlegos, and the documentary

evidence, discussed supra, but the administrative law judge also finds that Gupta's testimony is not corroborated by any documents, see infra.

In addition, while Gupta testified that Figure 3 of the '903 patent is the high voltage detection circuit and that said Figure is identical to the high voltage detection circuit he designed for the 5213 EEPROM, (IX-270 at 52) said testimony is without corroboration, see infra.

Moreover, Gupta admitted:

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35 U.S.C. § 112 provides:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in 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 the invention.

If Gupta is to be believed that he first implemented Silicon Signature on the 5213 EEPROM and that the '903 patent arose out of the 5213 EEPROM, pursuant 35 U.S.C. § 112 all of the circuits Gupta designed should have been reflected in the '903 patent. To the contrary, as discussed supra, the '903 patent itself demonstrates that the 5133 EPROM is the exemplary embodiment.

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} Courts have been reluctant to give any weight to corroborating documents that are incomplete and that depend entirely for their significance on the testimony of the very purported inventor who relies on the document for corroboration of inventorship. See AMP, Inc. v. Fujitsu Microelectronics, Inc., 853 F. Supp. 808, 31 U.S.P.Q.2d 1705 (M.D. Pa. 1994) (AMP) (rejecting incomplete sketches as corroborating evidence where

inventor's explanation was required to establish the nature and timing of conception). {

} Referring to Atmel's argument that a corroborating document need not depict every element of a claimed invention in order to assist in corroborating an alleged co-inventor's claim of inventorship, (CPostR at 22, citing Price, 988 F.2d 1187, 26 U.S.P.Q.2d at 1038), the court in Price stated:

[A]ll the evidence put forth...,including any...corroborating testimony, must be considered as a whole, not individually, in determining [priority of conception]...It is sufficient if the picture painted by all of the evidence taken collectively gives the board "an abiding conviction" that [the] assertion of prior conception is "highly probable."

Id. at 1038. The administrative law judge finds that, taking all the evidence as a whole, including the contemporaneous documents discussed supra, the testimony of the witnesses discussed supra, the evidence of the timing of the designs of the 5133 EPROM and 5213 EEPROM discussed supra, {

} does not

conflict with the administrative law judge's conclusion that Silicon Signature was first implemented on the 5133 EPROM.

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The administrative law judge rejects Atmel's and the staff's argument that certain publications, viz.: a preliminary data sheet for SEEQ's 5213 EEPROM issued in September 1982 (CX-589); an October 1982 article from Electronics magazine (CX-295); a February 1982 article for the ISSCC (CX-296) co-authored by Gupta; SEEQ's annual report for 1984 (CX-532); and a February 10, 1982 article from Electronics magazine (CX-298), support the conclusion that Silicon Signature was first implemented by Gupta in the 5213 EEPROM. (CPost at 32-33, SPost at 23-25).

With respect to Atmel's and the staff's contention that the preliminary data sheet for SEEQ's 5213 EEPROM, which issued in September 1982 (CX-589), supports the conclusion that the 5213 EEPROM first contained Silicon Signature, the preliminary data sheet does mention Silicon Signature in connection with the 5213 EEPROM and states "SEEQ's 5213 and 5213H are the industry's first devices to incorporate Silicon Signature." (CX-589 at 2). However, Jordan admitted that the preliminary data sheet is a marketing document and that it was the practice of the SEEQ marketing group to put in its publications as much puffery as they could legally get away with and Jordan further admitted that "it would not be a good document on which to base a silicon signature audit trail." (Jordan, Tr. at 4704-05). In addition, both Jordan and Gupta admit that the preliminary data sheet does not state that the 5213 EEPROM was the first chip to incorporate Silicon Signature. (Jordan, Tr. at 4703-04; Gupta, Tr. at 4258-59).

Regarding Atmel's and the staff's arguments concerning the October 20, 1982 Electronics magazine article (CX-295) which was published more than a year after the application for the

'903 patent, while said article, referring to EEPROMs, states that five patents, including Silicon Signature, pertain to the new design, (CX-295 at 133), the article nowhere indicates that the 5213 EEPROM was the first SEEQ device to implement Silicon Signature. Thus, the administrative law judge finds that CX-295 does not establish that Silicon Signature did not “pertain” to the 5133 EPROM first.

Regarding the February 1982 article for the ISSCC (CX-296) co-authored by Gupta, the administrative law judge finds that CX-296 describes Gupta's design for DiTrace and other features of the 5213 chip but nowhere even mentions that the 5213 EEPROM contained Silicon Signature, much less the fact that a 5213 EEPROM was the first chip at SEEQ which contained Silicon Signature.

With respect to SEEQ's annual report for 1984 (CX-532), the administrative law judge finds that the statement at 2 that “[w]e were the first to introduce and ship 5-volt only EEPROMs back in 1982, together with the origination of Silicon Signature and DiTrace, features soon adopted by others throughout the industry” in no way suggests that the 5213 EEPROM was the first device to contain Silicon Signature. Thus, whether or not SEEQ introduced Silicon Signature to the industry on a 5213 EEPROM does not establish that the 5133 EPROM did not have Silicon Signature first.

Regarding Atmel's and the staff's arguments concerning the February 10, 1982 article from Electronics magazine (CX-298) which Atmel argued describes the existence of Silicon Signature in the 5213 EEPROM, said article states “[f]or example, the Silicon Signature for the 5213 16-K EE-PROM contains a manufacturing identification number...” (CX-298 at 124, Emphasis added). The administrative law judge finds that said statement, particularly by its use of

the phrase “for example” does not suggest that the 5213 EEPROM was the only SEEQ device to contain Silicon Signature at the time of publication of that article or that the 5213 EEPROM was the first SEEQ device to contain Silicon Signature. Moreover, the article contradicts itself when it states “[i]n all PROM, E-PROM and EE-PROM devices, Silicon Signature will contain programming parameters to be read out by late-model programming machines.” (CX-298 at 124, Emphasis added). Thus, the administrative law judge finds that CX-298 merely indicates that Silicon Signature is a feature that SEEQ intended to include in all of its PROM, E-PROM and EE-PROM devices, but does not establish that the 5213 EEPROM was first.

The administrative law judge also rejects Atmel’s and the staff’s reliance on certain testimony of Jordan at the February 2000 hearing that Gupta was the first to implement Silicon Signature. {

} Moreover, Jordan’s new testimony that Gupta first implemented Silicon Signature is contradicted by his own prior sworn testimony. While Jordan testified in the February, 2000 hearing that:

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(CX-644, Q&A 31, Emphasis added), and that{

} (CX-644 Q&A90, Emphasis added), said testimony is

contradicted by his testimony before this administrative law judge in December of 1997:

Judge Luckern: ...The engineers you talked with in coming up with this design as shown in your patent, did that include Mr. Perlegos?

The Witness: It may have. I do not recall.

Q. Did it include Mr. Gupta?

A. I do not recall.

Q. Did it include Mr. Smarandoiu?

A. I don't know if those people were employees at that time, but I don't recall.

Q. So the only person you specifically recall is Mr. - - Dado?

A. Dado is his first name.

(Jordan, Tr. at 3118-19, Emphasis added). Thus, despite Jordan's testimony in February 2000 that he "always believed" that Gupta implemented the circuits, at the prior hearing Jordan could not remember working with Gupta. Moreover, Jordan is now able to remember working with Gupta and meeting him face to face, when he could not remember him at all previously. In fact the only individual Jordan specifically recalled working with, in his December 1997 hearing testimony, was Dado Banatao. (Jordan, Tr. at 3118-19). Based on this inconsistency, the administrative law judge finds that Jordan's current testimony regarding Gupta's contribution to the implementation of Silicon Signature is unreliable. The administrative law judge rejects Atmel's argument that Jordan's inability to remember Gupta, or anyone other than Banatao, was due to the fact that Jordan was testifying as to whom he worked with in preparing the '903 patent application, and not whom he worked with in implementing Silicon Signature. (CPost at 44). As seen supra, the administrative law judge's question to Jordan in the hearing of December of 1997 was "The engineers you talked with in coming up with this design as shown in your patent, did that include Mr. Perlegos?" Said question did not at all pertain to the preparation of the '903

patent application, but rather was directed towards the design of the invention of the '903 patent.

The administrative law judge further rejects Atmel's and the staff's argument that at the time Jordan came up with his general idea for Silicon Signature, the first 5133 EPROM was too far along in the planning process to incorporate Silicon Signature and therefore it was intended to be "plain vanilla" and not have any "bells or whistles" like Silicon Signature. (CPost at 34, SPost at 25). The administrative law judge finds that Atmel's argument is contradicted by Jordan's own testimony supra that Jordan came up with Silicon Signature in order to solve a problem regarding the 5133 EPROM, and that Silicon Signature was not necessary to the 5213 EEPROM but was critical to the 5133 EPROM. Atmel's argument is also contradicted by Perlegos's testimony supra that Jordan was insistent that Silicon Signature be included in SEEQ's first 5133 EPROM and that Jordan wanted the target spec for the first 5133 EPROM to include Silicon Signature. Moreover, Jordan testified, in the February 2000 hearing, that:

Q. The Seeq philosophy was to implement each new feature on the first available product; right?

A. Yes.

Thus, the administrative law judge finds that the timing of when Jordan came up with Silicon Signature disproves Atmel's argument. Significantly, Jordan came up with his idea by the end of February 1981, if not earlier, and that conception was complete when Perlegos and Smarandoiu began designing circuits for the 5133 EPROM. Moreover, as documents and testimony show, supra at n. 22, the actual implementation of Silicon Signature was "routine" and trivial." Thus, the administrative law judge finds that Perlegos and Smarandoiu easily implemented Silicon Signature within the 5133 EPROM's design window.

Based on the foregoing, the administrative law judge finds that the inventors shown on the certificate of correction are not the appropriate set of inventors because intervenor and the respondents have established by clear and convincing evidence that Gupta was not the first SEEQ engineer to implement Silicon Signature on a SEEQ device and that the first chip at SEEQ to implement Silicon Signature was not an EEPROM 5213. Therefore Gupta did not make an inventive contribution to the '903 patent.

C. There Was No Deceptive Intent And/Or Inequitable Conduct With Respect To Inventorship In The Original Proceedings Before The PTO

Macronix does not contend that SEEQ or its patent lawyers acted inequitably in the original prosecution of the '903 patent nor does it contend Gupta had deceptive intent in not joining in as a co-inventor on the original patent application and indeed contends that Gupta is not a '903 co-inventor. (MPost at 39). Sanyo takes no position on any issue dealing with inequitable conduct by Atmel in the original prosecution of the '903 patent. (SANPost at 1). Each of Winbond, SST and the staff in its post hearing submissions makes no allegation that there was any deceptive intent and/or inequitable conduct with respect to inventorship in the original proceedings before the PTO.

D. Additional Findings

I. Parties to Reconsideration Hearing

1. Complainant Atmel Corporation (Atmel) is a business entity that is incorporated under the laws of the State of California, with its principal place of business at 2325 Orchard Parkway, San Jose, California 95131. (3/19/98 I.D. at 125, FF 1).

2. Sanyo Electric Co, Ltd. (Sanyo) is an entity existing under the laws of Japan, located and having manufacturing facilities at 5-5 Keihan-hondori 2-chome, Osaka, 570, Japan. (3/19/98 I.D. at 125, FF 2).

3. Respondent Winbond Electronics Corporation is an entity existing under the laws of the Republic of China (Taiwan), located and having manufacturing facilities at Number 2, R&D Road VI, Science-Based Industrial Park, Hsinchu, Taiwan R.O.C. Winbond Electronics North America Corporation is an entity which exists under the laws of the State of California. Its address is 2730 Orchard Parkway, San Jose, California 95134. Those respondents are collectively referred to as "Winbond." (3/19/98 I.D. at 125, FF 3).

4. Respondent Macronix International Co., Ltd. is an entity existing under the laws of the Republic of China, located and having manufacturing facilities at No. 3, Creation Road III, Science-Based Industrial Park, Hsinchu, Taiwan, R.O.C. Macronix America, Inc. is an entity which exists under the laws of the State of California, and its address is 1338 Ridder Park Drive, San Jose, California 95131. Those respondents are collectively referred to as "Macronix." (3/19/98 I.D. at 125, FF 4).

5. Intervenor Silicon Storage Technology, Inc. (SST) is an entity which exists under the laws of the State of California, and its address is 1171 Sonora Court, Sunnyvale, California

94086. (3/19/98 I.D. at 125-26, FF 5).

II. Live Witnesses At Reconsideration Hearing

6. Larry Jordan testified in the case-in-chief of complainant Atmel. (Jordan Tr. at 4645-4813). He is the former Marketing Director at SEEQ. Larry Jordan started at SEEQ on January 5, 1981. (Jordan, Tr. at 3120-3121; 3/19/98 FF 30).

7. Anil Gupta testified in the case-in-chief of complainant Atmel. (Gupta, Tr. at 4157-4435). He is an engineer employed by Atmel. He joined SEEQ in April of 1981 as an engineer. (CX-642 at Q4).

8. George Smarandoiu testified in the case-in-chief of complainant Atmel. (Smarandoiu, Tr. at 4438 - 4499). He is an engineer employed by Atmel. He began working for SEEQ as a part-time consultant in the spring of 1981, began working full time as a consultant for SEEQ in June of 1981 and began working as an official employee of SEEQ in August 1981. (Smarandoiu, Tr. at 4440-4441; CX-643 at Q4, Q5).

9. George Perlegos testified in the case-in-chief of the respondents and intervenor. (Perlegos Tr. at 4815-4891). He is the President of Atmel. (Perlegos, Tr. at 4833-4834). Prior to joining SEEQ, George Perlegos worked as a design engineer at Intel Corp. (3/19/98 FF 47, 201). At SEEQ, George Perlegos was Vice President of Engineering before he left SEEQ and formed Atmel in 1984. (3/19/98 FF 203). He has been with Atmel since its founding in 1984. (3/19/98 FF 201). He owns approximately \$600 million in Atmel stock. (Perlegos, Tr. at 4863).

10. Robert Haslam testified in the case-in-chief of the respondents and intervenor. (Haslam Tr. at 4906-5008). He is a shareholder at Heller Ehrman White & McAuliffe ("Heller Ehrman") and is Atmel's chief trial counsel for this investigation. (IX-263 at 16).

11. Stanley Young testified in the case-in-chief of the respondents and intervenor. He is on the trial team for this investigation. (Young, Tr. at 5094-5156). He is a shareholder at Heller Ehrman. (IX-267 at 10).

12. Julie Mar-Spinola testified in the case-in-chief of the respondents and intervenor. (Mar-Spinola Tr. at 5053-5090). She is the Director Chief Litigation and Intellectual Property Counsel for Atmel. She was associated with the Heller Ehrman firm and a former patent prosecutor. (IX-266 at 8-11).

13. William James testified in the case-in-chief of the respondents and intervenor. (James, Tr. at 4501-4635). He is a former associate with Heller Ehrman and when at Heller Ehrman was involved in this investigation. (James, Tr. at 4631).

14. Sandra M. Lee testified in the case-in-chief of the respondents and intervenor. (Lee Tr. at 5010-5050). She is an associate at Heller Ehrman and is on the trial team for this investigation. (Lee, Tr. at 5015).

III. Atmel's "Prefiling Investigation"

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(IX-340; Tr. at 4907-4911, 4969-4981).

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(IX-371 at 062035).

98. [There is no Finding 98]

99. On August 12, 1998, Atmel filed its PTO Petition, with the PTO. (IX-294; CFF-R
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102. Jordan signed a statement included with Atmel's PTO Petition agreeing to the change of inventorship to include Anil Gupta as a co-inventor and declaring that the statement was "made ... of his own knowledge" and purported to be "true." That petition was filed with the U.S. Patent and Trademark Office on August 13, 1998. (IX-295; IX-368).

103. At the first hearing, Jordan testified regarding the engineers with which he consulted in coming up with Silicon Signature, and never recalled Gupta:

JUDGE LUCKERN: . . . The engineers you talked with in coming up with this design as shown in your patent, did that include Mr. Perlegos?

THE WITNESS: It may have. I do not recall.

BY MR. YOCHES:

Q: Did it include Mr. Gupta?

A: I do not recall.

Q: Did it include Mr. Smarandoiu?

A: I don't know if those people were employees at that time, but I don't recall.

Q: So the only person you specifically recall is Mr.-- Dado?

A: Dado is his first name.

(Jordan, Tr. at 3118-3119).

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(IX-356 at 061968-061969; IX-357 at 061973-061974; IX-370 at 062028 and 062029; James, Tr. at 4530).

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III. Conclusions of Law

1. The Commission has in rem jurisdiction and subject matter jurisdiction as was determined in the ID of March 19, 1998.
2. There was inequitable conduct with respect to inventorship in the correction proceedings before the PTO.
3. The inventors shown on the Certificate of Correction are not the appropriate set of inventors.
4. There was no deceptive intent and/or inequitable conduct with respect to inventorship in the original proceedings before the PTO.

IV. ORDER

Based on the foregoing opinion, additional findings of fact, conclusions of law, and the record as a whole, and having considered all of the pleadings, evidence and arguments presented orally and in briefs, as well as certain proposed findings of fact, it is the administrative law judge's initial determination that there was inequitable conduct with respect to inventorship in the correction proceedings before the PTO; that the inventors shown on the Certificate of Correction are not the appropriate set of inventors; and that there was no deceptive intent and/or inequitable conduct with respect to inventorship in the original proceedings before the PTO.

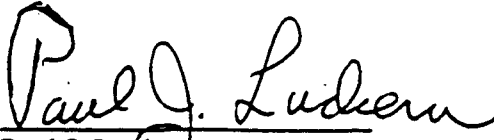
The administrative law judge hereby CERTIFIES to the Commission his initial determination together with the record consisting of the exhibits admitted into evidence. The pleadings of the parties filed with the Secretary and the transcript of the hearing are not certified, since they are already in the Commission's possession in accordance with Commission rules of Practice and Procedure.

Further it is ORDERED that:

1. In accordance with Commission rule 210.39, all material heretofore marked in camera because of business, financial, and marketing data found by the administrative law judge to be cognizable as confidential business information under Commission rule 201.6(a) is to be given in camera treatment continuing after the date this investigation is terminated.
2. Counsel for the parties shall have in the hands of the administrative law judge those portions of the initial determination which contain bracketed confidential business information to be deleted from any public version of said determinations, and all attachments thereto, no later than June 2, 2000. Any such bracketed version shall not be served by telecopy

on the administrative law judge. If no version is received from a party it will mean that the party has no objection to removing the confidential status, in its entirety, from the initial and recommended determinations.

3. Pursuant to the Commission Order dated January 25, 1999 at ¶5, this Initial Determination is issued under Commission rule 210.42(a)(1)(i). Commission rule 210.42(h)(2) provides that an initial determination under Commission rule 210.42(a)(1)(i) shall become the determination of the Commission forty-five (45) days after the service thereof, unless the Commission, within forty-five (45) days after the date of such service of the initial determination portion shall have ordered review of that portion or certain issues therein or by order has changed the effective date of the initial determination portion.


Paul J. Luckern
Administrative Law Judge

Issued: May 17, 2000

**CERTAIN EPROM, EEPROM, FLASH MEMORY,
AND FLASH MICROCONTROLLER SEMICONDUCTOR
DEVICES AND PRODUCTS CONTAINING SAME**

Inv. No. 337-TA-395

CERTIFICATE OF SERVICE

I, Donna R. Koehnke, hereby certify that the attached **Public Initial Determination** was served by hand upon Benjamin D.M. Wood, Esq., and upon the following parties via first class mail, and air mail where necessary, on December 13, 2000.



Donna R. Koehnke, Secretary
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**CERTAIN EPROM, EEPROM, FLASH MEMORY,
AND FLASH MICROCONTROLLER SEMICONDUCTOR
DEVICES AND PRODUCTS CONTAINING SAME**

Inv. No. 337-TA-395

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**CERTAIN EPROM, EEPROM, FLASH MEMORY,
AND FLASH MICROCONTROLLER SEMICONDUCTOR
DEVICES AND PRODUCTS CONTAINING SAME**

Inv. No. 337-TA-395

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**CERTAIN EPROM, EEPROM, FLASH MEMORY,
AND FLASH MICROCONTROLLER SEMICONDUCTOR
DEVICES AND PRODUCTS CONTAINING SAME**

Inv. No. 337-TA-395

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