# UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION OFFICE OF ADMINISTRATIVE LAW JUDGES WASHINGTON, D.C.

In the Matter of

**BASIC RESEARCH, LLC** A.G. WATERHOUSE, LLC KLEIN-BECKER USA, LLC **NUTRASPORT, LLC** SOVAGE DERMALOGIC LABORATORIES, LLC BAN LLC d/b/a BASIC RESEARCH LLC OLD BASIC RESEARCH, LLC BASIC RESEARCH, A.G. WATERHOUSE, KLEIN-BECKER USA, NUTRA SPORT, and SOVAGE DERMALOGIC LABORATORIES **DENNIS GAY** DANIEL B. MOWREY d/b/a AMERICAN PHYTOTHERAPY RESEARCH LABORATORY, and MITCHELL K. FRIEDLANDER, Respondents.



**PUBLIC** 

Docket No. 9318

RESPONDENTS' MOTION FOR RECONSIDERATION OR CLARIFICATION
OF ORDERS DENYING MOTIONS TO EXCLUDE A WITNESS FOR
SANCTIONS, OR FOR LEAVE TO REOPEN DISCOVERY FOR
A LIMITED PURPOSE; AND MOTION FOR LEAVE TO ADD AN EXPERT
WITNESS AND TO REOPEN DISCOVERY FOR A LIMITED PURPOSE

Respondents Basic Research, LLC; A.G. Waterhouse, LLC; Klein-Becker USA, LLC; Nutrasport, LLC; Sovage Dermalogic Laboratories, LLC; BAN, LLC; Dennis Gay; and Daniel B. Mowrey; and Mitchell K. Friedlander, (collectively "Respondents"), by counsel and pursuant to FTC Rule 3.22, move for reconsideration or clarification of your Honor's "Order on Motions to Exclude a Witness, for Sanctions, or for Leave to Reopen

<sup>&</sup>lt;sup>1</sup> All Respondents incorporate by reference the arguments set forth in Mitchell Friedlander's November 16, 2005 Combined Motion to Exclude a Witness, For Sanctions, and to Depose Both Complainant's Counsel and Complainant's Expert, Dr. Steven Heymsfield; and This Respondent's Joinder in the Motion by the Other Respondents to Exclude a Witness and For Sanctions; and Also to Correct False Statements or Record That Were Made by Complainant's Counsel ("Respondent Friedlander's Motion").

Discovery for a Limited Purpose" (referred-to in this filing as "Order on Motion to Exclude and for Sanctions"), dated November 22, 2005 and your Honor's "Order Denying Respondents' Motion for Leave to Add an Expert Witness and to Reopen Discovery for a Limited Purpose" (referred-to in this filing as "Order on Motion for Leave"), also dated November 22, 2005. Good causes exist for granting this motion. First, the two orders in question contain an erroneous statement of material fact, that needs to be corrected and considered by the court in ruling on the motions (i.e., that all six of the fraudulent studies Complaint Counsel witness Dr. Stephen B. Heymsfield coauthored with Dr. John Darsee were withdrawn by the publications in question, when, in fact, one fraudulent Heymsfield/Darsee publication was not withdrawn from publication). That study appears currently in the National Library of Medicine's PubMed database). See, Darsee JF, Fulenwider JT, Rikkers LF, Ansley JD, Nordlinger BF, Ivey G, Heymsfield SB, Hemodynamics of LeVeen shunt pulmonary Edema, 194(2) Annals of Surgery 189-92 (1981). Second, the two orders fail to address a central argument set forth in Respondents' motions: that the effect of Dr. Heymsfeld's failure to disclose his fraudulent publications, and his repeated false and evasive testimony about them undermines his credibility as a witness and materially prejudices the Respondents' case.

With respect to the instant Motion for reconsideration, the same should be granted because "...there is a need to correct clear error or manifest injustice." *In re Rambus*, Docket 9303, 2003 FTC LEXIS 49 (March 26, 2003)(attached as Exhibit A)(citing *Regency Communications, Inc. v. Cleartel Communications, Inc.*, 212 F.Supp.2d 1, 3 (D.D.C. 2002)); *see also, In re Rambus*, Docket 9302 (May 29, 2003)(attached as Exhibit B).

If this Motion is not granted, in the alternative Respondents request that your Honor clarify and affirm that the Orders referred-to above, do not stand for the proposition that Dr. Heymsfield's credibility is not germane to an evaluation of his testimony; otherwise the FTC lawyers may argue that issues germane to credibility are collateral. Erroneous material facts accepted in your Honor's Orders as true and the omission of an evaluation of the aforementioned credibility issue warrants reconsideration of those Orders. Moreover, because Dr. Heymsfield's testimony is the foundation for most claims alleged by the Commission in its Complaint, Respondents are greatly prejudiced by not being afforded the opportunity to conduct a full inquiry into his participation in the fraudulent studies identified in the course of his August 2005 deposition.

I. THE ORDERS ERR BECAUSE DR. HEYMSFIELD DID NOT TESTIFY TRUTHFULLY REGARDING THE WITHDRAWAL OF THE FRAUDULENT HEYMSFIELD/DARSEE STUDIES FROM PUBLICATION

In the Order on Motion for Leave at 2, your Honor writes:

Respondents assert that Complaint Counsel's expert, Dr. Steven B. Heymsfield, did not list on his *curriculum vitae* six publications that Heymsfield co-authored with John Darsee. These six publications were based on fraudulent data and subsequently rescinded from publication due to the fraud, Respondents assert.

In that same Order at 2, your Honor writes:

Complaint Counsel responds that Heymsfield has offered a *bona fide* explanation for not identifying the studies co-authored with Darsee as published studies – that Heymsfield understood that these studies had been withdrawn from publication and that he believed it was appropriate to not list withdrawn studies.

Again, in the Order at 3, your Honor writes:

Heymsfield, in a sworn declaration, has articulated a reasonable, *bona fide* explanation for not identifying studies that he understood to have been withdrawn from publication.

Again, in the Order at 3-4, your Honor writes:

Complaint Counsel has provided a sworn declaration certifying that Complaint Counsel was not aware that Dr. Heymsfield was listed as a co-author on studies that had been published and later withdrawn from publication.

In each instance, as the Presiding Officer, your Honor predicates legal conclusions on the reasonableness of Dr. Heymsfield's failure to list publications that had been withdrawn. As set forth in Respondent Friedlander's Motion, which his Honor apparently did consider, this was clear error. Dr. Heymsfield's admitted inclusion of coauthorship publications that have no bearing on his qualifications as a witness in this proceeding, and admitted exclusion of co-authorship publications that impeach his credibility as a witness, was designed to suppress evidence.

In addition, not all of the studies were withdrawn by Dr. Heymsfield. In fact, Dr. Heymsfield failed to withdraw the following study: Darsee JF, Fulenwider JT, Rikkers LF, Ansley JD, Nordlinger BF, Ivey G, Heymsfield SB, *Hemodynamics of LeVeen shunt pulmonary Edema*, 194(2) Annals of Surgery 189-92 (1981) (abstract attached as Exhibit C). Respondents respectfully submit that this clear error of material fact needs to be corrected and considered by the Court in ruling on the Motions.

When responding to your Honor's August 11, 2004, Order, Dr. Heymsfield failed to provide Respondents with not just those publications that he asked be withdrawn but also the publication that he did not ask be withdrawn: Darsee JF, Fulenwider JT, Rikkers LF, Ansley JD, Nordlinger BF, Ivey G, Heymsfield SB, Hemodynamics of LeVeen shunt pulmonary Edema, 194(2) Annals of Surgery 189-92 (1981). Consequently, when responding to your Honor's August 11, 2004 Order, Dr. Heymsfield failed to provide Respondents not just with those publications that he asked be withdrawn, but also the

above-referenced published study that he did not ask to be withdrawn. The issue was presented in Respondents' motion (See Reply at 2) and is not addressed in your Honor's Order.

Respondents respectfully request your Honor to assess the significance of Dr. Heymsfield's, as well as the FTC's lawyers', failure to list this fraudulent publication, as well as the significance of Respondent Friedlander's Motion. In particular, the instant motion requests that your Honor determine whether, given this salient fact, the overall acts of nondisclosure are justified. Authors, themselves, are required to seek withdrawal of the articles from publication (and, indeed, Dr. Heymsfield pursued that specific course of conduct in each instance in which his fraudulent papers were withdrawn). In the course of creating his Expert Report in this Docket, Dr. Heymsfield admits to having reviewed the publicly available scientific evidence using the PubMed database (Aug. 30, 2005 Deposition at 463, lines 2-9). His failure to disclose the fraudulent publication cited above – which was not withdrawn – cannot be excused as "reasonable" behavior based on the above-quoted statements in Orders that you issued as the Presiding Officer. The failure to disclose is not justified on any reasonable grounds.

Therefore, Respondents specifically move your Honor to rule on whether the non-disclosure of the above-referenced publication that was not withdrawn, constitutes a violation of the August 11, 2004 Order, lacks justification, and warrants all or part of the relief requested in Respondents' respective Motions to Exclude, for Sanctions, or, in the alternative, for Sanctions and Leave to Reopen Discovery for a Limited Purpose.

# II. DR. HEYMSFELD'S CREDIBILITY WAS NOT ADDRESSED IN THE ORDERS, RESULTING IN MATERIAL PREJUDICE TO THE PRESENTATION OF RESPONDENTS' DEFENSE

In Respondents' respective motions, repeated factual discrepancies and evasive testimony specifically were brought to the Presiding Officer's attention. For example, Respondents revealed inter alia that Dr. Heymsfield: (1) failed to list any of the publications he co-authored with Darsee; (2) said he had no reason for leaving his tenured professorship at Emory University other than his desire to seek better employment (despite the fact that his co-authorship of the fraudulent Darsee studies was revealed at Emory and led him to state to *The Scientist*: Emory University "asked me to leave," "considered me an eyesore," had "taken [me] off the ladder to the sky," and had made it "obvious" that "there would be no promotions or opportunities," Dalton, Rex, Fraudulent Papers Stain Co-Authors, 1 The Scientist 1 (13)(May 19, 1987)), Motion to Exclude at 6, 17-18; (3) neither admitted nor denied making the quoted statements to *The Scientist* but, instead, testified evasively when questioned on the point ("This is a newspaper article and I'm not sure what the quote context I gave this quote, but if you can find anything objective, and I don't mean a newspaper article..."), Motion to Exclude at 17-18; see also id. at 18-19; and (4) testified evasively about his involvement in studies after revelation in deposition of his co-authorship of the six fraudulent publications ("So it's possible, yes, that an article was written with my name on it, that I didn't read entirely because I'm fairly focused and I would have contributed and read the sections that were assigned to me... Well, when you put your name on as an author you are generally responsible for the content of the article... But not for necessarily reading it entirely") Motion to Exclude at 20-21.

Based on those facts and other instances of evasive testimony contained in the Motion to Exclude (Motion to Exclude at 12-24), Respondents placed Dr. Heymsfield's credibility in issue. The Orders omitted the foregoing facts, as presented in both the Motion to Exclude and in Respondent Friedlander's Motion. The Orders presented no legal assessment of the credibility issue. Most troubling to Respondents is that your Honor's Orders appear to ignore the issue of Dr. Heymsfield's credibility, which leads Respondents to seek a clarification so that the credibility determination, which is critical to any fair evaluation of Dr. Heymsfield's testimony, is expressly recognized as germane to the proceeding and is not foreclosed.

In your Honor's Order on Motion for Leave and in your Honor's Order on Motions to Exclude and for Sanctions, the foregoing matters are deemed to be "collateral" and "not relevant in the litigation to establish a fact of consequence." Order on Motion for Leave at 2. The orders can be interpreted as standing for the proposition that your Honor holds the testimony concerning Dr. Heymsfield's credibility as a witness to be "extrinsic evidence" on a "collateral issue" that is not "relevant to establish a fact of consequence to this matter." That plausible interpretation of the Orders raises fundamental issues of fairness that we urge be addressed by the Presiding Officer on reconsideration.

As stated in Respondent Friedlander's Motion, Dr. Heymsfield's demonstrated lack of credibility and veracity is the main event. His proffered testimony is the measure by which Complaint Counsel is trying to judge Respondents' First Amendments rights. The advertisements in this case are supported by published, peer-reviewed studies, which Dr. Heymsfield opines are not "competent" or "reliable." See Friedlander November 16

Motion at 5. Thus, the disclosure of potential impeachment evidence is not only relevant, but necessary to protect the integrity of the FTC's challenged regulatory process which is supposed to discover the truth, but instead is being abused to prosecute protected commercial speech. <u>Id.</u> at 6.

A witness' credibility is central to adjudicative proceedings. Determinations about honesty and reliability are essential to the adjudicative function because the testimonial oath is meaningless unless a witness who swears to tell the truth can be counted upon to do so consistently and on all material facts. See Motion to Exclude at 7, 32; see also, Fed. R. Evid. 608; e.g., Behler v. Hanlon, 199 F.R.D. 553, 556 (D.Md. 2001) ("The importance of credibility of a witness to the trial of cases cannot be overstated and this is especially true with respect to expert witnesses. The rules of evidence provide frequent reminders of the importance of credibility issues in trials"). [1] The evasive testimony clearly presented to your Honor in the above-referenced Motions concerns key aspects of this expert's qualifications: his academic background; his cognizance of publications that he co-authored; and his involvement and knowledge of studies in his field of expertise.

Here, Dr. Heymsfield failed to list fraudulent scientific publications that he coauthored, which raises significant, material questions concerning his veracity and reliability – two key components of credibility. He falsely testified about the facts that

The qualifications of a witness to serve as an expert in his field upon which the trier of fact will rely is *not* a collateral matter. Here the witness sought to be qualified as an expert has admitted that he lists studies on his CV (as evidence of his qualifications) in which he did not participate or even read in their entirety. Moreover, he has admitted that he did not list six studies on his CV (five that were withdrawn and one that was not) with a co-author that was found in four of those studies to have produced fraudulent data. Thus, the testimony that is the subject of the two motions is essential to determining the qualifications of the witness to be an expert. It is not an immaterial matter. *Cf. United States v. Beauchamp*, 986 F.2d 1, 4 (1st Cir. 1993)

lead him to leave Emory University. He evasively testified by neither admitting nor denying having told *The* Scientist that Emory University "asked me to leave." He evasively testified that while an author is responsible for an entire article he is not responsible for reading it! Those facts place at issue Dr. Heymsfield's credibility to opine as an expert witness. The issue of his credibility was created by his own misconduct and evasive behavior when confronted with the misconduct, and is central to the reliability of all his testimony.

The resulting prejudice from the Orders' failure to address the credibility issue directly is devastating to the complete and accurate presentation of Respondents' case. Complaint Counsel's allegations concerning the nature and substantive effect of Respondents' violations are principally based on testimony and evidence obtained from Dr. Heymsfield in his capacity as an expert witness. In the course of being retained for this proceeding, Dr. Heymsfield has held himself out as a noted scientific expert in the context of the products and substantiation evidence being presented in this case. Along with testifying as to the use and effectiveness of the challenged products identified in this proceeding, Dr. Heymsfield opines on product formulas, third party testing, critical analysis of offered scientific substantiation, and evaluation of scientific articles used in support of Respondents' case in chief. The aforementioned subjects comprise the critical substantive issues being explored in this proceeding, making Dr. Heymsfield's credibility as an expert witness paramount to the correct judicial resolution of the Commission's Complaint.

To conclude that Dr. Heymsfield's failure to disclose fraudulent studies, compounded with the fact that he failed to truthfully testify about their withdrawal, does

not amount to material prejudice to the Respondents would be to disregard the importance of credible evidence in the resolution of this proceeding. Respondents must be afforded the opportunity to respond to opposing expert evidence that is not tainted with fraud and deception. The tardy disclosure of Dr. Heymsfield's participation in the fraudulent studies prevented the Respondents from fully exploring the extent of Dr. Heymsfield's involvement in the fraud. To preclude Respondents from presenting a direct challenge to the credibility of Dr. Heymsfield and his role as a principal expert for Complaint Counsel obstructs their right to conduct discovery and wage an adequate defense.

Respondents therefore respectfully request that your Honor, as the Presiding Officer in this Docket, address the credibility issue directly and reconsider the resulting prejudice imposed on Respondents by the existing Orders. Respondents request that a determination be made, whether the issue of Dr. Heymsfield's credibility, left unresolved in the Order on Motion for Leave, warrants the grant of relief requested by Respondents in the Motion for Leave.

#### CONCLUSION

Respondents respectfully request reconsideration of the Order on Motions to Exclude a Witness, for Sanctions, or for Leave to Reopen Discovery for a Limited Purpose, dated November 22, and the Order Denying Respondents' Motion for Leave to Add an Expert Witness and to Reopen Discovery for a Limited Purpose, also dated November 22, and to grant Respondents the relief requested in those motions. It would be prejudicial to the Respondents if the issue of Dr. Heymsfield's credibility is deemed "collateral" or "irrelevant" to facts or opinions that may be presented if Dr. Heymsfield is

to be permitted to testify, given the facts and documented circumstances presented in the Motions.

Respectfully submitted,

Jonathan W. Emord Emord & Associates, P.C. 1800 Alexander Bell Drive Suite 200 Reston, VA 20191

Tel. (202) 466-6937 Fax (202) 466-6938

Counsel for Basic Research, LLC A.G. Waterhouse, LLC Klein-Becker USA, LLC Nutrasport, LLC Sovage Dermatologic Laboratories, LLC, BAN, LLC

Stephen E. Nagin Nagin, Gallop & Figueredo, P.A. 18001 Old Cutler Road Miami, Florida 33157 Tel. (305) 854-5353 Fax (305) 854-5351

# Counsel for Basic Research, LLC

Richard Burbidge, Esq. Burbidge & Mitchell 215 South State Street Suite 920 Salt Lake City, Utah 84111

# **Counsel for Dennis Gay**

Ronald F. Price
PETERS SCOFIELD PRICE
A PROFESSIONAL CORPORATION
340 Broadway Centre

111 East Broadway Salt Lake City, Utah 84111 Telephone: (801) 322-2002 Facsimile: (801) 322-2003

Counsel for Respondent Daniel B. Mowrey

Mitchell K. Friedlander c/o Compliance Department 5742 West Harold Gatty Drive Salt Lake City, UT 84116 Email: <u>mkf555@msn.com</u>

Pro se

Dated: December 6, 2005

# UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION OFFICE OF ADMINISTRATIVE LAW JUDGES WASHINGTON, D.C.

In the Matter of

BASIC RESEARCH, LLC A.G. WATERHOUSE, LLC KLEIN-BECKER USA, LLC **NUTRASPORT, LLC** SOVAGE DERMALOGIC LABORATORIES, LLC BAN LLC d/b/a BASIC RESEARCH LLC OLD BASIC RESEARCH, LLC BASIC RESEARCH, A.G. WATERHOUSE, KLEIN-BECKER USA, NUTRA SPORT, and SOVAGE DERMALOGIC LABORATORIES **DENNIS GAY** DANIEL B. MOWREY d/b/a AMERICAN PHYTOTHERAPY RESEARCH LABORATORY, and MITCHELL K. FRIEDLANDER, Respondents

Docket No. 9318

# **CERTIFICATE OF SERVICE**

I hereby certify that on this 6<sup>th</sup> day of December, 2005 I caused the Respondents' Motion for Reconsideration or Clarification of Orders Denying Motions to Exclude a Witness for Sanctions, or for Leave to Reopen Discovery for a Limited Purpose; and Motion for Leave to Add an Expert Witness and to Reopen Discovery for a Limited Purpose to be served as follows:

1) an original and one paper copy filed by hand delivery and one electronic copy in PDF format filed by electronic mail to

Donald S. Clark Secretary U.S. Federal Trade Commission 600 Pennsylvania Avenue, N.W. Room H-159 Washington, D.C. 20580 Email: secretary@ftc.gov

2) two paper copies delivered by hand delivery to:

The Hon. Stephen J. McGuire Chief Administrative Law Judge U.S. Federal Trade Commission 600 Pennsylvania Avenue, N.W. Room H-112 Washington, D.C. 20580

3) one paper copy by first class U.S. Mail to:

James Kohm Associate Director, Enforcement U.S. Federal Trade Commission 601 New Jersey Avenue, N.W. Washington, D.C. 20001

4) one paper copy by first class U.S. mail and one electronic copy in PDF format by electronic mail to:

Laureen Kapin Joshua S. Millard Laura Schneider Walter C. Gross III Lemuel W.Dowdy Edwin Rodriguez U.S. Federal Trade Commission 600 Pennsylvania Avenue, N.W. Suite NJ-2122 Washington, D.C. 20580 Email: lkapin@ftc.gov jmillard@ftc.gov lschneider@ftc.gov wgross@ftc.gov ldowdy@ftc.gov erodriguez@ftc.gov

Stephen E. Nagin Nagin, Gallop & Figueredo, P.A. 3225 Aviation Avenue Third Floor Miami, FL 33133-4741 Email: snagin@ngf-law.com Richard D. Burbidge
Burbidge & Mitchell
215 South State Street
Suite 920
Salt Lake City, UT 84111
Email: rburbidge@burbidgeandmitchell.com

Ronald F. Price Peters Scofield Price 340 Broadway Center 111 East Broadway Salt Lake City UT 84111 Email: rfp@psplawyers.com

Mitchell K. Friedlander c/o Compliance Department 5742 West Harold Gatty Drive Salt Lake City, UT 84116 Email: mkf555@msn.com

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# UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION OFFICE OF ADMINISTRATIVE LAW JUDGES WASHINGTON, D.C.

In the Matter of

**BASIC RESEARCH, LLC** A.G. WATERHOUSE, LLC KLEIN-BECKER USA, LLC **NUTRASPORT, LLC** SOVAGE DERMALOGIC LABORATORIES, LLC BAN LLC d/b/a BASIC RESEARCH LLC OLD BASIC RESEARCH, LLC BASIC RESEARCH, A.G. WATERHOUSE. KLEIN-BECKER USA, NUTRA SPORT, and SOVAGE DERMALOGIC LABORATORIES **DENNIS GAY** DANIEL B. MOWREY d/b/a AMERICAN PHYTOTHERAPY RESEARCH LABORATORY, and MITCHELL K. FRIEDLANDER, Respondents

**PUBLIC** 

Docket No. 9318

ORDER GRANTING RESPONDENTS' MOTION FOR RECONSIDERATION OR CLARIFICATION OF ORDERS DENYING MOTIONS TO EXCLUDE A WITNESS FOR SANCTIONS, OR FOR LEAVE TO REOPEN DISCOVERY FOR A LIMITED PURPOSE; AND MOTION FOR LEAVE TO ADD AN EXPERT WITNESS AND TO REOPEN DISCOVERY FOR A LIMITED PURPOSE

On December 6, 2005, Respondents filed a motion for reconsideration or clarification, pursuant to FTC Rule 3.22 of the November 22, 2005 orders denying respondents motions to exclude a witness, for sanctions or for leave to reopen discovery for a limited purpose; and motion for leave to add an expert witness and to reopen discovery for a limited purpose. Respondents demonstrated that the November 22 orders err by not addressing the material fact that Dr. Heymsfield did not testify truthfully regarding the publication and withdrawal of the fraudulent Heymsfield/Darsee studies. Respondents have also shown that they would be materially prejudiced by being unable to conduct further discovery and to present rebuttal evidence. Accordingly, Respondents' motion to reopen discovery for a limited purpose and to add an expert witness is hereby **GRANTED**.

It is hereby **ORDERED** that Respondents' motion for reconsideration shall be granted.

ORDERED:

Stephen J. McGuire Chief Administrative Law Judge

# UNITED STATES OF AMERICA FEDERAL TRADE COMMISSION OFFICE OF ADMINISTRATIVE LAW JUDGES WASHINGTON, D.C.

In the Matter of

BASIC RESEARCH, LLC A.G. WATERHOUSE, LLC KLEIN-BECKER USA, LLC **NUTRASPORT, LLC** SOVAGE DERMALOGIC LABORATORIES, LLC BAN LLC d/b/a BASIC RESEARCH LLC OLD BASIC RESEARCH, LLC BASIC RESEARCH, A.G. WATERHOUSE, KLEIN-BECKER USA, NUTRA SPORT, and SOVAGE DERMALOGIC LABORATORIES **DENNIS GAY** DANIEL B. MOWREY d/b/a AMERICAN PHYTOTHERAPY RESEARCH LABORATORY, and MITCHELL K. FRIEDLANDER, Respondents

**PUBLIC** 

Docket No. 9318

ORDER GRANTING RESPONDENTS' MOTION FOR RECONSIDERATION OR CLARIFICATION OF ORDERS DENYING MOTIONS TO EXCLUDE A WITNESS FOR SANCTIONS, OR FOR LEAVE TO REOPEN DISCOVERY FOR A LIMITED PURPOSE; AND MOTION FOR LEAVE TO ADD AN EXPERT WITNESS AND TO REOPEN DISCOVERY FOR A LIMITED PURPOSE

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It is hereby **ORDERED** that Respondents' motion for reconsideration shall be granted.

ORDERED:

Stephen J. McGuire Chief Administrative Law Judge

# **EXHIBIT A**

Service: Get by LEXSEE® Citation: 2003 ftc lexis 49

2003 FTC LEXIS 49, \*

In the Matter of RAMBUS INC., a corporation

Docket No. 9302

Federal Trade Commission

2003 FTC LEXIS 49

ORDER DENYING RESPONDENT'S APPLICATIONS FOR REVIEW OF FEBRUARY 26, 2003, ORDER (GRANTING COMPLAINT COUNSEL'S MOTION FOR COLLATERAL ESTOPPEL) AND FEBRUARY 28, 2003, ORDER (GRANTING COMPLAINT COUNSEL'S MOTION TO COMPEL DISCOVERY RELATING TO SUBJECT MATTERS AS TO WHICH RESPONDENT'S PRIVILEGE CLAIMS WERE INVALIDATED ON CRIME-FRAUD GROUNDS AND SUBSEQUENTLY WAIVED); DENYING RESPONDENT'S REQUEST FOR RECONSIDERATION OF THE FEBRUARY 26 ORDER; AND GRANTING RESPONDENT'S REQUEST FOR RECONSIDERATION OF THE FEBRUARY 28 **ORDER** 

March 26, 2003

ALJ: [\*1]

Stephen J. McGuire, Chief Administrative Law Judge

#### **ORDER:**

On February 26, 2003, the Hon. James P. Timony, presiding in the above-captioned proceeding, entered an Order granting Complaint Counsel's Motion for Collateral Estoppel ("February 26 Order"). Thereafter, on February 28, 2003, Judge Timony entered an Order granting Complaint Counsel's Motion to Compel Discovery Relating to Subject Matters as to which Respondent's (Rambus, Inc.), privilege claims were invalidated on crime-fraud grounds and subsequently waived ("February 28 Order"). Respondent subsequently filed separate Applications for Review that the Court certify the February 26 and 28 Orders for immediate interlocutory review by the Commission pursuant to Commission Rule 3.23(b), 16 C.F.R. § 3.23(b). In the alternative, Respondent filed Requests for Reconsideration of both the February 26 and 28 Orders seeking reversal. Respondent argues that Judge Timony "made grievous errors" while "trying hard to 'clear the decks'" of open motions in this matter prior to his retirement in late February. Complaint Counsel asserts that Judge Timony's initial rulings were correct and that Respondent has failed to provide sufficient reason why the [\*2] Court should reconsider those rulings or permit an interlocutory appeal of these issues to the Commission. For the reasons set forth below, Respondent's: Applications for Review are **DENIED**; Request for Reconsideration of the February 26 Order is **DENIED**; and Request for Reconsideration of the February 28 Order is **GRANTED**.

#### I. Background

### A. Collateral Estoppel Motion

On February 12, 2003, Complaint Counsel filed a Motion Seeking Recognition of the Collateral Estoppel Effect of Prior Factual Findings that Respondent Rambus Inc. Destroyed Material Evidence in Anticipation of Future Litigation. Complaint Counsel asserted that, based on the decisions of the District Court for the Eastern District of Virginia in Rambus Inc. v. Infineon Technologies AG, 155 F.Supp.2d 668 (E.D. Va. 2001)(Infineon I), the Federal Circuit in

Rambus Inc. v. Infineon Technologies AG, 318 F.3d 1081 (4th Cir. 2003)(Infineon II), and the principle of collateral estoppel, it was established definitively that Respondent's document retention policy was created in anticipation of patent infringement litigation concerning patents relating to Respondent's participation, from 1991-96, in an [\*3] industry standardsetting organization, the Joint Electronics Device Engineering Council ("JEDEC"), and was intended to destroy documents that would be harmful in such litigation. Respondent, in its Opposition, asserted that the Federal Circuit's decision in Infineon II fully vacated Infineon I and, therefore, all findings from Infineon I were a nullity and without any collateral estoppel effect in the instant matter. The February 26 Order by Judge Timony granted Complaint Counsel's motion and gave collateral estoppel effect to three findings of fact made by the district court in Infineon I. n1

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- n1 The three findings of fact held to be subject to collateral estoppel are:
  - 1. When "Rambus instituted its document retention policy in 1998," it did so, "in part, for the purpose of getting rid of documents that might be harmful in litigation."
  - 2. Rambus, at the time it implemented its "document retention policy," "clearly. . . contemplated that it might be bringing patent infringement suits during this timeframe" if its efforts to persuade semi-conductor manufacturers to license "its JEDEC-related patents" "were not successful."
  - 3. Rambus's "document destruction" was done "in anticipation of litigation."

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In Infineon I, Respondent alleged Infineon infringed on various patents relating to computer random access memory ("RAM") held by Respondent. Infineon counter-claimed alleging that Respondent committed fraud under Virginia state law by not disclosing various RAM-related patents held or applied for by Respondent while it participated in JEDEC.

During trial, the district court entered a judgment as a matter of law ("JMOL") in favor of infineon, holding infineon did not infringe on any of Respondent's patents. The court permitted the fraud counter-claims to go to the jury and the jury returned a verdict that Respondent committed fraud as to two types of RAM technology, SDRAM and DDRAM. Following post-trial motions, the district court permitted the jury verdict to stand against Rambus as to fraud concerning SDRAM. The district court granted Respondent's motion for a JMOL as to DDRAM but denied Respondent's motions for a JMOL or new trial concerning SDRAM. In sum, the district court ultimately entered a judgment holding that: (1) Infineon did not infringe any patents held by Respondent; (2) Respondent did not commit fraud with regard to DDRAM; and (3) that Respondent did commit fraud with [\*5] regard to SDRAM.

The district court also awarded over \$ 7.1 million in attorney fees to Infineon as the prevailing party in a patent infringement suit pursuant to the authority of 35 U.S.C. § 285. The district court based the award of attorney fees on three independent grounds: (1) Respondent's claim construction and infringement positions; (2) fraud as inequitable conduct; and (3) litigation misconduct by Respondent.

On appeal, the Federal Circuit, in Infineon II, affirmed-in-part, reversed-in-part, vacated-inpart, and remanded the case to the district court. The Federal Circuit reversed and vacated the JMOL on infringment claims. It also reversed the district court's denial of the Respondent's post-trial JMOL on the SDRAM fraud verdict. It affirmed the post-trial JMOL grant on the DDRAM claims.

While the district court awarded attorney fees on the three independent grounds noted above, on appeal Respondent only challenged the claim construction and fraud grounds for the award and did "not contest the district court's holding of litigation misconduct" or make a showing that the holding on this point was "clearly erroneous." Infineon II, 318 F.3d at 1106. In remanding the attorney [\*6] fee award issue to the district court, the Federal Circuit held that while litigation misconduct could alone justify the award of attorney fees by the district court under § 285 where attorney fees are awarded solely on the basis of litigation misconduct, "the amount of the award must bear some relation to the extent of the misconduct." Id. The Federal Circuit summarized its position on the award of attorney fees and litigation misconduct by Respondent as follows:

In sum, given this court's holdings on claim construction and fraud and the lack of the apportionment between the award and the misconduct, this court vacates the attorney fees award and remands to the district court. On remand, the district court may consider whether Infineon remains a prevailing a party, and if so, whether an award is warranted. If the court determines that an award is warranted, it will have the opportunity to set the amount of the award to redress the litigation misconduct.

Id.

# **B. Crime-Fraud Exception Motion**

On January 7, 2003, Complaint Counsel filed a Motion to Compel Discovery Relating to Subject Matters as to Which Rambus's Privilege Claims were Invalidated on Crime-Fraud Grounds [\*7] and Subsequently Waived. In the motion, Complaint Counsel sought to obtain documents for which Respondent asserted privilege for the time period after Rambus dropped out of JEDEC in 1996. Complaint Counsel's motion focused on the doctrine of waiver, arguing that Respondent opened the door to post -1996 documents by voluntarily producing pre-1996 documents in litigation involving Hynix. n2

n2 Rambus produced pre-1996 documents without judicial compulsion to Hynix after losing litigation on the identical issues in litigation involving Infineon and Micron. February 28 Order at n. 1.
End Footnotes
Respondent filed its Opposition on January 21, 2002. In it, Despendent claimed that the

Respondent filed its Opposition on January 21, 2003. In it, Respondent claimed that the doctrine of waiver could not serve as a basis for requiring it to produce documents after it dropped out of JEDEC in 1996. Respondent claimed it had never voluntarily produced documents for which it claimed privilege so no waiver could exist, stating that its production of documents in prior litigation involving Hynix was a "de facto" compelled production [\*8] and that the production agreement between Respondent and Hynix preserved the privileged nature of the documents.

The February 28 Order issued by Judge Timony granted Complaint Counsel's motion and permitted the requested discovery. The Order was not based on the waiver theory advanced by Complaint Counsel. Rather, Judge Timony sua sponte based his ruling on the evidence of record on Respondent's conduct, and in particular on the resulting factual presumptions contained in the February 26, 2003 Order on Complaint Counsel's Motion for Default Judgment. The February 28 Order concluded that this evidence and these factual presumptions were a prima facie basis for concluding that Respondent was involved in fraudulent conduct after June 1996 (when Respondent dropped out of JEDEC), and, therefore, the crime-fraud exception permitted discovery by Complaint Counsel of post-June 1996 materials otherwise protected by the attorney-client or attorney work product privileges.

### II. Analysis and Discussion

## A. Certification for Interlocutory Appeal

Respondent seeks certification of the February 26 and 28 Orders for interlocutory review by the Commission pursuant to Commission Rule [\*9] 3.23(b), 16 C.F.R. § 3.23(b). Applications for review of a ruling by the Administrative Law Judge may be made only if the applicant meets both prongs of a two prong test. The first prong is that the ruling must involve "a controlling question of law or policy as to which there is substantial ground for difference of opinion." 16 C.F.R. § 3.23(b). Controlling questions are "not equivalent to merely a question of law which is determinative of the case at hand. To the contrary, such a question is deemed controlling only if it may contribute to the determination, at an early stage, of a wide spectrum of cases." In re Automotive Breakthrough Sciences, Inc., 1996 FTC LEXIS 478 at \*1 (Nov. 5 1996).

The second prong is that the Administrative Law Judge must determine "that an immediate appeal from the ruling may materially advance the ultimate termination of the litigation or [that] subsequent review will be an inadequate remedy." 16 C.F.R. § 3.23(b) (emphasis added). In addition, for discovery orders such as the February 28 Order, the Commission "generally disfavor[s] interlocutory appeals, particularly those seeking Commission review of an ALJ's discovery rulings." In re Gillette Co., 98 [\*10] F.T.C. 875, 875, 1981 FTC LEXIS 2, \*1 (Dec. 1, 1981). "Interlocutory appeals from discovery rulings merit a particularly skeptical reception, because [they are] particularly suited for resolution by the administrative law judge on the scene and particularly conducive to repetitive delay." In re Bristol-Myers Co., 90 F.T.C. 273, 273, 1977 FTC LEXIS 83, \*1 (Oct. 7, 1977). Accord In re Gillette Co., 98 F.T.C. at 875 ("resolution of discovery issues, as a general matter, should be left to the discretion of the ALJ").

A review of the February 26 Order indicates that it does not involve "a controlling question of law or policy." On its face, the Order only involves factual questions, not ones of law or policy. Since the three factual issues given collateral estoppel effect are not dispositive of this matter, an immediate interlocutory appeal would not materially advance the ultimate termination of this dispute. Similarly, the non-dispositive nature of these three factual issues means that Respondent will not be harmed by delaying review of the February 26 Order, or any findings thereunder, until a plenary review by the Commission.

Since the Court grants Respondent's Request for Reconsideration [\*11] of the February 28 Order, even considering certification of the Order until after the Court's reconsideration is inappropriate. However, even after the reconsideration, consistent with the Commission rulings in Bristol-Myers and Gillette, the resolution of what is ultimately a discovery issue is best left to the "administrative law judge on the scene." Moreover, an interlocutory appeal on this issue would not materially advance the ultimate termination of this dispute.

For these reasons, Respondent's Applications for Review for interlocutory appeal of the February 26 and February 28 Orders are DENIED.

#### **B.** Reconsideration

In the alternative, Respondent requests the Court to reconsider and reverse the Orders in question. Motions for reconsideration should be granted only sparingly. Karr v. Castle, 768 F. Supp. 1087, 1090 (D. Del. 1991). Such motions should be granted only where: (1) there has been an intervening change in controlling law; (2) new evidence is available; or (3) there is a need to correct clear error or manifest injustice. Regency Communications, Inc. v. Cleartel Communications, Inc., 212 F.Supp.2d 1, 3 (D.D.C. 2002). Reconsideration motions are not intended to [\*12] be opportunities "to take a second bite at the apple" and relitigate previously decided matters. Greenwald v. Orb Communications & Marketing, Inc., 2003 WL 660844 at \*1 (S.D.N.Y. Feb. 27, 2003).

In this matter, there have been no intervening changes in controlling law or new evidence since the filing of the February 26 and February 28 Orders. Rather, the sole change is the reassignment of this case to the current presiding judge which occurred due to Judge Timony's retirement on February 28, 2003. As a result, this review is not to determine whether the Court agrees with the conclusions reached in these Orders or whether it might have reached a different result, but rather is specifically limited to the issue of whether either the February 26 or February 28 Order is in "clear error" or results in a "manifest injustice".

# 1. Collateral Estoppel Order

As stated in the February 26 Order:

Collateral estoppel may be used to bar a party from relitigating an issue on which it has been fully heard and lost. "[A] party who has had one fair and full opportunity to prove a claim and has failed in that effort, should not be permitted to go to trial on the merit of that claim a second [\*13] time." Blonder-Tongue Laboratories, Inc. v. University of Illinois Foundation, 402 U.S. 313, 324-325 (1971). The purpose of the doctrine is to "protect[] adversaries from, the expense and vexation attending multiple lawsuits, conserve[] judicial resources, and, foster[] reliance on judicial action by minimizing the possibility of inconsistent decisions." Montana v. United States, 440 U.S. 147, 153 (1979), accord Blonder-Tongue, 402 U.S. at 324-25 ("Both orderliness and reasonable time saving in judicial administration require this to be so unless some overriding consideration of fairness to a litigant dictates a different result in the circumstances of the particular case.").

February 26 Order at 2.

Respondent's memorandum in support of its motion for reconsideration cites numerous cases for the general principle that where the mandate of a circuit court vacates the decision of a district court in its entirely, the prior actions of the district court are a nullity and not a foundation for a finding of collateral estoppel. Respondent's Memorandum at pp. 7-10. This general principle is inapposite to the instant situation, however. Where a circuit court's mandate does not fully vacate [\*14] a decision of a district court, the portions of the district court decision not vacated by the appellate court remain in effect. Molinary v. Powell Mountain Coal Co., Inc., 173 F.3d 920, 923 (4th Cir. 1999)(where a specific issue is not vacated on appeal, that issue may not be relitigated on remand and the district court

judgment remains final as to that issue -- "entire mandate [to be] read in toto" to determine circuit court's intent concerning extent of vacatur); Cowgill v. Raymark Industries, Inc., 832 F.2d 798, 802 (3d Cir. 1987)("When a court of appeals reverses a judgment and remands for further consideration of a particular issue, leaving other determinations of the trial court intact, the unreversed determinations of the trial court normally continue to work as an estoppel."); Solomon v. Liberty County, 957 F.Supp. 1522, 1554-55 (N.D. Fla. 1997)(a mandate only vacating part of a district court's decision is limited in nature and does not nullify all prior proceedings); GAF Corp. v. Eastman Kodak Co., 519 F.Supp. 1203, 1212-13 (S.D.N.Y. 1981)(finality sufficient for law of the case is a sufficient basis for collateral estoppel). See also Restatement (2d) of Judgments § 13 [\*15] ("For purposes of issue preclusion . . . 'final judgment' includes any prior adjudication of an issue in another action that is determined to be sufficiently firm to be accorded conclusive effect.").

Particularly instructive on the principle that a partial vacatur leaves the non-vacated portions of the trial court decision in effect is The University of Colorado Foundation, Inc. v. American Cyanimid Co., 105 F.Supp.2d 1164, 1173 (D. Col. 2000)("Colorado Foundation"), which analyzes a decision by the Federal Circuit using language in its mandate similar to Infineon II. n3 In Colorado Foundation, the district court considered a situation where the appellant did not challenge certain factual findings by the district court on appeal. The Federal Circuit expressly noted that it did not, therefore review (or vacate) those factual findings. Rather, "such a mandate . . . does not 'extinguish' the underlying trial or deprive the proceedings of their 'standing' for the purposes of res judicata. It simply requires the trial court on remand to apply the correct law to the facts already determined to be sufficient to meet the correct legal standard." Colorado Foundation, 105 F.Supp.2d at 1173.

n3 The University of Colorado Foundation, Inc. v. American Cyanimid Co., 196 F.3d 1366 (Fed. Cir. 1999).
[*16]

The mandate of the Federal Circuit in Infineon II can be read as being less than a full vacatur of the district court's factual findings as to litigation misconduct by Respondent. It is clear that where an order is not fully vacated by a circuit court's mandate, those portions which are not specifically vacated are not extinguished and remain valid. Therefore, Infineon II could well be read as the Federal Circuit accepting the district court's factual findings on Respondent's litigation misconduct and issuing a mandate directing the district court on remand to determine if the litigation misconduct alone was sufficient to justify any or all of the initial \$ 7.1 million attorney fee award. Given this reading, this Court cannot conclusively determine that the findings of the February 26 Order were clearly in error or represents a manifest injustice. Having failed to meet the applicable standard for review, the Respondent's Motion for Reconsideration as to the February 26 Order is DENIED.

# 2. Crime-Fraud Exception Discovery Order

#### a. The Crime-Fraud Exception Defined

In order to foster free and unfettered communications between a client and an attorney (including full disclosure [\*17] of past wrongdoings), those communications are "zealously protected." Haines v. Liggett Group Inc., 975 F.2d 81, 90 (3d Cir. 1992). An exception to this principle is the crime-fraud exception. This protection "ceases to operate at a certain point, namely, where the desired advice refers not to prior wrongdoing, but to future wrongdoing." Haines, 975 F.2d 81 at 84 (emphasis in original) quoting 8 Wigmore, § 2298.

#### b. The February 28 Order is Not Clearly Erroneous

The foundation of the February 28 Order is comprised of four factual presumptions set out in the February 26, 2003 Order on Complaint Counsel's Motion for Default Judgment. These presumptions arose as a result of the evidence of record in this matter as determined by Judge Timony. The presumptions include:

- a. Rambus participated in JEDEC through June 1996;
- b. Through this participation, Rambus knew or should have known the JEDEC standards for RAM, as developed through June 1996, would infringe on patents held or applied for by Rambus;
- c. Rambus knew or should have known that these infringements could potentially lead to substantial licensing fees or damages for Rambus; and
- d. Rambus, before it ceased participation [\*18] in JEDEC in June 1996, failed to disclose the existence of the patents it either held or had applied for that could be infringed by the proposed JEDEC standards to the other JEDEC participants.

Additionally, the February 28 Order found that Respondent, after 1996, continued the process of prosecuting patents applied for prior to its dropping out of JEDEC in June 1996 that Respondent knew or should have known from its participation in JEDEC could be of significant value to it. Beyond these factual predicates, the February 28 Order relied upon the legal standard for establishing the crime-fraud exception set out in In re Vargas, 723 F.2d 1461 (10th Cir. 1983). Decided in the context of a grand jury proceeding, Vargas held that neither a hearing nor an in camera inspection of documents is mandatory prior to requiring the production of documents under the crime-fraud exception once prima facie evidence of fraud is established by the party seeking discovery. Vargas did not direct that its holding is limited only to the grand jury context and inapplicable to civil proceedings. Since Judge Timony, relying on the standard in Vargas and the factual presumptions in the February 26 Order on [\*19] Complaint Counsel's Motion for Default Judgment, found that Complaint Counsel sufficiently established a prima facie case that Respondent used its attorneys after 1996 to prosecute patents and thereby continue fraudulent conduct that began before Respondent dropped out of JEDEC in 1996, this Court cannot conclude that the February 28 Order is clearly erroneous.

#### c. The February 28 Order Appears Manifestly Unjust

While Vargas remains valid, n4 the Court is persuaded by cases such as Haines and Laser Industries, Ltd. v. Reliant Technologies, Inc., 167 F.R.D. 417 (N.D. Cal. 1996), that a different procedural standard controls access to the crime-fraud exception in a purely civil context. As a result, to permit Complaint Counsel to establish a prima facie case and then to compel production of documents without providing Respondent with an adequate opportunity to reply, would represent a manifest injustice since it irrevocably could "break the seal of a highly protected privilege," Haines 975 F.2d at 96.

n4 The decision cited by Respondent, In re M&L Business Machine Co., Inc., 167 BR 937 (D. Colo. 1994), does not establish that Vargas does not apply to civil proceedings even within

the Tenth Circuit. It fails on this point because M&L simply follows the reasoning of the Third Circuit in Haines without considering the import of its own Circuit Court's decision in Vargas. Though the Court might agree with the reasoning of M&L, it is unable to determine if the M&L court ignored Vargas, believed it inapplicable, or simply was unaware of it.

	-	-	-	-	-	-	-	-	-	-	End	Footnotes	*20]
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In the context of a grand jury proceeding, there is a substantial societal interest in maintaining the secrecy of the grand jury's investigation. In this regard, to permit an entity the opportunity to rebut a prosecutor's unchallenged presentation of evidence sufficient to establish a prima facie basis for the crime fraud exception could prohibit the "effective detection, punishment, and deterrence of criminal acts." Laser Industries, 167 F.R.D. at 426. In contrast, in the civil context there is no conflict between the need for secrecy presented by a criminal investigation and the due process rights of the party from whom discovery is sought. As a result, once a party seeking discovery in a civil matter establishes a prima facie case that the crime-fraud exception may apply, 'the importance of the privilege . . . as well as fundamental concepts of due process require that the party defending the privilege he given the opportunity to be heard, by evidence and argument, at the hearing seeking the exception to the privilege." Haines, 975 F.2d at 97. Put another way, where a judge "undertakes to weigh evidence in a proceeding seeking an exception to the privilege, the party invoking the [\*21] privilege has the absolute right to be heard." Id.

Here, Respondent did not have an adequate opportunity to rebut the prima facie case for invoking the crime-fraud exception that the February 28 Order found exists. This lack of an opportunity for rebuttal by Respondent was compounded by the fact that while Complaint Counsel's underlying Motion to Compel was based solely on a waiver theory, the February 28 Order was based not on the waiver issue, but rather directly on the merits of whether Respondent engaged in conduct that justifies invocation of the crime-fraud exception, n5 Assuming that Judge Timony believed, under Vargas, that Respondent had any right to be heard on the alternative theory that he used to resolve the February 28 Order, he may have determined that the evidence and argument put forward by Respondent in opposition to Complaint Counsel's Motion for Default Judgment amounted to an indirect rebuttal of the prima facie case found in the February 28 Order. Such indirect rebuttal however, does not provide the procedural due process accorded to Respondent. "The privilege [can] be given adequate protection . . . only when the [judge] undertakes a thorough consideration of [\*22] the issue, with the assistance of counsel on both sides of the dispute." Laser Industries, 167 F.R.D. at 428.

n5 In fact, the February 28 Order never ultimately resolved the waiver issue put forward by Complaint Counsel, February 28 Order at n. 1.
End Footnotes

### d. Proceeding on the Crime-Fraud Exception Issue

In theory, the Court could resolve this issue by looking solely at the waiver theory initially advanced by Complaint Counsel in the underlying Motion to Compel. If, based on the memoranda previously submitted by the parties, the Court decides to deny the motion based on the waiver theory, it could issue an order and nothing further would be required. In re General Motors Corp., 153 F.3d 714, 716 (8th Cir. 1998). Only if the Court were inclined to grant the motion and compel production would it need to go through a Haines-type

procedure. Id. Realistically, however, the genie is out of the bottle on the issue of whether Respondent's actual conduct (waiver issue aside) amounts to a basis for invoking the crimefraud exception [\*23] and permitting the discovery sought by Complaint Counsel. In its Opposition to the Respondent's Motion for Reconsideration of the February 28 Order, Complaint Counsel avidly advocated and adopted this theory as its own.

It would be highly inefficient to go through an entire Haines-type proceeding on a waiver theory and then potentially have to go through it a second time on another substantive theory. Rather, to promote judicial economy, the Court intends to address all potential theories in support of invoking the crime-fraud exception in a single proceeding. As a result, if Complaint Counsel wishes to advance substantive facts or other theories in support of its once more outstanding Motion to Compel, it must file a supplemental memorandum, not to exceed twenty-five (25) pages, within ten (10) days of this Order. If Complaint Counsel files a supplemental memorandum, Respondent will then have ten (10) days to file a supplemental opposition memorandum, also not to exceed twenty-five (25) pages. Replies will not be entertained.

If, after consideration of the parties' original memoranda and any supplemental briefing, the Court decides to deny Complaint Counsel's motion, an order will [\*24] issue accordingly. If, after consideration of the parties' original memoranda and any supplemental briefing, the Court is inclined to grant Complaint Counsel's motion, it will proceed using any additional appropriate procedural safeguards it deems necessary to assure due process.

#### **IV.** Conclusion

For the reasons set forth above:

- 1. Respondent's Applications for Review for certification of the February 26 and February 28 Orders for interlocutory review by the Commission are **DENIED**;
- 2. Respondents's Motion for Reconsideration of the February 26 Order is **DENIED**; and
- 3. Respondent's Motion for Reconsideration of the February 28 Order is **GRANTED**.

ORDERED:

Stephen J. McGuire

Chief Administrative Law Judge

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Date/Time: Tuesday, December 6, 2005 - 9:52 AM EST

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# EXHIBIT B

# UNITED STATES OF AMERICA BEFORE THE FEDERAL TRADE COMMISSION

Commissioners:	Timothy J. Muris, Chairman Sheila F. Anthony Mozelle W. Thompson Orson Swindle Thomas B. Leary		
	·	_	
In the Matter of		)	
RAMBUS INCOR	PORATED,	)	DOCKET NO. 9302
a corporatio	<b>on.</b>	)	
		_/	

#### **COMPLAINT**

Pursuant to the provisions of the Federal Trade Commission Act, and by virtue of the authority vested in it by said Act, the Federal Trade Commission ("Commission"), having reason to believe that Rambus Incorporated (hereinafter, "Rambus" or "Respondent") has violated Section 5 of the Federal Trade Commission ("FTC") Act, as amended, 15 U.S.C. § 45, and it appearing to the Commission that a proceeding in respect thereof would be in the public interest, hereby issues its complaint, stating its charges as follows:

#### Nature of the Case

1. Through this action, the Commission challenges a pattern of anticompetitive acts and practices, undertaken by Rambus over the course of the past decade, and continuing even today, whereby Rambus, through deliberate and intentional means, has illegally monopolized, attempted to monopolize, or otherwise engaged in unfair methods of competition in certain markets relating to technological features necessary for the design and manufacture of a common form of digital computer memory, known as dynamic random access memory, or "DRAM."

- 2. Rambus's anticompetitive scheme involved participating in the work of an industry standard-setting organization, known as JEDEC, without making it known to JEDEC or to its members that Rambus was actively working to develop, and did in fact possess, a patent and several pending patent applications that involved specific technologies proposed for and ultimately adopted in the relevant standards. By concealing this information in violation of JEDEC's own operating rules and procedures and through other bad-faith, deceptive conduct, Rambus purposefully sought to and did convey to JEDEC the materially false and misleading impression that it possessed no relevant intellectual property rights. Rambus's anticompetitive scheme further entailed perfecting its patent rights over these same technologies and then, once the standards had become widely adopted within the DRAM industry, enforcing such patents worldwide against companies manufacturing memory products in compliance with the standards.
- 3. The pattern of anticompetitive conduct by Rambus that is at issue in this action has materially caused or threatened to cause substantial harm to competition, and will in the future materially cause or threaten to cause further substantial injury to competition and to consumers, absent the issuance of appropriate relief in the manner set forth below.

# **The Respondent**

- Rambus is a public corporation organized, existing, and doing business under and by virtue of the laws of the State of Delaware, with its office and principal place of business located at 9440 El Camino Real, Los Altos, California 94022.
- Rambus designs, develops, licenses, and markets high-speed chip-connection technology to enhance the performance of computers, consumer electronics, and communications systems. The company licenses semiconductor companies to manufacture and sell memory and logic integrated circuits incorporating Rambus chip-connection technology and markets its solutions to systems companies to encourage them to design this technology into their products. For the fiscal year that ended on September 30, 2001, Rambus reported revenues of approximately \$117 million.
- 6. Rambus is, and at all relevant times has been, a corporation as "corporation" is defined by Section 4 of the Federal Trade Commission Act, 15 U.S.C. § 44; and at all times relevant herein, Rambus has been, and is now, engaged in commerce as "commerce" is defined in the same provision.

#### **Background on the DRAM Industry**

7. Within the array of components that together comprise a typical computer, the computer's "memory" functions to store digitally recorded information such that it is available to be

accessed when needed by the central processing unit ("CPU"). Computer memory is produced in the form of semiconductor "chips," which are connected with other computer components – such as the CPU and the chipset – via a collection of circuit lines, or a "bus," that routes electronic signals and, in this way, communicates commands and transports data.

- 8. DRAM is the most common form of computer memory in use today. Another form of memory is known as static random access memory, or "SRAM." DRAM and SRAM differ principally in the following ways: SRAM, unlike DRAM, is able to continuously hold information while power is being supplied to memory. With DRAM, on the other hand, the electronic charges that serve to hold the stored information in place dissipate over time, causing information to "leak" out of memory. To counteract this phenomenon, DRAM memory chips must be constantly "refreshed" with new electronic pulses. DRAM and SRAM also differ in that the latter generally is both faster and more expensive.
- 9. DRAM is an essential input into a variety of downstream products, including a wide variety of computers, such as personal computers, work stations, and servers, as well as various other types of electronic devices, such as fax machines, printers, digital video recorders, video game equipment, and personal digital assistants. Total sales of DRAM in the United States exceeded \$12 billion in 2000, and for the same year worldwide DRAM sales exceeded \$28 billion.
- 10. Over the years, a series of different architectures for designing DRAM chips has been introduced. As in most other aspects of the computer industry, over time older-generation designs have given way to newer-generation designs or to improvements on existing architectures. A driving force behind this continual process of evolution in DRAM design is the quest for improved computer performance. In particular, as the performance of other computer components and subsystems is enhanced, the marketplace demands equivalent improvements in the speed and other performance characteristics of computer memory.
- 11. During the late 1980s and early 1990s, developments and improvements in the performance of CPUs and other computer components were moving forward at a rapid clip. It was perceived, however, that developments in DRAM technology had not kept pace, and that performance constraints inherent in the available DRAM architectures were hindering technological progress in the computer industry, creating a virtual "memory bottleneck."
- 12. It was in this environment that "synchronous" DRAM was developed. The essential innovation underlying synchronous DRAM as compared to the prior generation of DRAM, also known as "asynchronous" DRAM was to link memory functions to a "system clock," allowing for more rapid sequencing of communications between the CPU and memory, thereby improving overall system performance. The system clock, in effect, consists of a continuous series of evenly spaced electronic pulses. The period of time (measured in nanoseconds) elapsing between the initiation of two succeeding pulses is referred to as a single "clock cycle."

13. The introduction of synchronous DRAM offered a potentially promising solution to the memory bottleneck. Yet the success of synchronous DRAM depended importantly upon the ability of the computer industry to adopt standards governing the design and implementation of synchronous DRAM.

#### **JEDEC**

- 14. The JEDEC Solid State Technology Association ("JEDEC") originally known as the Joint Electron Device Engineering Council, from which the acronym JEDEC derives is one of several standard-setting bodies affiliated with the Electronic Industries Alliance ("EIA"), a trade association representing all segments of the electronics industry. As explained in JEDEC's Manual of Organization and Procedure (hereinafter, the "JEDEC Manual"), the organization's primary purpose and function is to "promote the development and standardization of terms, definitions, product characterization, test methods, manufacturing support functions and mechanical standards for solid state products."
- 15. According to the JEDEC Manual, membership in JEDEC is freely available to "[a]ny company, organization, or individual conducting business in the USA that ... manufactures electronic equipment or electronics-related products, or provides electronics or electronics-related services." To become a JEDEC member, an eligible company need only submit an application, pay membership fees, and agree to abide by JEDEC's rules. JEDEC members, currently numbering in excess of 200, include many of the world's top designers and manufacturers of semiconductors and related products, as well as many of the largest purchasers of such products.
- 16. JEDEC's internal structure consists of a Board of Directors (formerly known as the JEDEC "Council") and numerous operational committees, subcommittees, and task groups. Standards typically are proposed, evaluated, and formalized at the committee or subcommittee level and then presented for approval to the Board of Directors, which has final authority to approve or disapprove all proposed standards.

# **JEDEC Policies and Procedures**

17. At all times relevant herein, JEDEC has steadfastly maintained a commitment to promoting free competition within the semiconductor industry. Thus, JEDEC has insisted that its members abide by all applicable laws, including but not limited to laws prohibiting anticompetitive conduct.

- 18. The JEDEC Manual provides that all JEDEC meetings "shall comply with the current edition of EIA Legal Guides." These Legal Guides which are explicitly "incorporated ... by reference" into JEDEC's own governing rules, and currently are posted on JEDEC's own website under the heading "Manuals" provide that standardization programs must be "conducted under strict policies designed to promote and stimulate our free enterprise system and to make sure that laws for maintaining and preserving this system are vigorously followed."
- 19. The EIA/JEDEC Legal Guides establish a "basic rule" that standardization programs conducted by the organization "shall not be proposed for or indirectly result in ... restricting competition, giving a competitive advantage to any manufacturer, [or] excluding competitors from the market."
- 20. Consistent with its commitment to promoting unfettered competition, at all times relevant herein JEDEC also has maintained a commitment to avoid, where possible, the incorporation of patented technologies into its published standards, or at a minimum to ensure that such technologies, if incorporated, will be available to be licensed on royalty-free or otherwise reasonable and non-discriminatory terms. Toward this end, JEDEC has implemented procedures designed to ensure that members disclose any patents, or pending patent applications, involving the standard-setting work being undertaken by the organization.
- 21. At all times relevant herein, meetings of the pertinent JEDEC subcommittee routinely were opened with a statement by the chairperson underscoring the existence of such disclosure obligations. This practice is in conformity with requirements set forth in the JEDEC Manual, the current edition of which provides:

"The chairperson of any JEDEC committee [expressly defined to include, among other things, subcommittees] must call to the attention of all those present the requirements contained in EIA Legal Guides, and the obligation of all participants to inform the meeting of any knowledge they may have of any patents, or pending patents, that might be involved in the work they are undertaking."

Although the above provision was first added to the JEDEC Manual in October 1993, the existence and scope of these disclosure obligations were commonly known within JEDEC before that time, and indeed throughout the entirety of Rambus's involvement in the organization, from late 1991 through mid-1996.

While JEDEC does not altogether prohibit the use of patented items in the standards that it promulgates, the JEDEC Manual does mandate that the use of such items "be considered with great care." Indeed, consistent with procedures and practices followed within JEDEC throughout the relevant time period, the JEDEC Manual, at least since October 1993, has

required that no standard be drafted to include "patented items" – or "items and processes for which a patent has been applied" – absent both

- (1) a well-supported technical justification for inclusion of the patented item; and
- (2) express written assurance from the patent holder that a license to the patented technology will be made available either "without compensation" or under "reasonable terms and conditions that are demonstrably free of any unfair discrimination."
- 23. The JEDEC Manual, at least since October 1993, has expressly provided that the disclosure and licensing obligations discussed above apply "with equal force" when JEDEC members, subsequent to the adoption of a standard, discover new information about existing patent rights or otherwise obtain new patent rights involving that standard. In such situations, the JEDEC member must make the same disclosures and provide the same assurances as would be required if the member knew of such patent rights prior to adoption of the relevant standard.
- 24. Fairly interpreted, the policies, procedures, and practices existing within JEDEC throughout all times relevant herein imposed upon JEDEC members certain basic duties with regard to the disclosure of relevant patent-related information and the licensing of relevant patent rights:
  - a. First, to the extent any JEDEC member knew or believed that it possessed patents or pending patent applications that might involve the standard-setting work that JEDEC was undertaking, the member was required to disclose the existence of the relevant patents or patent applications and to identify the aspect of JEDEC's work to which they related.
  - b. Second, in the event that technologies covered by a member's known patents or patent applications were proposed for inclusion in a JEDEC standard, the member was required to state whether the technology would be made available either "without compensation" or under "reasonable terms and conditions that are demonstrably free of any unfair discrimination." Absent the member's agreement to one of these two conditions, the JEDEC rules would not allow the technology to be incorporated into a proposed standard.

### **JEDEC Work Involving SDRAM Standards**

25. The JEDEC committee responsible for overseeing the development of standards relating to memory devices is known as the JC-42 Committee on Solid State Memories ("JC-42"), which has several subcommittees, one of which is particularly relevant for purposes of the instant

- complaint: the JC-42.3 Subcommittee on RAM Devices ("JC-42.3").
- 26. Beginning in or around 1990, JC-42.3 commenced work on standards relating to the design and architecture of synchronous DRAM, referred to within JC-42.3 as "SDRAM." JEDEC members involved in the SDRAM-related work of JC-42.3 have over time included virtually all leading memory designers, manufacturers, and users, whether based in the U.S. or abroad.
- During the 1990s, JEDEC issued several SDRAM-related standards, the first of which was published in November 1993 and was identified as Release 4 of the 21-C Standard. Subsequent releases of the 21-C Standard followed after that, only small portions of which related to SDRAM, as opposed to other memory-related technologies. In August 1999, however, JEDEC published a substantially augmented SDRAM standard Release 9 of the 21-C Standard which introduced a second generation of SDRAM. This second-generation standard became known as "double data rate," or "DDR," SDRAM.
- 28. Although the second-generation SDRAM standard was not issued until 1999, the work that culminated in that standard commenced, at the very latest, shortly after the first-generation SDRAM standard was adopted in 1993. Indeed, it may have commenced even earlier than that, inasmuch as at least one of the technological features initially considered (but ultimately rejected) for the first-generation SDRAM standard was later adopted in the second-generation standard. In addition, most, if not all, of the technologies encompassed in the first SDRAM standard were carried forward in the second-generation standard as well.
- 29. The process through which JEDEC adopted and published these standards proceeded essentially as follows:
  - a. At regularly scheduled meetings of the JC-42.3 Subcommittee, which typically occurred on a quarterly basis as well as affiliated committee and task group meetings, which were scheduled as needed members were allowed to make presentations concerning specific concepts or technologies they proposed for inclusion in a standard under development.
  - b. Such presentations generally were accompanied by written materials, which, in addition to being shared with all members present at the meeting, were reproduced and attached to the official meeting minutes.
  - c. Before any proposal could be considered for adoption, it was necessary that it be presented a second time at a later subcommittee meeting.
  - d. At that point, a member could move that the proposal be presented to the

- subcommittee membership for approval through a formal balloting process, pursuant to which written ballots were distributed and received by mail.
- e. Votes were then tabulated at the subsequent meeting of the subcommittee, at which time members voting "No" were required to explain their reasons for opposing the proposal.
- f. Technically, a two-thirds majority was required, but in practice proposals rarely passed without a consensus of all voting members.
- g. Individual proposals, once approved by JC-42.3, were often held at the subcommittee level until a complete package of related proposals was ready to be forwarded to the Council for final ratification.
- JEDEC's specifically, the JC-42.3 Subcommittee's work on SDRAM standards continues today, and a third-generation SDRAM standard, known as "DDR II," is expected to be completed later this year.

# Rambus and Its Proprietary RDRAM Technology

- 31. Rambus was founded in 1990 by two electrical engineers, Mark Horowitz and Michael Farmwald, who together developed their own, proprietary synchronous DRAM architecture. They named the new architecture Rambus DRAM, or simply "RDRAM," and contributed the technology to the new corporation upon its formation.
- 32. RDRAM, as originally designed, differed from traditional DRAM architectures in several ways, including but not limited to the following:
  - a. First, the RDRAM architecture specified the use of many fewer bus lines than was common in traditional DRAM designs. Thus, RDRAM was said to be a "narrow-bus" architecture. By comparison to RDRAM, traditional DRAM incorporated what was referred to as a "wide-bus" or "broad-bus" design.
  - b. Second, in the RDRAM architecture, each bus line was capable of carrying three types of information essential to memory functionality: (1) data; (2) "address" information, specifying the location where needed data could be found, or should be placed, in memory; and (3) "control" information, specifying, among other things, the relevant command (e.g., whether the computer should "read" data from memory or "write" new data to memory). By comparison, in traditional DRAM architectures, each bus line was generally dedicated to carrying only one of these three types of information. Thus,

- the RDRAM bus was sometimes said to be "multiplexed" or "triply multiplexed."
- c. Third, rather than transmitting data, address, and control information separately, as was common in a traditional DRAM architecture, RDRAM transmitted such information together in groupings, called "packets." For this reason, RDRAM is also sometimes referred to as a "packetized" system.
- 33. Though Rambus has designed, and obtained patents on, various DRAM-related technological concepts or features, Rambus does not itself manufacture such technologies, choosing instead to license its designs for a fee to downstream memory manufacturers. Beginning in the early 1990s and continuing through the present, Rambus has sought to market and license its proprietary RDRAM technology to manufacturers of computer memory and related products, including a number of companies holding membership in JEDEC.

## Rambus's '898 Patent Application and Its Progeny

- 34. On April 18, 1990, Rambus filed its first DRAM-related patent application with the United States Patent and Trademark Office ("PTO") Application No. 07/510,898 (hereinafter, "the '898 application"). The application contained a 62-page specification and 15 drawings, all purporting to describe Rambus's DRAM-related inventions. In addition, the '898 application contained 150 separate claims, each of which was limited to a narrow-bus, multiplexed, packetized DRAM design.
- 35. Patents and patent applications consist of two principal parts. The first part is a written description, whereby the patent applicant (or, if the application issues as a patent, the patent holder) describes the invention, through technical specifications and drawings, in a manner that would allow a person skilled in the art to which the invention applies to understand and practice the invention without undue experimentation. The second part of the patent or patent application consists of one or more "claims" defining, or delineating, the scope or outer bounds of the patent holder's exclusive rights (or, in the case of an application, the exclusive rights the applicant seeks to obtain).
- 36. Because all 150 claims contained in Rambus's '898 patent application were limited to a narrow-bus, multiplexed, packetized DRAM design, through this application Rambus was not seeking nor, absent amendment to the application, could it obtain any patent rights exceeding those limitations.
- 37. In March 1992, Rambus broke out portions of its '898 application into 10 divisional patent applications, each of which "claimed priority back" to the '898 application and to its April 1990 filing date. The original '898 application and these 10 divisional applications, in turn, gave rise

to numerous other amended, divisional, or continuation patent applications — all technically the "progeny" of the '898 application — and eventually resulted in the issuance of numerous Rambus patents.

- a. The process of obtaining patents or "perfecting" patent claims, otherwise known as patent prosecution, often involves amending, dividing, or continuing patent applications on file with the PTO.
- b. Through an "amendment" to a pending patent application, a patent applicant may delete or alter certain claims contained in the pending application, or may add new claims, while at the same time retaining the same specification, drawings, and (to the extent not amended or deleted) claims of the previously pending application.
- c. A "divisional" application is one that carves out one of multiple distinct inventions from a prior application and seeks to obtain patent rights over that distinct invention, without adding any new matter to the written description of the invention described in the earlier application.
- d. A "continuation" application is a second application, covering the same invention described in a prior application, that is filed before the earlier application either issues as a patent or is abandoned and, again, adds no new matter to the written description of the invention described in the earlier application.
- e. Before issuing any patent, the PTO first seeks to determine whether the invention claimed in the relevant patent application is preceded by "prior art" that is, by preexisting inventions or other publicly known facts or information that demonstrates the lack of novelty in the invention for which a patent is sought.
- f. Generally speaking, determinations of whether prior art exists in a given case are made by reference to the date on which the patent application is filed, otherwise known as the "priority date."
- g. When a patent application is amended, divided, or continued in the manner described above, the patent applicant may "claim priority back" to an earlier-filed application thus benefitting from the earlier filing date but only if the amended, divisional, or continuation application "adds no new matter" to the written description of the invention described in the earlier application. As noted above, divisional and continuation applications, by definition, include no new matter not contained within the earlier-referenced application.
- h. Subsequent amendments, divisionals, or continuations claiming priority back to an

- earlier-filed patent application are sometimes said to be within the same "family" as the earlier-filed application, or otherwise are said to be the prior application's "progeny."
- i. Thus, the fact that, as stated above, each Rambus patent application in the '898 "family" or each of the '898 application's "progeny" claimed priority back to the '898 application, means that all of the patent applications in the '898 family contained the same specification and drawings as were contained in the '898 application itself. In fact, in each amended, divisional, and continuation patent application Rambus filed claiming priority back to the '898 application's April 1990 filing date, Rambus was required to and did expressly warrant to the PTO that the application added "no new matter" beyond what was contained in the '898 application's 62-page specification and 15 drawings.
- 38. Though all of the Rambus patent applications in the '898 family contained the same specification and drawings as the '898 application itself, over time Rambus sought to expand the <u>claims</u> contained within these applications in order to obtain patent rights extending beyond the narrow-bus, multiplexed, packetized design inherent in the RDRAM design. In other words, in the course of prosecuting the '898 family of patent applications, Rambus made a conscious effort to withdraw the narrow-bus limitations contained in the original application's claims, and thereby sought to significantly expand the scope of its potential patent rights, while still clinging to the '898 application's April 1990 priority date.

#### Rambus's Initial Involvement in JEDEC

- 39. Even before Rambus was formally incorporated in early 1990, its founders outlined a strategy whereby, in an effort to obtain high royalties for RDRAM, they would seek to establish RDRAM as the actual or *de facto* industry standard.
- 40. Partly with this goal in mind, Rambus attended its first JEDEC meeting in December 1991, and it officially joined the organization shortly thereafter. Although JEDEC was conducting other potentially relevant work at that time, of particular relevance to Rambus was the work then underway within the JC-42.3 Subcommittee, which was in the process of developing a first generation of standards for SDRAM. From December 1991 through December 1995, Rambus representatives regularly attended JC-42.3 meetings.
- 41. Though Rambus attended its last JC-42.3 meeting in December 1995, it remained a member of JEDEC, and continued to receive official mailings and other information from JEDEC, until June 1996, when it formally withdrew from the organization.

# Rambus's Scheme to Capture the SDRAM Standards

- 42. Shortly after becoming involved in JEDEC, it became apparent to Rambus that JC-42.3 was committed to developing SDRAM standards based on the traditional wide-bus, non-packetized DRAM architecture, relying to the extent possible on non-proprietary technologies. In other words, it was highly unlikely JC-42.3 would be interested in standardizing RDRAM, an architecture that was both proprietary and distinctly non-traditional.
- 43. Rambus, of course, would have preferred that its own RDRAM technology be adopted as the industry standard. Failing that, Rambus might have preferred to see any efforts at adopting an industry-wide SDRAM standard fail, inasmuch as industry adoption of such a standard would make it more difficult for Rambus to market its proprietary RDRAM technology. By mid-1992, however, Rambus had seized upon an alternative business plan one that, if successful, might allow Rambus to achieve the goal of charging high royalties even if the DRAM industry were to adopt as its standard something other than RDRAM. Rambus's CEO, Geoff Tate, laid out this scheme in a June 18, 1992 draft of the Rambus 1992-1997 Business Plan:

"For about 2+ years a JEDEC committee has been working on the specifications for a Synchronous DRAM. No standard has yet been approved by JEDEC. Our expectation is a standard will not be reached until end of 1992 at the earliest.

\* \* \*

[W]e believe that Sync DRAMs infringe on some claims in our filed patents; and that there are additional claims we can file for our patents that cover features of Sync DRAMs. Then we will be in position to request patent licensing (fees and royalties) from any manufacturer of Sync DRAMs. Our action plan is to determine the exact claims and file the additional claims by the end of Q3/92. Then to advise Sync DRAM manufacturers in Q4/92."

44. In what appears to be the final draft of the same Rambus Business Plan, dated September 1992, Tate further elaborated on the scheme:

"Rambus expects the patents will be issued largely as filed and that companies will not be able to develop Rambus-compatible or Rambus-like technology without infringing on multiple fundamental claims of the patents .... Rambus' patents are likely to have significant applications other than for the Rambus Interface."

In the same document, Tate also wrote: "Sync DRAMs infringe claims in Rambus's filed patents and other claims that Rambus will file in updates later in 1992."

45. In actuality, events unfolded somewhat differently than Rambus's CEO envisioned in these

statements, in a manner that affected the timing, but not the core substance, of Rambus's scheme. For instance, although Rambus's '898 application was pending at the time these statements were written, not until 1996 was Rambus – through a separate application claiming priority back to the '898 application – able to obtain its first patent broad enough to arguably cover aspects of the wide-bus DRAM architecture incorporated into the JEDEC standards. In addition, Rambus ultimately elected to wait until late 1999, after DRAM manufacturers and their customers had become "locked in" to the JEDEC standards, before seeking to enforce its patents against memory manufacturers producing JEDEC-compliant SDRAM.

46. Aside from such timing issues, the Rambus business plans quoted in Paragraphs 43 and 44 set forth quite accurately the basic scheme upon which the company would embark – that is, a scheme whereby Rambus would actively seek to perfect patent rights covering technologies that were the subject of an ongoing, industry-wide standardization process, in which Rambus itself was a regular participant, without disclosing the existence of such patent rights (or the pertinent patent applications) to other participants, many of whom, by producing products compliant with the standards, would later be charged with infringing Rambus's patents.

#### Implementation of Rambus's Scheme

- 47. During the course of its participation in JEDEC, from late 1991 through mid-1996, Rambus observed multiple presentations regarding technologies, proposed for (and later included in) JEDEC's SDRAM standards, that Rambus either (1) knew or believed to be covered by claims contained in its then-pending patent applications, or (2) believed could be covered through amendments to those applications expanding the scope of the patent claims while adding no new matter to the underlying technical specification.
- 48. That is, at all times relevant herein, Rambus believed that a number of the specific technologies that were proposed for, and later incorporated in, the relevant JEDEC standards were encompassed by the 62-page technical specification and 15 related drawings common to Rambus's '898 application (filed in 1990) and the numerous amended, divisional, and continuation applications that stemmed from the '898 application. Rambus further believed that, to the extent the pending claims of the '898 application and its later-filed progeny failed to cover these technologies as proposed to be used in JEDEC's SDRAM standards, such claims could be amended to cover these technologies, while still claiming priority back to the '898 application's April 1990 filing date.
- 49. As Rambus's CEO described in the company's internal planning documents in mid-1992 (see Paragraphs 43-44 above), the initial phase of Rambus's "action plan" required that it first "determine the exact claims" in its pending applications that covered technologies being incorporated into the JEDEC standards, and then, as needed, "file ... additional claims" to

- perfect Rambus's patent rights over such technologies. In executing these steps, Rambus placed heavy reliance upon two individuals: Richard Crisp, Rambus's designated representative to the JC-42.3 Subcommittee, and Lester Vincent, an attorney with the law firm of Blakely, Sokoloff, Taylor & Zafman, who served as Rambus's outside patent counsel.
- 50. Richard Crisp, an electrical engineer, joined Rambus in 1991. He attended his first JC-42.3 meeting in February 1992 and continued to attend such meetings regularly through December 1995. (In addition to Crisp, David Mooring, at that time Rambus's vice president for business development, and Billy Garrett, another Rambus engineer, sometimes attended JC-42.3 meetings.) In May 1992, Crisp became Rambus's designated representative to JC-42.3. As such, he personally received any information, such as meeting minutes and ballot forms, that JEDEC furnished to Rambus by mail.
- Throughout the duration of Crisp's participation in the JC-42.3 Subcommittee, it was his customary practice to send comprehensive reports to his superiors and others within Rambus describing in detail the technologies that were being proposed for inclusion in the JEDEC SDRAM standards. Typically, these reports were communicated via e-mails authored and sent while the JC-42.3 meetings were still in progress.
- 52. Lester Vincent and his law firm, Blakely, Sokoloff, were retained as patent counsel by Rambus in the summer of 1991, at which time Vincent assumed primary responsibility for prosecuting Rambus's '898 application before the PTO. For several years thereafter, Vincent and his colleagues assisted Rambus with its DRAM-related patent strategy, providing frequent advice to Rambus on patent-related issues and assuming primary responsibility for drafting, filing, and prosecuting the various continuation and divisional patent applications that stemmed from the '898 application.
- In late March 1992, Vincent met with Crisp and Allen Roberts, the Rambus vice president with responsibility for patents, to discuss, among other things, Rambus's participation in JEDEC. At this meeting, Vincent, Crisp, and Roberts discussed whether Rambus, having joined JEDEC and participated in JEDEC meetings, was at risk of forfeiting on grounds of equitable estoppel its rights to enforce future patents covering aspects of the JEDEC standards. Vincent advised that there could be an equitable estoppel problem if Rambus were to convey to other JEDEC participants the false or misleading impression that it would not seek to enforce its patents or its future patents. He further advised that, in order to reduce such risks, Rambus might remain silent and abstain from voting on any proposed JEDEC standards. Rambus in fact did abstain from voting on the scores of JC-42.3 ballot initiatives that arose during the course of its participation in JEDEC. Richard Crisp did vote on one occasion, however, registering a "No" vote on four separate ballot items.

- 54. Throughout its four and one-half years of participation in the JC-42.3 Subcommittee, Rambus engaged in a continuous pattern of deceptive, bad-faith conduct. Rambus's bad-faith participation in JEDEC, although evidenced in other ways as well, was perhaps best exemplified in the coordinated activities of Crisp and Vincent. During his four-year tenure as Rambus's representative to JC-42.3, Crisp observed multiple presentations relating to technologies Rambus believed were covered - or, through amendment, could be covered - by pending Rambus patent applications. In fact, in a number of instances, Crisp, while participating in JC-42.3 meetings, sent e-mails back to Rambus headquarters expressing a belief that Rambus had pending applications covering certain technologies being discussed in such meetings, or otherwise suggesting that Rambus's pending patent applications be reviewed. and if necessary amended, to ensure they covered such technologies. On several occasions, Crisp – based in part on information learned through attending JC-42.3 meetings – developed specific proposals for amending Rambus's pending patent claims and communicated such proposals directly (or via a Rambus colleague) to Vincent. Likewise, in some cases, Vincent sent copies of draft amendments to Rambus's patent applications to Crisp, among others, soliciting his input before finalizing such amendments. Plainly, in light of Rambus's failures to disclose pertinent patent-related information to JEDEC, the activities described in this paragraph constituted bad faith.
- 55. As underscored elsewhere in this complaint, Rambus never disclosed to JEDEC the fact that, throughout the duration of its membership in the organization, Rambus had on file with the PTO, and was actively prosecuting, patent applications that, in its view, either covered or could easily be amended to cover elements of the existing and future SDRAM standards.

#### **Technologies Impacted by Rambus's Scheme**

- Among other specific technologies adopted or proposed for inclusion in the SDRAM standards during the period of Rambus's participation in JEDEC, which Rambus believed were covered by its then-pending patent applications or could be covered through amendments to such applications, were the following: (1) programmable CAS latency; (2) programmable burst length; (3) on-chip PLL/DLL; and (4) dual-edge clock.
- 57. Column address strobe (or "CAS") latency refers to the amount of time it takes for the memory to release data after receiving a signal, known as the column address strobe, in connection with a read request from the CPU. The technology known as programmable CAS latency allows memory chips to be programmed such that this aspect of the memory's operation can be tailored to facilitate compatibility with a variety of different computer environments.
- 58. Burst length generally refers to the number of times information (or data) is transmitted between the CPU and memory in conjunction with a single request or instruction. The technology

known as programmable burst length allows memory chips to be programmed to adjust this aspect of the memory's operation in order to facilitate compatibility with a variety of different computer environments.

- 59. From December 1991 through May 1992, Crisp and other Rambus representatives observed multiple JC-42.3 presentations pertaining to programmable CAS latency and programmable burst length, both of which were proposed to be incorporated in the first JEDEC SDRAM standard. Soon thereafter, in the summer of 1992, Crisp received, and voted upon, a ballot calling for inclusion of both technologies in the standard. This was the only time that Crisp voted on a JEDEC ballot, and he voted "No," for technical reasons that he was called upon to, and did, explain, but without saying anything to suggest that Rambus might possess relevant intellectual property.
- 60. At the time of these events, Crisp and others within Rambus believed that both programmable CAS latency and programmable burst length were encompassed by the inventions set forth in the specification and drawings of the '898 application and related applications that were then pending at the PTO, and that Rambus by amending the claims in those pending applications had the ability to perfect patent rights covering such technologies as used in the SDRAM standard. Indeed, beginning in May 1992, Crisp, Roberts, and other Rambus representatives began a series of consultations with Vincent for the purpose of drafting new claims, linked to the '898 application, that would cover use of certain technologies in the wide-bus architecture adopted by the SDRAM standard. Programmable CAS latency and programmable burst length were both among the technologies discussed for inclusion in these new wide-bus claims.
- 61. In March 1993, a Rambus representative attended the JC-42.3 meeting at which both programmable CAS latency and programmable burst length were approved for inclusion in the first SDRAM standard and were forwarded to the JEDEC Council, along with a collection of other approved technologies, as part of a comprehensive standard proposal. Despite Rambus's belief that these technologies were subject to pending Rambus patent claims, the Rambus representative remained silent throughout the meeting. In May 1993, the Council formally adopted the proposed SDRAM standard, which was published in November of that year. (Both of these technologies were later carried forward in the second-generation SDRAM standard published in August 1999.) Also in May 1993, Vincent's law firm (Blakely, Sokoloff) first filed patent claims on behalf of Rambus intended to cover use of DRAM technologies in a wide-bus architecture. From that time through the present, Rambus has continued its efforts to perfect patent rights covering use of programmable CAS latency and programmable burst length as incorporated in the SDRAM standards.
- 62. The design objectives served by inclusion of programmable CAS latency and programmable burst length technologies in the first- and second-generation JEDEC standards likely could have

been accomplished through use of alternative DRAM-related technologies available at the time these standards were developed. At a minimum, there would have been uncertainty at that time regarding the potential to identify or develop feasible alternative technologies. In either event, had Rambus disclosed to the JC-42.3 Subcommittee that it possessed pending patent applications purporting to cover – or that could be amended to cover – programmable CAS latency and burst length technologies in a wide-bus synchronous DRAM architecture, such disclosures likely would have impacted the content of the SDRAM standards, the terms on which Rambus would later be able to license any pertinent patent rights, or both.

- Phase lock loop ("PLL") and delay lock loop ("DLL") are closely related technologies, both of which are used to synchronize the internal clock that governs operations within a memory chip and the system clock that regulates the timing of other system functions. The former, PLL, synchronizes the two clocks by adjusting the internal clock's frequency to match the system clock's frequency, whereas the latter, DLL, achieves synchronization by delaying the internal clock. "On-chip" PLL/DLL refers to the approach of placing these technologies on the memory chip itself, as opposed to the alternative approach of placing these technologies on, for instance, the memory module or the motherboard the latter being known as "off-chip" PLL/DLL.
- 64. Beginning in September 1994, Crisp observed presentations and other work in the JC-42.3 Subcommittee involving proposals to include on-chip PLL in the second generation of the SDRAM standard. At that time, Crisp and others within Rambus believed that on-chip PLL was encompassed by the inventions set forth in the specification and drawings of the '898 application and related applications then pending at the PTO, and they had already discussed with Vincent their desire to perfect patent rights covering use of this technology in SDRAMs. Indeed, in June of 1993 Vincent's law firm filed, on Rambus's behalf, an amendment to a pending patent application Application No. 07/847,692 adding claims that, on their face, covered use of on-chip PLL/DLL technology in either a wide-bus or narrow-bus DRAM architecture. From June 1993 through the present, Rambus has continued its efforts to perfect patent rights covering use of on-chip DLL technology as ultimately incorporated in the second-generation SDRAM standard published in August 1999.
- The design objectives served by inclusion of on-chip DLL technology in the second-generation JEDEC standard likely could have been accomplished through use of alternative DRAM-related technologies available at the time these standards were developed. At a minimum, there would have been uncertainty at that time regarding the potential to identify or develop feasible alternative technologies. In either event, had Rambus disclosed to the JC-42.3 Subcommittee that it possessed pending patent applications purportedly covering or that could be amended to cover on-chip PLL/DLL technologies in a wide-bus synchronous DRAM architecture,

- such disclosures likely would have impacted the content of the SDRAM standards, the terms on which Rambus would later be able to license any pertinent patent rights, or both.
- 66. Dual-edge clock is a technology that permits information to be transmitted between the CPU and memory twice with every cycle of the system clock, thereby doubling the rate at which information is transmitted compared to the first generation of SDRAM, which incorporated a "single-edge clock" and hence permitted information to be transmitted only once per clock cycle.
- 67. Between December 1991 and April 1992, Crisp and other Rambus representatives attended JC-42.3 meetings at which they observed presentations and other work involving dual-edge clock technology and a closely related technology known as "toggle-mode." Ultimately, the JC-42.3 Subcommittee decided not to incorporate these technologies into the first-generation SDRAM standard. At the time this decision was reached, however, certain JC-42.3 members expressed the view that such technologies would be appropriate for reconsideration in connection with the next generation of SDRAM. Dual-edge clock technology was again discussed by the JC-42.3 Subcommittee in May 1995. Soon thereafter, in October 1995, a survey ballot relating in part to dual-edge clock technology was distributed to JC-42.3 members, and the same ballot was later discussed at a JC-42.3 meeting in December 1995. A formal proposal to include dual-edge clock technology in the second-generation SDRAM standard was made at a JC-42.3 Subcommittee meeting in March 1996. Following Rambus's withdrawal from JEDEC in June 1996, dual-edge clock technology was the subject of further presentations, and the technology ultimately was incorporated into the second-generation SDRAM standard.
- 68. In September 1994, Vincent's law firm, on behalf of Rambus, filed an amendment to Rambus's Patent Application No. 08/222,646, adding dual-edge clock claims that were not limited to a narrow-bus RDRAM design, but rather purported to cover use of dual-edge clock technology in any synchronous DRAM architecture, including a wide-bus architecture of the sort that was the focus of JEDEC's SDRAM standards. This application, as amended to include dual-edge clock claims, issued as U.S. Patent No. 5,513,327 (hereinafter, "the '327 patent") in April 1996, while Rambus was still a member of JEDEC. From September 1994 through the present, Rambus has continued its efforts to perfect patent rights covering use of dual-edge clock technology as used in a wide-bus synchronous DRAM architecture.
- 69. The design objectives served by inclusion of dual-edge clock technology in the second-generation SDRAM standard likely could have been accomplished through use of alternative DRAM-related technologies available at the time these standards were developed. At a minimum, there would have been uncertainty at that time regarding the potential to identify or develop feasible alternative technologies. In either event, had Rambus disclosed to the JC-42.3

Subcommittee that it possessed patents or pending patent applications arguably covering (or that, with respect the applications, could be amended to cover) dual-edge clock technology in a wide-bus synchronous DRAM architecture, such disclosures likely would have impacted the content of the SDRAM standards, the terms on which Rambus would later be able to license any pertinent patent rights, or both.

## Rambus's Limited and Misleading Disclosures to JEDEC

- 70. At no time during its involvement in JEDEC did Rambus ever disclose to the organization the fact that it possessed an issued patent the '327 patent discussed in Paragraph 68 above that purported to cover use of a specific technology proposed for inclusion in the JEDEC SDRAM standards. Nor did Rambus ever disclose to JEDEC that it had on file with the PTO various pending patent applications that purported to cover, or could be amended to cover, a number of other technologies included or proposed for inclusion in the JEDEC SDRAM standards. More generally, Rambus never said or did anything to alert JEDEC to (1) Rambus's belief that it could claim rights to certain technological features not only when used in the context of its proprietary, narrow-bus, RDRAM designs, but also when used in the traditional wide-bus architecture that was the focus of JEDEC's SDRAM standard-setting activities; or (2) the fact that Rambus, while a member of JEDEC, was actively working to perfect such patent rights.
- 71. On the contrary, Rambus's very participation in JEDEC, coupled with its failure to make required patent-related disclosures, conveyed a materially false and misleading impression namely, that JEDEC, by incorporating into its SDRAM standards technologies openly discussed and considered during Rambus's tenure in the organization, was not at risk of adopting standards that Rambus could later claim to infringe upon its patents.
- 72. On at least two occasions during Rambus's involvement in JEDEC, Crisp was asked by JEDEC representatives whether Rambus had any patent-related disclosures to make pertaining to technologies discussed within JC-42.3. In neither instance did Rambus elect to make such disclosures. One of these instances, however, prompted Rambus to present a letter to the JC-42.3 Subcommittee, dated September 11, 1995, which stated in part:
  - "At this time, Rambus elects to not make a specific comment on our intellectual property position .... Our presence or silence at committee meetings does not constitute an endorsement of any proposal under the committee's consideration nor does it make any statement regarding potential infringement of Rambus intellectual property."
- 73. Beyond these statements, the September 1995 letter said nothing concerning Rambus's patent position. In particular, it made no reference to the fact that Rambus possessed pending patent

applications that purported to cover, or were being amended to cover, both (1) technologies included in already <u>published</u> JEDEC standards, and (2) additional technologies then being considered for inclusion in <u>future</u> JEDEC standards. Moreover, the episode that gave rise to Rambus's September 1995 letter involved discussion of a narrow-bus, multiplexed, packetized SDRAM design – known as "SyncLink" – that bore a strong resemblance to Rambus's own narrow-bus, multiplexed, packetized RDRAM design. As explained elsewhere in this complaint, the wide-bus, non-packetized synchronous DRAM design adopted by JEDEC differed significantly from Rambus's RDRAM design, and hence from the SyncLink design as well. Thus, to the extent Rambus's September 1995 letter could be interpreted to suggest that Rambus might possess relevant intellectual property rights, JEDEC's members would naturally have understood that any such rights related to the SyncLink design, not to the use of certain technologies in the JEDEC standards.

- 74. In connection with the same incident that gave rise to this September 1995 letter, Crisp and others within Rambus internally debated the extent to which, and manner in which, Rambus should consider making patent-related disclosures to JEDEC or to individual JEDEC members. In this regard, on May 24, 1995, Crisp sent an e-mail to Rambus's CEO, Geoff Tate, as well as other Rambus executives, suggesting a possible bifurcated approach to disclosure. As to any "really key" technologies, Crisp suggested that Rambus should consider making disclosures. But "[i]f it is not a really key issue," Crisp stated, "then ... it makes no sense to alert them to a potential problem they can easily work around."
- 75. In the same e-mail, Crisp outlined a second possible approach to dealing with the disclosure issue:

"We may want to walk into the next JEDEC meeting and simply provide a list of patent numbers which we have issued and say 'we are not lawyers, we will pass no judgment of infringement or non-infringement, but here are our issued patent numbers, you decide for yourselves what does and does not infringe."

Although Rambus in this particular instance did not adopt this approach to disclosure, Crisp's suggestion foreshadowed quite closely the manner in which Rambus would later announce its withdrawal from JEDEC roughly a year later, in June 1996 (see Paragraphs 81-88 below).

76. Prior to withdrawing from the organization in June 1996, Rambus did make one patent-related disclosure to JEDEC. In September 1993, Rambus informed JEDEC of the issuance of U.S. Patent No. 5,423,703 (hereinafter, "the '703 patent"). Although the '703 patent claimed priority back to Rambus's '898 application and thus contained the same specification and drawings, the claims of the '703 patent related to a specific clocking technology, unique to RDRAM, that differed significantly from any clocking technology considered by JEDEC. For

this reason, the patent rights conferred upon Rambus by the '703 patent – as reflected in the patent's claims – did not relate to or involve JEDEC's work on SDRAM standards. Furthermore, Rambus's disclosure of this patent did nothing to alert JEDEC's members to Rambus's belief that the specification and related drawings common to the '703 patent and all other patent applications in the '898 family provided a basis upon which it could claim additional patent rights covering technologies incorporated in the SDRAM standards.

- 77. Other than the foregoing, Rambus made no patent-related disclosures to JEDEC or to the JC-42.3 Subcommittee prior to withdrawing from JEDEC in June 1996. While Rambus was a member of JEDEC, however, some JEDEC members obtained (or viewed) copies of one or more foreign patent applications filed by Rambus, which contained the same specification and drawings as the '898 application and its progeny. In light of the various information (identified in, *inter alia*, Paragraphs 54-55, 60, 64, 68, 70, 73, and 76 above) that Rambus failed to disclose to JEDEC, simply viewing these foreign patent applications would have done nothing to alert JEDEC's members to the fact that Rambus believed the specification and related drawings common to the foreign applications and the '898 family of U.S. patent applications permitted it to claim additional patent rights covering the SDRAM standards.
- 78. Finally, before, during, and after its tenure as a JEDEC member, in connection with its ongoing efforts to market and license RDRAM, Rambus made limited, private disclosures about its technology to some of the companies participating in JC-42.3. Upon information and belief, these disclosures were made pursuant to agreements prohibiting the company receiving such information from disclosing it to others. In any event, these limited, private disclosures concerning Rambus's proprietary, narrow-bus RDRAM technology were not adequate to satisfy Rambus's disclosure obligations, nor did such disclosures do, or convey, anything to place individual JEDEC members on notice of Rambus's belief that it could claim patent rights over technologies used in the JEDEC SDRAM standards.

#### Rambus's Violations of the JEDEC Disclosure Duty

- 79. As discussed above, upon joining JEDEC, Rambus became subject to the same basic disclosure duty applicable to all JEDEC members the duty to disclose the existence of any patents or pending patent applications it knew or believed "might be involved in" the standard-setting work that JEDEC was undertaking, and to identify the aspect of JEDEC's work to which they related. (See Paragraphs 21 and 24 above.)
- 80. Rambus violated this duty repeatedly, notwithstanding the limited patent-related disclosures discussed above. The fact is that Rambus, while participating as a JEDEC member, possessed a variety of patent applications and at least one issued patent that covered, or were designed to cover, technologies involved in the JEDEC standard-setting work, as well as

additional applications that Rambus believed could be amended to cover such technologies without the addition of any new matter. Rambus never disclosed these critical facts to JEDEC.

#### Rambus's Withdrawal from JEDEC

- 81. In December 1995, Vincent learned of, and discussed with Anthony Diepenbrock, an in-house Rambus attorney, the Commission's proposed consent order in *In re Dell Computer Corporation*, which involved allegations of anticompetitive unilateral conduct occurring within the context of an industry-wide standard-setting organization. In January 1996, Vincent advised Rambus that it should terminate "further participation in any standards body," including JEDEC.
- 82. On June 17, 1996, Rambus formally withdrew from JEDEC via a letter addressed to Ken McGhee, an EIA employee who at the time served as Secretary of JEDEC's JC-42 Committee. The letter was originally drafted by Richard Crisp; however, the final version reflected input from Lester Vincent, among others. Other than McGhee, the letter was sent to no one else within JEDEC, including no members of the JC-42.3 Subcommittee.
- 83. The letter opened by informing Mr. McGhee that Rambus would not be renewing its membership in the various JEDEC committees and subcommittees in which it had participated, including JC-42.3, and that it therefore was returning its membership invoices unpaid. The remainder of the letter stated as follows:

"Recently at JEDEC meetings the subject of Rambus patents has been raised. Rambus plans to continue to license its proprietary technology on terms that are consistent with the business plan of Rambus, and those terms may not be consistent with the terms set by standards bodies, including JEDEC. A number of major companies are already licensees of Rambus technology. We trust that you will understand that Rambus reserves all rights regarding its intellectual property. Rambus does, however, encourage companies to contact Dave Mooring of Rambus to discuss licensing terms and to sign up as licensees.

To the extent that anyone is interested in the patents of Rambus, I have enclosed a list of Rambus U.S. and foreign patents. Rambus has also applied for a number of additional patents in order to protect Rambus technology."

84. Although it attached a list of 23 Rambus patents, Rambus's June 1996 withdrawal letter said nothing to inform JEDEC how, if at all, the 23 listed patents – and the vague reference to additional, unspecified patent applications – might relate to the work of the JC-42.3 Subcommittee. The unstated message, as Crisp had suggested roughly a year earlier, was:

- "[H]ere are our issued patent numbers, you decide for yourselves what does and does not infringe." (See Paragraph 75 above.)
- 85. The list of 23 Rambus patents attached to this letter consisted of 21 U.S. and two foreign (one Taiwanese and one Israeli) patent numbers, with no accompanying explanation.
  - a. Of the 21 U.S. patents on the list, five fell within the '898 family and the remaining 16 fell outside the '898 family.
  - b. Of the latter group of 16, several related to discrete designs for generic electronic circuits that is, they did not relate uniquely to DRAM design or specifically to Rambus's RDRAM architecture. Several other patents included within this group of 16 did relate in some way to DRAM design but did not bear any direct connection to either Rambus's narrow-bus RDRAM architecture or the wide-bus architecture incorporated into the JEDEC SDRAM standards. The remaining few patents from this group of 16 related to specific implementations of Rambus's narrow-bus architecture. There is no indication that any of these 16 patents related to any specific technology or technological feature adopted or considered for adoption in the SDRAM standards.
  - c. The five U.S. patents that did fall within the '898 family included the '703 patent discussed in Paragraph 76 above, which Rambus had previously disclosed to JEDEC. Of the remaining four, three of the listed patents like the '703 patent contained only claims that either (1) were expressly limited to the narrow-bus RDRAM architecture, or (2) dealt with a specific aspect of the Rambus RDRAM architecture unrelated to JEDEC's work. The final patent within this group U.S. Patent No. 5,473,575 contained claims that, although potentially broader in scope than the other four, were limited to the low-voltage design used in Rambus's RDRAM architecture, which materially differed from the higher-voltage designs that had been the focus of JEDEC's work.
  - d. The remaining two Rambus patents on the list of 23 were the two foreign patents. Beyond the fact that one of these was written in Chinese, these foreign patents, had they been reviewed by JEDEC's members, would not have sufficed to place them on notice of Rambus's patent rights, or potential patent rights, for reasons discussed above.
- 86. More important than what the June 1996 withdrawal letter said is what it failed to say. Among other things, the letter made no mention of the fact that Rambus possessed pending patent applications covering, or that could be amended to cover, specific technologies included, or proposed for inclusion, in the JEDEC SDRAM standards. Nor did the letter say anything to

alert JEDEC to Rambus's belief that it could claim rights to certain technological features not only when used in the context of its proprietary, narrow-bus, RDRAM designs, but also when used in the traditional wide-bus architecture that was the focus of JEDEC's SDRAM standard-setting activities.

- 87. But this was not all the June 1996 letter failed to disclose. As of June 1996, when Rambus submitted its formal withdrawal letter to JEDEC, the company actually possessed 24 issued patents, not 23. That is, one <u>but only one</u> of Rambus's issued patents was omitted from the list attached to the June 1996 withdrawal letter. The omitted patent was Rambus's '327 patent, which issued in April 1996, two months before Rambus's withdrawal from JEDEC. As discussed in Paragraph 68 above, the '327 patent contained claims purporting to cover use of dual-edge clock technology in any synchronous DRAM architecture. As such, it was the <u>only</u> patent actually obtained by Rambus while a member of JEDEC that arguably covered use of a specific technology included, or considered for inclusion, in JEDEC's wide-bus SDRAM standards.
- 88. Even after withdrawing from JEDEC, Crisp and others within Rambus continued to closely monitor JEDEC's ongoing work on SDRAM standards, including work involving specific technologies on which Rambus sought to perfect patent rights.

#### **Industry Adoption of the JEDEC Standards**

- 89. In the years following the issuance of JEDEC's first SDRAM standard in November 1993, DRAM manufacturers and their customers began designing, testing, and ultimately manufacturing memory and memory-related products incorporating, or complying with, JEDEC's standardized SDRAM designs. By 1995, JEDEC-compliant SDRAM had begun to replace older-generation, asynchronous DRAM architectures. Thereafter, the shift to the more modern SDRAM technology progressed rapidly. By 1998, total worldwide sales of JEDEC-compliant SDRAM, on a revenue basis, exceeded sales of asynchronous memory. And by 1999, JEDEC-compliant SDRAM had largely replaced asynchronous DRAM in virtually all relevant uses. Toward the end of this period roughly 1999 to 2000 some DRAM manufacturers and their customers also began using RDRAM, but only in very limited end uses, accounting for a relatively small portion (i.e., in the range of 5%) of overall DRAM production.
- 90. Leading up to and following the issuance of JEDEC's second-generation SDRAM standard or DDR SDRAM in August 1999, DRAM manufacturers and their customers began designing, testing, and (to a limited extent) producing memory and memory-related products incorporating, or complying with, the DDR SDRAM standard. By 2000, DDR SDRAM was beginning to be manufactured in increasing volumes. This trend continued during 2001, and a number of DRAM manufacturers and their customers began to replace first-generation

SDRAM and RDRAM with DDR SDRAM for certain high-end uses. Current projections indicate that total sales of DDR SDRAM, on a revenue basis, may account for as large as 40% of all DRAM produced worldwide in 2002, and by 2004 this figure is expected to exceed 50%.

#### Success of Rambus's Scheme

- 91. Throughout the late 1990s, as the DRAM industry became increasingly locked in to use of JEDEC-compliant SDRAM, and subsequently DDR SDRAM, Rambus continued the process of perfecting patent rights on certain technologies incorporated within the JEDEC SDRAM standards. By the late 1990s, Rambus had succeeded in obtaining numerous patents, not expressly limited to a narrow-bus RDRAM architecture, that purported to cover, among other technologies encompassed by the JEDEC standards, programmable CAS latency, programmable burst length, on-chip DLL, and dual-edge clock.
- 92. In late 1999, Rambus began contacting all major DRAM and chipset manufacturers worldwide asserting that, by virtue of their manufacture, sale, or use of JEDEC-compliant SDRAM, they were infringing upon Rambus's patent rights, and inviting them to contact Rambus for the purpose of promptly resolving the issue.
- 93. Thereafter, Rambus entered into license agreements with seven major DRAM manufacturers: Matsushita Electric Industrial Co., Ltd.; Elpida Memory, Inc.; Samsung Electronics Co.; NEC Corporation; Toshiba America Inc.; Oki Electric Industry Co.; and Mitsubishi Electronics America Inc. Pursuant to these licenses, Rambus allowed each company to use those aspects of its technology necessary for the design and manufacture of JEDEC-compliant SDRAM. In exchange, each company agreed to pay Rambus ongoing royalties reflecting 0.75% of revenues associated with the manufacture and sale of SDRAMs and 3.5% of revenues associated with the manufacture and sale of DDR SDRAMs. By comparison, Rambus typically licenses all the information needed to develop Rambus-compatible RDRAM memory at royalty rates ranging up to a maximum of approximately 2.5% of revenues.
- 94. After disclosing its patents, Rambus stated publicly that it would demand even higher royalties from any DRAM manufacturer that refused to license the Rambus patents and instead chose to litigate. Rambus also publicly threatened that it might simply refuse to license its patents to any DRAM manufacturer that was unsuccessful in litigation.
- 95. In January 2000, Rambus filed the first in a series of patent infringement suits. That suit, which was filed in federal district court in Delaware and named only one defendant Hitachi was subsequently settled, conditioned upon Hitachi's agreement to submit to Rambus's license terms.

- 96. With the signing of the Hitachi license, combined with the seven additional licenses discussed above, Rambus had succeeded in obtaining licenses covering roughly 50% of total worldwide production of synchronous DRAM technology. At current market prices for SDRAM, such licenses entitle Rambus to royalties in the range of \$50-100 million per year, a number that could increase significantly in the event Rambus were to prevail in the ongoing litigation and secure licenses from the remaining manufacturers of SDRAMs. Indeed, under such circumstances, Rambus's SDRAM-related patent rights could allow Rambus to extract royalty payments well in excess of a billion dollars from the DRAM industry over the life of the patents.
- 97. In August 2000, Rambus filed suit against another DRAM manufacturer Infineon in federal district court in Virginia, accusing Infineon of patent infringement. Infineon later asserted various affirmative defenses and counterclaims. In April 2001, the case proceeded to trial, resulting in a jury finding of fraud against Rambus relating to its involvement in the standard-setting activities of JC-42.3 and a legal ruling that Rambus's patents were not infringed by Infineon's use of the SDRAM standards. These and other legal issues are currently pending on appeal before the U.S. Court of Appeals for the Federal Circuit, which heard oral argument June 3, 2002. (Infineon's antitrust claim against Rambus was dismissed due to a technical failure of proof concerning the relevant geographic market. This ruling has not been appealed.)
- 98. Also in August 2000, Rambus itself was sued, in federal district court in California, by another DRAM manufacturer Hynix seeking a declaratory judgment that its manufacture and sale of JEDEC-compliant SDRAM did not infringe Rambus's patents. In addition to seeking declaratory relief, Hynix accuses Rambus of, among other things, antitrust violations, unfair competition, and breach of contract. Meanwhile, Rambus counterclaimed, alleging patent infringement, and the suit was subsequently stayed pending a ruling by the Federal Circuit in the *Infineon* litigation.
- 99. In a second suit filed against Rambus in August 2000, in federal district court in Delaware, another major DRAM manufacturer Micron seeks a declaratory judgment that its manufacture and sale of JEDEC-compliant SDRAM does not infringe Rambus's patents. In addition to seeking declaratory relief, Micron accuses Rambus of monopolization, attempted monopolization, fraud, and inequitable conduct. As in the *Hynix* suit, Rambus has asserted counterclaims against Micron, accusing it of patent infringement, and the suit has been stayed, at least for purposes other than discovery, pending resolution of the *Infineon* appeal.
- 100. In the *Infineon*, *Hynix*, and *Micron* lawsuits combined, Rambus has asserted that a dozen or more of its patents have been infringed through the production and sale of JEDEC-compliant SDRAM by these three companies. Each of the patents upon which Rambus has sued stems from, and claims priority back to, Rambus's '898 application.

- 101. Upon information and belief, Rambus also possesses additional patents and patent applications, some claiming priority back to the '898 application, that it has not yet sought, but could in the future seek, to enforce against memory manufacturers producing JEDEC-compliant SDRAM, absent issuance of the relief requested below.
- 102. In addition to the foregoing, Rambus is involved in other litigation in various foreign countries relating to foreign patents that cover, or purport to cover, many of the same DRAM-related technologies that are at issue in the U.S. litigation.
- Notably, while Rambus has licenses covering roughly 50% of the synchronous DRAM industry, Rambus asserts in litigation that all or virtually all synchronous DRAM produced worldwide incorporates Rambus technology and that those synchronous DRAM manufacturers that are not paying royalties to Rambus are liable in damages. In addition to facing the threat of potential damages, those companies that have chosen to litigate against Rambus have been forced to incur substantial litigation costs, reaching into the millions, if not tens of millions, of dollars. Unless they prevail against Rambus in litigation, such companies also face the prospect of being denied licenses to Rambus's patents, or otherwise being required to pay royalties significantly in excess of the amounts paid by the memory manufacturers that acquiesced to Rambus's licensing demands without resort to litigation.
- 104. Rambus also has licensed companies, such as Intel, that do not produce memory chips but do produce related computer components in Intel's case, chipsets that are designed to be compatible with synchronous DRAMs.

## **Inability of DRAM Industry to Work Around Rambus's Patents**

- 105. Given the extensive degree to which the DRAM industry has become locked in to the JEDEC SDRAM standards, it is not economically feasible for the industry to attempt to alter or work around the JEDEC standards in order to avoid payment of royalties to Rambus. Any such effort would face innumerable practical and economic impediments, including but not limited to the out-of-pocket costs associated with redesigning, validating, and qualifying SDRAM products to conform with a revised set of standards. On top of this, such manufacturers could be forced to absorb potentially massive revenue losses if, as a result of modifying the JEDEC standards, their introduction of new products were delayed.
- 106. Agreeing upon revised SDRAM standards could in itself be a very costly and time-consuming process. Indeed, it is unclear whether the industry would be able to reach any such consensus, given complications inherent in the current market environment, including the fact that some DRAM manufacturers have acquiesced to Rambus's licensing demands while others have not.

- 107. Added to these complications is the fact that purchasers and other users of JEDEC-compliant SDRAM technology - including manufacturers of computers, chipsets, graphics cards, and motherboards - have themselves become locked in to the JEDEC standards. For this and other reasons, even if the DRAM industry were otherwise able to undertake the complicated and costly task of revising the JEDEC standards to work around Rambus's patent claims, it is unclear whether downstream purchasers of synchronous DRAM would welcome or accept such an action, given the costs that they would be forced to incur in order to conform their own product designs and manufacturing processes to a revised set of standards. Nor is it clear whether downstream purchasers and other users of SDRAM technology would tolerate the delay in the introduction of new products that likely would result from the process of changing the standard.
- 108. Any effort to revise the JEDEC standards on a going-forward basis could also interfere with the ability of DRAM designers, manufacturers, and users to maintain the backwards compatibility among successive generations of synchronous DRAM that JEDEC has sought to preserve.
- 109. For these and other reasons, the DRAM industry has had little or no practical ability to work around Rambus's patent claims, and it is not at all clear the industry could do so in the future.

#### **Relevant Product Markets**

- 110. Synchronous DRAM is produced throughout the world by various memory manufacturers located or doing business in the U.S. and various foreign countries. Synchronous DRAMs, and products incorporating synchronous DRAMs, are imported and exported throughout the world in large volumes.
- 111. Commercial DRAM chip manufacturers wishing to design and produce synchronous DRAM chips, wherever they may be located throughout the world, are practically limited to using one of two alternative architectures: the JEDEC-compliant SDRAM architecture or Rambus's own proprietary RDRAM architecture, itself a synchronous DRAM technology. No other synchronous DRAM architectures have been developed and made available for wide-spread commercial use.
- The RDRAM and JEDEC-compliant SDRAM architectures, in turn, each consist of a variety 112. of subsidiary technologies – or technological features – that are necessary in order successfully to design and manufacture a synchronous DRAM chip. These subsidiary technologies may be regarded as essential technology inputs into the design and manufacture of synchronous DRAMs.
- 113. As in other aspects of engineering, electrical engineers involved in the design of synchronous DRAM chips select from among alternative technological features, concepts, or approaches in

order to address or solve issues, or problems, that arise in the course of developing such chips. The alternative technologies available to address a given technical issue arising in the course of synchronous DRAM design together may comprise a separate, well-defined product market. At least four such markets are relevant for purposes of the instant complaint, including the following:

- a. The market for technologies used to specify the length of time or "latency" period between the memory's receipt of a read request and its release of data corresponding with the request (hereinafter, the "latency technology market"). This market includes programmable CAS latency and any alternative technologies that may be economically viable substitutes for the use of programmable CAS latency in synchronous DRAM design.
- b. The market for technologies used to specify the number of times information (data) is transmitted between the CPU and memory *i.e.*, the "burst length" associated with a single request or instruction (hereinafter, the "burst length technology market"). This market includes programmable burst length and any alternative technologies that may be economically viable substitutes for the use of programmable burst length in synchronous DRAM design.
- c. The market for technologies used to synchronize the internal clock that governs operations within a memory chip and the system clock that regulates the timing of other system functions (hereinafter, the "clock synchronization technology market"). This market includes on-chip DLL technology and any alternative technologies that may be economically viable substitutes for the use of an on-chip DLL in synchronous DRAM design.
- d. The market for technologies used to accelerate the rate at which data are transmitted between the CPU and memory (hereinafter, the "data acceleration technology market"). This market includes dual-edge clock technology and any alternative technologies that may be economically viable substitutes for the use of a dual-edge clock in synchronous DRAM design.
- 114. Technologies used in the design of synchronous DRAM chips, to solve separate but related design issues, may be viewed as economic complements. The complementary nature of such design technologies is evidenced by, among other things, the fact that they sometimes are licensed together in a package, as is the case with respect to the patented Rambus technologies encompassed by each of the aforementioned product markets. Where such close relationships exist among a group of technologies, all of which are necessary inputs into the design or manufacture of a common downstream product, one may appropriately define a product

market encompassing the group of complementary technologies and their close substitutes. Thus, in addition, or in the alternative, to the four product markets identified above, there is a fifth well-defined product market that is relevant for purposes of this complaint – namely, a market comprising, collectively, all technologies falling within any one of these narrower markets (hereinafter, the "synchronous DRAM technology market").

## **Geographic Scope of Relevant Product Markets**

- 115. Technologies encompassed within each of the foregoing product markets are used on a worldwide basis. Technologies originating outside the United States frequently are considered for and used in JEDEC standards, and indeed have been used in both the first- and second-generation SDRAM standards promulgated by JEDEC. The technologies selected for inclusion in these JEDEC standards, in turn, have been incorporated and used by synchronous DRAM manufacturers throughout the world.
- 116. Both proprietary and non-proprietary technologies have been used in synchronous DRAM design. To the extent such technologies are non-proprietary, they are free to be used, on a non-royalty-incurring basis, by any synchronous DRAM manufacturer or downstream user worldwide. On the other hand, to the extent such technologies are proprietary, inasmuch as they are subject to patents or potential patent claims in one or more jurisdictions, the use of such technologies by synchronous DRAM manufacturers or downstream users may depend upon the user's agreement to specific license terms negotiated with the patent holder. In the event that patent rights are similar in most relevant jurisdictions, however, there is no apparent legal or economic impediment that would preclude licenses from being made available on a multi-national or worldwide basis. Indeed, Rambus, which holds synchronous DRAM-related patents issued in the United States and numerous foreign countries, commonly grants licenses to companies in the U.S. and abroad encompassing rights to use Rambus's patented technologies worldwide.
- 117. For these and other reasons, each of the technology-related product markets identified above is worldwide in scope.
- 118. Alternatively, or in addition, the geographic scope of such product markets might appropriately be defined as the United States if, for example, Rambus's U.S. patent rights differed significantly from rights recognized in various foreign jurisdictions, or if Rambus otherwise had the ability to vary royalty rates from one jurisdiction to another.

#### **Anticompetitive Effects of Rambus's Conduct**

- 119. The foregoing conduct by Rambus, during and after its involvement in JEDEC's JC-42.3 Subcommittee, has materially caused or threatened to cause substantial harm to competition and will, in the future, materially cause or threaten to cause further substantial injury to competition and consumers, absent the issuance of appropriate relief in the manner set forth below.
- 120. The threatened or actual anticompetitive effects of Rambus's conduct include but are not limited to the following:
  - increased royalties (or other payments) associated with the manufacture, sale, or use of synchronous DRAM technology;
  - increases in the price, and/or reductions in the use or output, of synchronous DRAM
    chips, as well as products incorporating or using synchronous DRAMs or related
    technology;
  - c. decreased incentives, on the part of memory manufacturers, to produce memory using synchronous DRAM technology;
  - d. decreased incentives, on the part of DRAM manufacturers and others, to participate in JEDEC or other industry standard-setting organizations or activities; and
  - e. both within and outside the DRAM industry, decreased reliance, or willingness to rely, on standards established by industry standard-setting collaborations.

#### Rambus's Knowing Destruction of Documents

Rambus has engaged in a systematic effort – blessed if not orchestrated by its most senior executives – to destroy documents and other information. Upon information and belief, among other pertinent files destroyed as a result of this campaign were notes and other documentation relating to, among other things, Rambus's involvement in the JC-42.3 Subcommittee. Upon information and belief, this document-destruction campaign was undertaken, wholly or in substantial part, with the purpose of avoiding or minimizing the adverse legal repercussions of the anticompetitive conduct described in the instant complaint. Partly as a consequence of these document-destruction activities, in combination with other bad-faith litigation conduct, Rambus was required by the federal district court presiding over the *Infineon* litigation to pay a sanction exceeding \$7 million.

# First Violation Alleged

122. As described in Paragraphs 1-121 above, which are incorporated herein by reference, Rambus has willfully engaged in a pattern of anticompetitive and exclusionary acts and practices, undertaken over the course of the past decade, and continuing even today, whereby it has obtained monopoly power in the synchronous DRAM technology market and narrower markets encompassed therein – namely, the latency, burst length, clock synchronization, and data acceleration markets discussed above – which acts and practices constitute unfair methods of competition in violation of Section 5 of the FTC Act.

## **Second Violation Alleged**

123. As described in Paragraphs 1-121 above, which are incorporated herein by reference, Rambus has willfully engaged in a pattern of anticompetitive and exclusionary acts and practices, undertaken over the course of the past decade, and continuing even today, with a specific intent to monopolize the synchronous DRAM technology market and narrower markets encompassed therein, resulting, at a minimum, in a dangerous probability of monopolization in each of the aforementioned markets, which acts and practices constitute unfair methods of competition in violation of Section 5 of the FTC Act.

# **Third Violation Alleged**

124. As described in Paragraphs 1-121 above, which are incorporated herein by reference, Rambus has willfully engaged in a pattern of anticompetitive and exclusionary acts and practices, undertaken over the course of the past decade, and continuing even today, whereby it has unreasonably restrained trade in the synchronous DRAM technology market and narrower markets encompassed therein, which acts and practices constitute unfair methods of competition in violation of Section 5 of the FTC Act.

#### **Notice**

Notice is hereby given to the Respondent that the eighteenth day of September, 2002, at 10:00 a.m., or such later date as determined by an Administrative Law Judge of the Federal Trade Commission, is hereby fixed as the time and Federal Trade Commission offices, 600 Pennsylvania Avenue, N.W., Room 532, Washington, D.C. 20580, as the place when and where a hearing will be had before an Administrative Law Judge of the Federal Trade Commission, on the charges set forth in this complaint, at which time and place you will have the right under the FTC Act to appear and show cause why an order should not be entered requiring you to cease and desist from the violations of law charged in the complaint.

You are notified that the opportunity is afforded to you to file with the Commission an answer to this complaint on or before the twentieth (20<sup>th</sup>) day after service of it upon you. An answer in which the allegations of the complaint are contested shall contain a concise statement of the facts constituting each ground of defense; and specific admission, denial, or explanation of each fact alleged in the complaint or, if you are without knowledge thereof, a statement to that effect. Allegations of the complaint not thus answered shall be deemed to have been admitted.

If you elect not to contest the allegations of fact set forth in the complaint, the answer shall consist of a statement that you admit all of the material facts to be true. Such an answer shall constitute a waiver of hearings as to the facts alleged in the complaint and, together with the complaint, will provide a record basis on which the Administrative Law Judge shall file an initial decision containing appropriate findings and conclusions and an appropriate order disposing of the proceeding. In such answer, you may, however, reserve the right to submit proposed findings and conclusions under § 3.46 of the Commission's Rules of Practice for Adjudicative Proceedings and the right to appeal the initial decision to the Commission under § 3.52 of said Rules.

Failure to answer within the time above provided shall be deemed to constitute a waiver of your right to appear and contest the allegations of the complaint and shall authorize the Administrative Law Judge, without further notice to you, to find the facts to be as alleged in the complaint and to enter an initial decision containing such findings, appropriate conclusions, and order.

The ALJ will schedule an initial prehearing scheduling conference to be held not later than 14 days after the last answer is filed by any party named as a respondent in the complaint. Unless otherwise directed by the ALJ, the scheduling conference and further proceedings will take place at the Federal Trade Commission, 600 Pennsylvania Avenue, N.W., Room 532, Washington, D.C. 20580. Rule 3.21(a) requires a meeting of the parties' counsel as early as practicable before the prehearing scheduling conference, and Rule 3.31(b) obligates counsel for each party, within 5 days of receiving a respondent's answer, to make certain initial disclosures without awaiting a formal discovery request.

## **Notice of Contemplated Relief**

Should the Commission conclude from the record developed in any adjudicative proceedings in this matter that Respondent's conduct violated Section 5 of the Federal Trade Commission Act as alleged in the complaint, the Commission may order such relief as is supported by the record and is necessary and appropriate, including but not limited to:

- 1. Requiring Respondent to cease and desist all efforts it has undertaken by any means, including without limitation the threat, prosecution, or defense of any suits or other actions, whether legal, equitable, or administrative, as well as any arbitration, mediation, or any other form of private dispute resolution, through or in which Respondent has asserted that any person or entity, by manufacturing, selling, or otherwise using JEDEC-compliant SDRAM and DDR SDRAM technology (including future variations of JEDEC-compliant SDRAM and DDR SDRAM technology), infringes any of Respondent's current or future United States patents that claim priority back to U.S. Patent Application Number 07/510,898 filed on April 18, 1990 or any other U.S. Patent Application filed before June 17, 1996.
- 2. Requiring Respondent not to undertake any new efforts by any means, including without limitation the threat, prosecution, or defense of any suits or other actions, whether legal, equitable, or administrative, as well as any arbitration, mediation, or any other form of private dispute resolution, through or in which Respondent has asserted that any person or entity, by manufacturing, selling, or otherwise using JEDEC-compliant SDRAM and DDR SDRAM technology (including future variations of JEDEC-compliant SDRAM and DDR SDRAM technology), infringes any of Respondent's current or future United States patents that claim priority back to U.S. Patent Application Number 07/510,898 filed on April 18, 1990 or any other U.S. Patent Application filed before June 17, 1996.
- 3. Requiring Respondent to cease and desist all efforts it has undertaken by any means, including without limitation the threat, prosecution, or defense of any suits or other actions, whether legal, equitable, or administrative, as well as any arbitration, mediation, or any other form of private dispute resolution, through or in which Respondent has asserted that any person or entity, by manufacturing, selling, or otherwise using JEDEC-compliant SDRAM and DDR SDRAM technology (including future variations of JEDEC-compliant SDRAM and DDR SDRAM technology), for import or export to or from the United States, infringes any of Respondent's foreign patents, current or future, that claim priority back to U.S. Patent Application Number 07/510,898 filed on April 18, 1990 or any other Patent Application filed before June 17, 1996.
- 4. Requiring Respondent not to undertake any new efforts by any means, including without limitation the threat, prosecution, or defense of any suits or other actions, whether legal,

equitable, or administrative, as well as any arbitration, mediation, or any other form of private dispute resolution, through or in which Respondent has asserted that any person or entity, by manufacturing, selling, or using JEDEC-compliant SDRAM and DDR SDRAM technology (including future variations of JEDEC-compliant SDRAM and DDR SDRAM technology), for import or export to or from the United States, infringes any of Respondent's foreign patents, current or future, that claim priority back to U.S. Patent Application Number 07/510,898 filed on April 18, 1990 or any other Patent Application filed before June 17, 1996.

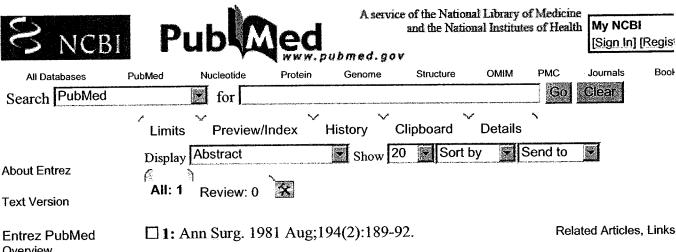
- 5. Requiring Respondent to employ, at Respondent's cost, a Commission-approved compliance officer who will be the sole representative of Respondent for the purpose of communicating Respondent's patent rights related to any standard under consideration by any standard-setting organization of which Respondent is a member.
- 6. Such other or additional relief as is necessary to correct or remedy the violations alleged in the complaint.

WHEREFORE, THE PREMISES CONSIDERED, the Federal Trade Commission on this eighteenth day of June, 2002, issues its complaint against said Respondent.

By the Commission.

Donald S. Clark Secretary

# **EXHIBIT C**



Overview
Help | FAQ
Tutorial
New/Noteworthy
E-Utilities

PubMed Services
Journals Database
MeSH Database
Single Citation Matcher
Batch Citation Matcher
Clinical Queries
Special Queries
LinkOut
My NCBI

Related Resources
Order Documents
NLM Mobile
NLM Catalog
NLM Gateway
TOXNET
Consumer Health
Clinical Alerts
ClinicalTrials.gov
PubMed Central

Hemodynamics of LeVeen shunt pulmonary edema.

Darsee JR, Fulenwider JT, Rikkers LF, Ansley JD, Nordlinger BF, Ivey G, Heymsfield SB.

In order to characterize the circulatory changes which may lead to pulmonary edema following the surgical placement of a LeVeen peritoneovenous shunt, intraoperative hemodynamic studies were performed on five consecutive patients without clinical evidence of cardiac disease undergoing shunt insertion. Within 30 minutes after opening the peritoneovenous shunt, there was a marked increase in pulmonary capillary wedge pressure, cardiac output, and stroke work index, and a sharp decline in both pulmonary and systemic vascular resistances. In three patients, pulmonary edema did not occur; in one patient, pulmonary edema occurred transiently but responded to furosemide administration. In these four patients, systemic vascular resistance continued to drop over the ensuing hours and the elevated pulmonary capillary wedge pressure also decreased appropriately with furosemide. The fifth patient developed persistent pulmonary edema. In this subject, systemic vascular resistance continued to rise and the elevated pulmonary capillary wedge pressure did not respond to intravenous furosemide. This study suggests that uncomplicated LeVeen peritoneovenous shunt insertion may result in a drop in systemic vascular resistance which lowers left ventricular afterload, and, thus, may protect most patients from pulmonary edema. In contrast, a continued rise in systemic vascular resistance and afterload may contribute to pulmonary edema refractory to diuretic therapy and should probably be treated with a parenteral afterload-reducing agent.

PMID: 7259346 [PubMed - indexed for MEDLINE]

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