

Opinion of the Commission

IN THE MATTER OF
RAMBUS INCORPORATED

OPINIONS OF THE COMMISSION AND FINAL ORDER IN REGARD TO
ALLEGED VIOLATIONS OF SEC. 2 OF THE SHERMAN ACT AND SEC.
5 OF THE FEDERAL TRADE COMMISSION ACT

Docket 9302; File No. 011 0017

Opinion, February 2, 2007 – Final Order, February 2, 2007

In a unanimous opinion, the Commission overturned the Initial Decision dismissing the charges and ruled that Rambus's conduct constituted deception under Section 5 of the FTC Act and was exclusionary in violation of Section 2 of the Sherman Act. *Rambus, Inc.*, 142 F.T.C. 98 (2006). The Commission also issued an order requesting additional briefing to determine an appropriate remedy for Rambus's violations. 142 F.T.C. 1743. The Commission's remedy decision bars Rambus from making misrepresentations or omissions to standard-setting organizations. It also requires Rambus to license its SDRAM and DDR SDRAM technology, sets maximum allowable royalty rates it can collect for the licensing, bars Rambus from collecting or attempting to collect more than the maximum allowable royalty rates from companies that may already have incorporated its DRAM technology, and requires Rambus to employ a Commission-approved compliance officer to ensure that Rambus's patents and patent applications are disclosed to industry standard-setting bodies in which it participates. The order is designed to remedy the effects of the unlawful monopoly Rambus established in the markets for four computer memory technologies that have been incorporated into industry standards for dynamic random access memory – DRAM chips. DRAMs are widely used in personal computers, servers, printers, and cameras.

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OPINION OF THE COMMISSION ON REMEDY

By Majoras, Chairman:

I.¹

On July 31, 2006, the Commission ruled that Rambus Inc.'s "acts of deception constituted exclusionary conduct under Section 2 of the Sherman Act, and that Rambus unlawfully monopolized the markets for four technologies"² incorporated into the Joint Electron Device Engineering Council ("JEDEC") standards in violation of Section 5 of the Federal Trade Commission Act ("FTC Act").³ The Commission further found "a sufficient causal link between Rambus's exclusionary conduct and JEDEC's adoption of the SDRAM and DDR-SDRAM standards (but not the subsequent DDR2-SDRAM standard)."⁴

We asked the parties to provide supplemental briefs on the question of remedy.⁵ The parties submitted initial briefs on

¹ This opinion uses the following abbreviations:

CCBR - Complaint Counsel's Brief on Remedy
CCRBR - Complaint Counsel's Reply Brief on Remedy
CX - Complaint Counsel's Exhibit
ID - Initial Decision of the Administrative Law Judge (ALJ)
JX - Joint Exhibits
Op. - Commission's Liability Opinion
RB - Respondent's Brief on Appeal and Cross-Appeal
RBR - Respondent's Brief on Remedy
RRBR - Respondent's Reply Brief on Remedy
RX - Respondent's Exhibit
Tr. - Trial Transcript

² Op. at 1.

³ 15 U.S.C. § 45.

⁴ Op. at 5.

⁵ *Id.* at 119.

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September 15, 2006, and reply briefs on September 30, 2006. Several interested parties also submitted amicus briefs.⁶ We heard oral argument on the issue of remedy on November 15, 2006.

The parties agree that the Commission has the authority to issue an injunction against future deceptive conduct by Rambus. Rambus acknowledged that the Commission has authority to “issue orders broad enough to prevent Rambus from misleading any [standard-setting organization (“SSO”)] from unknowingly adopting its proprietary technology.”⁷ To that end, Rambus submitted a proposed order that is limited to prohibiting repetition of the conduct in this case – that is “knowingly” engaging in a deceptive course of conduct as a member of an SSO.⁸ We believe the order should be broader. In Part IV, we summarize and explain the terms of the Commission’s Order, including the requirement that Rambus cease and desist from future deceptive conduct while a member or a participant in an SSO.

The fundamental question upon which the parties disagree is whether the Commission may order broader relief, and, if broader relief is authorized, on the scope of an appropriate remedy on the basis of the record before us. The Supreme Court has not yet addressed the scope of the Commission’s remedial authority

⁶ Brief for Amicus Curiae Broadcom Corporation and Freescale Semiconductor, Inc. on the Issue of Appropriate Remedy (Sept. 15, 2006); Brief for Amicus Curiae JEDEC Solid State Technology Association (Sept. 15, 2006); Brief for Amicus Curiae Gesmer Updegrove LLP and Andrew Updegrove on the Issue of Appropriate Remedy (Sept. 15, 2006); Brief for Amicus Curiae Nvidia Corporation, Micron Technology, Inc., Samsung Electronics Corporation, Ltd., and Hynix Semiconductor, Inc. on the Issue of Appropriate Remedy (Sept. 15, 2006); Brief for Amicus Curiae American Antitrust Institute on the Issue of Appropriate Remedy (Sept. 29, 2006).

⁷ RRBR at 12; *see also* RBR at 1.

⁸ RBR at 5. In our July 31, 2006, ruling, the Commission determined that Rambus’s deceptive course of conduct was “intentionally pursued,” Op. at 51, and that Rambus “intentionally and willfully engaged in deceptive conduct.” Op. at 68.

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where, as here, the Commission has applied the legal standards of Section 2 of the Sherman Act.⁹ This counsels caution but does not limit our ability to create a forward-looking remedy tailored to our liability findings. In assessing the appropriate remedy in this case, we have studied the principles that guide the courts in the exercise of their remedial authority in Sherman Act cases.

II.

The threshold issue is whether the Commission's remedial authority is limited to prohibitory "cease-and-desist" orders. Rambus argues that Section 5 of the FTC Act "gives the Commission authority [only] to issue forward-looking cease-and-desist orders that prevent conduct deemed to be unlawful and ensure against its repetition."¹⁰ Thus, Rambus concludes, even if it obtained monopoly power as a result of its deceptive course of conduct, the Commission is limited to a mere prohibitory injunction on any future deceptive conduct.¹¹ Rambus asserts that these limitations are supported by the language of Section 5, decisions of the U.S. Supreme Court and the U.S. Court of Appeals for the District of Columbia Circuit, and Commission testimony in support of the enactment of Section 13(b) of the FTC Act in 1973 to enable the Commission to seek broader relief from district courts.

Rambus's contention that the Commission is limited to prohibiting future deceptive conduct is mistaken. Insofar as the argument is premised on principles of Section 2, it is contrary to

⁹ 15 U.S.C. § 2. This is not surprising given that the Court has not considered a government Section 2 challenge for over thirty years. *See* Otter Tail Power Co. v. United States, 410 U.S. 366 (1973).

¹⁰ RRBR at 2; *see also* RBR at 1, 4-5.

¹¹ RBR at 2 ("Rambus does not believe . . . that the Commission has or should exercise the statutory authority to order" relief that would affirmatively alter current market conditions).

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clear Supreme Court precedent.¹² Insofar as the argument is based on the language of Section 5,¹³ it is inconsistent with long-established principles of implied agency authority.¹⁴ The Supreme Court's decision in *FTC v. Dean Foods Co.*¹⁵ recognized that the Commission possesses the ancillary powers essential to the effective discharge of its responsibilities. The Court relied on its earlier decision in *Pan American World Airways, Inc. v. United States*,¹⁶ which held that "the power to order divestiture need not be explicitly included in the powers of an administrative agency to be part of its arsenal of authority."¹⁷

Indeed, the Commission's authority to terminate the ill effects of a violation repeatedly has been confirmed. As the D.C. Circuit has held, "[I]t is clear that the Commission has the power to shape

¹² See *Schine Chain Theatres, Inc. v. United States*, 334 U.S. 110, 128 (1948) ("In this type of case we start from the premise that an injunction against future violations is not adequate to protect the public interest. If all that was done was to forbid a repetition of the illegal conduct, those who had unlawfully built their empires could preserve them intact. They could retain the full dividends of their monopolistic practices and profit from the unlawful restraints of trade they had inflicted on competitors.").

¹³ The FTC Act states that the Commission shall order an offending party "to cease and desist from using such method of competition or such act or practice." 15 U.S.C. § 45(b).

¹⁴ See Neil W. Averitt, *Structural Remedies in Competition Cases Under the Federal Trade Commission Act*, 40 OHIO ST. L.J. 781, 784 (1979) (concluding that "case law has clearly established the Commission's authority [under Section 5 of the FTC Act] to impose divestiture and other affirmative requirements").

¹⁵ 384 U.S. 597, 606-07 (1966) (rejecting an argument that the Commission needed express statutory authority to seek a preliminary injunction).

¹⁶ 371 U.S. 296 (1963).

¹⁷ *Dean Foods*, 384 U.S. at 606 n.4 (quoting *Pan Am.*, 371 U.S. at 312 n.17).

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remedies that go beyond the simple cease and desist order.”¹⁸ None of the cases cited by Rambus teaches otherwise. To the contrary, in *FTC v. National Lead Co.*,¹⁹ a case involving the Commission’s prohibition of specific conduct by which the effects of an unlawful agreement might be continued, the Court held that the Commission had “wide discretion” in bringing an end to the unfair practices at issue, but expressly indicated that it was *not* defining the full scope of Commission powers.²⁰ The Court also declared that the Commission “was not obliged to assume, contrary to common experience, that a violator of the antitrust laws will relinquish the fruits of his violation more completely than [it] requires.”²¹

Since *National Lead*, no court has held, or indicated, that the Commission is powerless to ensure that antitrust violations are

¹⁸ *Warner-Lambert Co. v. FTC*, 562 F.2d 749, 757 (1977) (upholding the Commission’s corrective advertising order designed to terminate the otherwise continuing ill effects of false advertising). *See also* *Novartis Corp. v. FTC*, 223 F.3d 783, 787 (D.C.Cir. 2000) (upholding corrective advertising order); *Detroit Auto Dealers Ass’n, Inc. v. FTC*, 955 F.2d 457 (6th Cir. 1992) (upholding, with modification, an order requiring automobile dealers to maintain a minimum number of showroom hours per week in order to eliminate the continuing effects of an unlawful agreement to limit showroom hours); *L.G. Balfour Co. v. FTC*, 442 F.2d 1, 23-24 (7th Cir. 1971) (upholding FTC order requiring divestiture as remedy for illegal monopolization); *Charles Pfizer & Co. v. FTC*, 401 F.2d 574, 586 (6th Cir. 1968) (upholding an order requiring compulsory licensing).

¹⁹ 352 U.S. 419 (1957).

²⁰ *Id.* at 430 n.7 (“We need not discuss the full scope of the powers of the Federal Trade Commission, nor their relative breadth in comparison with those of a court of equity.”).

²¹ *Id.* at 430 (quoting *Int’l Salt Co. v. United States*, 332 U.S. 392, 400 (1947)). The Court’s declaration in this respect is consistent with its repeated statements that an antitrust wrongdoer can — and should — be made to relinquish the fruits of his violation. *United States v. United Shoe Mach. Corp.*, 391 U.S. 244, 250 (1968); *United States v. U.S. Gypsum Co.*, 340 U.S. 76, 88 (1950).

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fully remedied.²² The only remedy issues in *FTC v. Colgate-Palmolive Co.*,²³ a case cited by Rambus in this regard,²⁴ involved the clarity of the order and the scope of the Commission's "fencing-in" authority.²⁵ Moreover, the D.C. Circuit in *United States v. Philip Morris USA Inc.*²⁶ did not speak to the Commission's remedial authority at all, as Rambus represents.²⁷ That case involved the RICO statute, not the different language of Section 5 of the FTC Act, and the decision rejected a disgorgement order, not an order prospectively terminating the ill effects of unlawful conduct.

Rambus relies on *Reynolds Metals Co. v. FTC*²⁸ and *Ford Motor Co. v. United States*²⁹ to argue that the courts have distinguished the Commission's Section 5 authority from a district court's purportedly broader equitable powers.³⁰ Neither case holds that the Commission's authority to eliminate the ill effects of a violation is narrower than that exercised by the district courts. Rather than ruling that the Commission's authority is more limited than that of the courts, *Reynolds Metals* merely

²² As the Supreme Court has recognized, in a monopolization case, there is a presumption that a mere prohibitory injunction allows a monopolist to retain the full dividends of [its] monopolistic practices" *Schine Chain Theatres*, 334 U.S. at 128; accord *United States v. Grinnell Corp.*, 384 U.S. 563, 577 (1966) ("We start from the premise that adequate relief in a monopolization case should . . . render impotent the monopoly power found to be in violation of the Act.").

²³ 380 U.S. 374, 395 (1965).

²⁴ See RBR at 4.

²⁵ *Id.* at 392-95. See *infra* Part IV (discussing "fencing-in" relief).

²⁶ *United States v. Philip Morris USA Inc.*, 396 F.3d 1190 (D.C. Cir. 2005).

²⁷ See RBR at 6 n.4.

²⁸ 309 F.2d 223 (D.C. Cir. 1962).

²⁹ 405 U.S. 562 (1972).

³⁰ See RBR at 2-3.

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determined that the record did not support going *beyond* that by ordering divestiture of unrelated assets. The court of appeals in *Reynolds Metals* overturned a Commission order requiring divestiture of a factory acquired after a merger when the Commission had failed to demonstrate that there was “any nexus between the continued possession of [the factory] and the violation of Section 7 . . . or a need to divest the factory for restoration of the competitive status quo.”³¹ In rejecting a suggestion that *Reynolds Metals* limited remedies in a district court action brought by the United States, the Supreme Court’s *Ford Motor* opinion cursorily noted that *Reynolds Metals* concerned the enforcement powers of the Commission, not those of the courts; set that issue to the side, without further comment; and proceeded to focus on the appropriate remedy in the district court action before it.³² In sum, neither opinion provides a basis for Rambus’s claim that the Commission is confined to issuing prohibitive injunctions.

We turn next to the legislative history of the 1973 amendments to the FTC Act. Contrary to Rambus’s claim,³³ there is no basis for concluding that Congress, in enacting Section 13(b), or the Commission, in requesting the provision, effectively acknowledged the Commission’s inability to take action affirmatively to terminate the ill effects of a violation. To begin with, courts “will not construe an agency’s request for authorizing legislation as affirmative proof of no authority; ‘[p]ublic policy requires that agencies feel free to ask [for] legislation which will terminate or avoid adverse contentions and litigations.’”³⁴ Moreover, Congress intended Section 13(b) to provide a

³¹ 309 F.2d at 231.

³² 405 U.S. at 573 n.8.

³³ See RRBR at 3.

³⁴ *Warner-Lambert Co.*, 562 F.2d at 758 n.39 (quoting *Dean Foods*, 384 U.S. at 610, in rejecting a contention that a congressional grant of court remedial authority meant that the Commission itself lacked such authority).

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mechanism that would enable the Commission to obtain equitable relief from district courts without the delay that administrative proceedings entail.³⁵ Nothing in the legislation or the legislative history of Section 13(b) suggests that the Commission lacks power *after* administrative proceedings have concluded to issue an order requiring a violator to relinquish the “fruits” of its violation of Section 2.³⁶ Thus, the limitation that the legislation was designed to correct – the absence of a specific grant of authority to obtain ancillary and preliminary equitable relief in the district courts in aid of administrative adjudicative proceedings – was not a limitation on the remedies that are available to the Commission in crafting an administrative cease-and-desist order.

In sum, we do not agree with Rambus’s contention that the Commission’s remedial authority is limited to enjoining it from deceiving an SSO in the future. Instead, the Commission’s authority extends to restoring, to the extent possible, the

³⁵ See James T. Halverson, *The Federal Trade Commission’s Injunctive Powers Under the Alaskan Pipeline Amendments: An Analysis* 69 NW. U. L. REV. 872-73 (1974-75).

³⁶ Citing the testimony of Commissioner Elman during a 1969 Congressional hearing, Rambus argues that the Commission itself has recognized limits on its Section 5 authority. See RRBR at 3 n.4. Rambus’s reliance on the cited testimony is misplaced, however, because former Commissioner Elman’s statement relates to the FTC’s authority to administratively assess civil penalties and award so-called “civil damages” in consumer fraud cases. *Id.* at 57-70. Moreover, as Rambus conceded at oral argument, Commissioner Elman indicated that his testimony represented his own “separate statement” and not necessarily the views of the other Commissioners. See Oral Argument before the Commission on the Issue of Remedy (Nov. 15, 2006), at 42-43. Commissioner Elman provided that caveat during a colloquy with Senator Moss, which Rambus did not cite in its brief. See *Consumer Protection: Hearings on S.2246, et al., before the Consumer Subcomm. of the Comm. on Commerce*, 91st Cong. 57 (1969). Rambus also incorrectly relies on other former FTC commissioners’ statements, which do not address the Commission’s authority to restore competitive conditions after a finding of liability under Section 2. See RRBR at 3, n.4; *Agriculture-Environmental and Consumer Protection Appropriations for 1974: Hearings before a Subcomm. of the House Comm. on Appropriations*, 93rd Cong. 99 (1974); S. Rep. No. 93-151, at 10 (1973).

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competitive conditions that would have been present absent Rambus's unlawful conduct.³⁷ We now address the Commission's authority to order compulsory patent licenses.

A.

Rambus argues that even if the Commission has remedial power beyond the issuance of a cease-and-desist order, the Commission does not have the authority to order compulsory licensing on terms prescribed by the Commission.³⁸ Rambus would have us conclude that it can continue to reap the royalty rates it is now charging (and demanding in pending litigation).³⁹ Rambus asserts that this conclusion is supported by the Supreme Court's decision in *FTC v. Ruberoid Co.*,⁴⁰ in which the Court held that the Commission cannot order compensatory or punitive relief.⁴¹

We disagree with Rambus. The Commission enjoys "wide latitude for judgment" in fashioning a remedial order, subject to the constraint that the requirements of the order bear a reasonable relationship to the unlawful practices that the Commission has found.⁴² The Supreme Court's acknowledgment in *Ruberoid* that orders of the Commission "are not intended to impose criminal punishment or exact compensatory damages for past acts"⁴³ is not

³⁷ *Ekco Products Co.*, 65 F.T.C. 1163, 1216 (1964), *aff'd*, 347 F.2d 745 (7th Cir. 1965).

³⁸ RBR at 6.

³⁹ *Id.* at 2, 16.

⁴⁰ 343 U.S. at 473 (1952).

⁴¹ RBR at 5 n.3.

⁴² *Jacob Siegel Co. v. FTC*, 327 U.S. 608, 613 (1946). *See also Colgate-Palmolive Co.*, 380 U.S. at 394-95; *FTC v. Nat'l Lead Co.*, 352 U.S. at 428-29; *Ruberoid Co.*, 343 U.S. at 473.

⁴³ 343 U.S. at 473.

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contrary authority. The Court in that case emphasized the Commission's wide discretion in its choice of remedy, and stated the expectation that the Commission would "exercise a special competence in formulating remedies to deal with problems in the general sphere of competitive practices."⁴⁴ The district courts similarly exercise broad discretion in determining what kind of decree "will best remedy the conduct [they have] found to be unlawful This is no less true in antitrust cases."⁴⁵ The broad authority of the Commission and the district courts to remedy violations of the FTC Act and the other antitrust laws includes "mandatory selling on specified terms and compulsory licensing at reasonable charges."⁴⁶

Courts have blessed compulsory licensing orders in the past,⁴⁷ including at least one crafted by the Commission.⁴⁸ Following that precedent, the Commission has ordered licensing of intellectual property to remedy antitrust violations in litigated cases.⁴⁹ If

⁴⁴ *Id.*

⁴⁵ *United States v. Microsoft Corp.*, 253 F.3d 34, 105 (D.C. Cir. 2001) (*en banc*).

⁴⁶ *United States v. Glaxo Group*, 410 U.S. 52, 64 (1973). *See also* *Besser Mfg. Co. v. United States*, 343 U.S. 444, 447 (1952) ("compulsory patent licensing [on a fair royalty basis] is a well-recognized remedy where patent abuses are proved in antitrust actions and it is required for effective relief"); *Am. Cyanamid Co.*, 72 F.T.C. 623, 690 (1967) (requiring licensing at a specified, non-zero royalty rate), *aff'd*, *Charles Pfizer & Co. v. FTC*, 401 F.2d 574 (6th Cir. 1968).

⁴⁷ *See United States v. Nat'l Lead Co.*, 332 U.S. 319, 349 (1947) (upholding compulsory licensing remedy); *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 351 (D. Mass. 1953) (same).

⁴⁸ *Am. Cyanamid Co. v. FTC*, 363 F.2d 757, 772 (6th Cir. 1966) ("assuming the facts found by the Commission to be supported by substantial evidence, the Commission had jurisdiction to require as a remedy the compulsory licensing of tetracycline and aureomycin on a reasonable royalty basis.").

⁴⁹ *See Grand Calliou Packing Co., Inc.*, 65 F.T.C. 799 (1960), *rev'd in part on other grounds sub nom.*, *La Peyre v. FTC*, 366 F.2d 117 (5th Cir. 1966);

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prospective only (which Complaint Counsel agree it should be), such a compulsory licensing order is not Accompanying.” Moreover, as discussed below, if the order attempts to replicate the “but for” world – *i.e.*, the circumstances that would exist had Rambus not engaged in its deceptive course of conduct – such an order is not “punitive.” It would simply stop Rambus from continuing to exploit its illegally acquired monopoly power in violation of Section 2 and terminate the anticompetitive effects of the deceptive course of conduct by which it acquired that monopoly power.

B.

Complaint Counsel ask the Commission to enjoin Rambus from enforcing its pre-1996 patents with respect to JEDEC-compliant products.⁵⁰ In effect, Complaint Counsel request that the Commission order royalty-free compulsory licenses for Rambus’s pre-1996 patent portfolio for those firms practicing JEDEC’s standards. Complaint Counsel argue that this remedy – “far from being extreme – merely restores, six years later, the competitive conditions that should have prevailed” had Rambus not engaged in deception.⁵¹ Moreover, Complaint Counsel argue that imposition of royalty-free compulsory licenses is well within the Commission’s broad discretion to restore competition and to deny Rambus the benefits of its illegal conduct.⁵² We agree that the Commission has that authority.

Am. Cyanamid Co., 63 F.T.C. 1747 (1963) — an early ruling in the series of *American Cyanamid* cases cited in footnotes 46 and 48.

⁵⁰ CCBR at 1-2.

⁵¹ CCBR at 2.

⁵² CCBR at 3, 11.

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Rambus argues that the Commission lacks the power to order any form of royalty-free licensing.⁵³ In support of this proposition, Rambus quotes *Hartford-Empire Co. v. United States*⁵⁴ that “it is difficult to say that, however much in the past such defendant has abused the rights thereby conferred [by a patent], it must now dedicate them to the public.”⁵⁵ Rambus also quotes from *United States v. National Lead*,⁵⁶ in which the Supreme Court stated that reducing Aall royalties automatically to a total of zero Y appears, on its face, to be inequitable without special proof to support such a conclusion.”⁵⁷ Thus, Rambus would have us rule out a royalty-free licensing remedy, however limited, as a matter of law. We do not agree that the Commission is precluded from imposing such a remedy as a matter of law.

Compared to the extensive treatment of liability standards, antitrust courts have devoted relatively little attention to the question of remedies. The comparatively few modern cases that have addressed remedies have provided limited guidance about the suitability of specific cures for illegal monopolization.⁵⁸ In general terms, previous decisions have placed non-damage civil remedies on a spectrum. At one end of the spectrum are controls on conduct, which the cases tend to depict as relatively less drastic. At the other end are structural measures such as divestiture, which courts have tended to regard as being more drastic. Compulsory licensing often lies between the two ends of

⁵³ RBR at 7-8; RRBR at 3-4.

⁵⁴ 323 U.S. 386 (1945).

⁵⁵ *Id.* at 415.

⁵⁶ 332 U.S. 319 (1947).

⁵⁷ 332 U.S. at 349; *see also* RRBR at 4.

⁵⁸ *See* Howard A. Shelanski & J. Gregory Sidak, *Antitrust Divestitures in Network Industries*, 68 U. CHI. L. REV. 1, 45 (2001) (“The jurisprudence of the Sherman and Clayton Antitrust Acts does not enunciate grand principles for the design of optimal remedies. One can observe recurrent themes, but they must be teased out of the disparate cases.”).

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the spectrum, although courts sometimes have likened compulsory licensing to “structural” relief where the licensing at issue enables the licensee to compete against the defendant in the relevant product market.⁵⁹ As we discuss below, the cases appear to establish the broad proposition that, as the plaintiff’s demands for relief move across the spectrum from less drastic (conduct) solutions toward more drastic (structural) solutions, the plaintiff’s duty to establish the need for such remedial intervention increases.

Compulsory patent licensing on a reasonable royalty basis is a well-recognized remedy,⁶⁰ yet few litigated decisions have ordered royalty-free compulsory licensing. Each time the Supreme Court has considered royalty-free licensing, it has determined that, under the facts presented, a less powerful remedy would suffice to restore competition.⁶¹ We know of one litigated ruling in which royalty-free licensing was ordered.⁶²

⁵⁹ See, e.g., *New York v. Microsoft Corp.*, 224 F. Supp. 2d 76, 186, 244 (D.D.C. 2002) (analogizing the proposed remedy, which included a requirement for royalty-free licensing of software, to a divestiture of assets and therefore as “structural” in nature), *aff’d sub nom. Massachusetts v. Microsoft Corp.*, 373 F.3d 1199 (D.C. Cir. 2004). We note that the royalty-free compulsory licensing remedy that we are contemplating here would be more limited because it would apply only to certain JEDEC-compliant technologies; Rambus would be free to charge whatever royalties it wished otherwise.

⁶⁰ The availability of compulsory licensing at reasonable royalties is well-established in the Supreme Court’s jurisprudence on antitrust remedies. See *Glaxo Group*, 410 U.S. at 62; *Besser Mfg. Co.*, 343 U.S. at 448-49; *Nat’l Lead*, 332 U.S. at 348-49; *Hartford-Empire*, 323 U.S. at 418-19.

⁶¹ In *Hartford-Empire*, for example, the Supreme Court rejected royalty-free licensing as a remedy for Sherman Act and Clayton Act violations arising from a patent pooling arrangement. Concerned that the remedy went “beyond what is required to dissolve the combination and prevent future combinations of like character[.]” 323 U.S. 386 at 414, the Court allowed for a reasonable royalty instead of the requested royalty-free licensing. Similarly, the Court rejected the Government’s proposal for royalty-free licensing in *United States v. Nat’l Lead*, a case in which a “proliferation of patents” and related agreements led to the “domination of an entire industry” and a violation of Section 1

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Cases such as *Hartford-Empire* have expressed caution about royalty-free licensing,⁶³ but the Supreme Court has not foreclosed the availability of this form of relief. Two years after *Hartford-Empire*, the Supreme Court in *United States v. Nat'l Lead* explicitly left open the possibility that, under different facts, the remedy of royalty-free licensing might be necessary and appropriate.⁶⁴ Thus, the Commission has previously declared, and we agree, that Awhere the circumstances justify such relief, the Commission has the authority to require royalty-free licensing.”⁶⁵

Although the Commission has the authority to require royalty-free licensing, the exercise of that power is subject to important limits. The courts, speaking in varying terms, have insisted on

of the Sherman Act. 332 U.S. at 327-28. The Court concluded that “licenses at uniform, reasonable royalties” would be sufficient to accomplish the discontinuance and prevention of the illegal restraints and patent misuse at issue. *Id.* at 348.

⁶² See *United States v. Gen. Elec. Co.*, 115 F. Supp. 835 (D.N.J. 1953).

⁶³ See *Hartford-Empire*, 323 U.S. at 414-15 (stating reservations about the imposition of royalty-free licensing and concluding that royalty-free licensing was not warranted in the case at hand).

⁶⁴ *United States v. Nat'l Lead*, 332 U.S. at 349. Compare *Schine Chain Theatres*, 334 U.S. at 128-30 (endorsing the availability of structural remedies of divestiture or dissolution to cure illegal monopolization).

⁶⁵ *Am. Cyanamid Co.*, *supra* at n.46. In a number of consent orders, the Commission has accepted the prohibition of enforcement of patents as a remedy. For example, in *Dell Computer Corp.*, 121 F.T.C. 616, 620-22 (1996) and *Chevron Corp.*, 140 F.T.C. 100 (2005), available at <http://www.ftc.gov/os/decisions/docs/volume140.pdf> (Aug. 2, 2005), the Commission approved consent orders that prohibited enforcement of patents against those practicing a standard. See also *Eli Lilly & Co.*, 95 F.T.C. 538, 546-52 (1980) (ordering royalty-free licensing of patents); *Xerox Corp.*, 86 F.T.C. 364, 373-83 (1975) (same). In addition, in the context of alleged violations of Section 7 of the Clayton Act, the Commission has approved consent orders that require divestiture or licensing of, or place other limitations on, patent rights. See, e.g., *Cephalon, Inc.*, 138 F.T.C. 583, 604 (2004), available at <http://www.ftc.gov/os/decisions/docs/volume138.pdf>.

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“special proof” for such remedies. This requirement is not well-specified in the cases. In the formative decision on this point, *United States v. Nat’l Lead*, the Supreme Court found that the “special proof” needed to justify royalty-free licensing was lacking, but the Court did not elaborate upon the meaning of this term.⁶⁶ Although the parties’ briefs provide no insights on this point, Complaint Counsel stated at oral argument that “special proof” means “proof of the competitive conditions [that] would have existed absent the conduct in question that would not have resulted in any enforcement of the patent.”⁶⁷ Accordingly, Complaint Counsel ask us to find that the “special proof” requirement is satisfied here by evidence that they believe demonstrates that Rambus would have received no royalties at all in the “but for” world. Without embracing a precise definition of “special proof,” we agree that, before ordering royalty-free licensing, Complaint Counsel must show that this form of relief is necessary to restore the competitive conditions that would have prevailed absent Rambus’s misconduct. We discuss whether Complaint Counsel have met that burden in Part III of this Opinion.

Rambus, on the other hand, argues that “the burden to justify a remedy that would restrict Rambus’s ability to license its patents is heavier than the burden to establish liability.”⁶⁸ In support of

⁶⁶ In *United States v. Nat’l Lead*, the Court observed that the growing strength of royalty-paying licensees demonstrated that royalty-free licenses were not essential to their ability to compete. 332 U.S. at 351. In contrast, the district court in *General Electric*, 115 F. Supp. at 844, found that, in light of GE’s vast arsenal of patents and the narrow cost margins that prevailed in the market for lamps and related parts, smaller firms would be unable to gain a foothold in the market if they had to bear any licensing fees. Therefore, the court determined that royalty-free licensing was necessary to restore competition. *Id.*

⁶⁷ Oral Argument before the Commission on the Issue of Remedy (Nov. 15, 2006), at 23.

⁶⁸ RBR at 7; *see also* RRBR at 6.

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this proposition, Rambus cites *United States v. Microsoft Corp.*,⁶⁹ in which the D.C. Circuit held that “structural relief, which is ‘designed to eliminate the monopoly altogether . . . require[s] a clearer indication of a *significant causal connection* between the conduct and creation or maintenance of the market power.’”⁷⁰ Most recently, in *Massachusetts v. Microsoft Corp.*,⁷¹ the D.C. Circuit, affirming the district court’s refusal to order royalty-free licensing, held that requiring Microsoft to license Internet Explorer on a royalty-free basis, as sought by the Commonwealth of Massachusetts, was a “de facto” divestiture that would require a more “significant causal connection.”⁷² Collectively, the case law appears to indicate that the farther remedies expand beyond simple prohibitions against future anticompetitive conduct (with divestiture at the other outer end), the stronger the proof that is needed to justify the remedy.

We reaffirm that the Commission has the authority to order royalty-free licensing when the factual circumstances justify it. With the guiding principles of the case law discussed above firmly in mind, we turn to determining the appropriate remedy in this case based on the record before us. Having found liability, we want a remedy strong enough to restore ongoing competition and thereby to inspire confidence in the standard-setting process. At the same time, we do not want to impose an unnecessarily

⁶⁹ 253 F.3d 34 (D.C. Cir. 2001).

⁷⁰ *Id.* at 111 (quoting 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION, ¶ 653b at 91-92) (2d ed. 2002) (emphasis in original)); see also AREEDA, ¶ 653c at 100 n. 8 (“Compulsory licensing of intellectual property rights could . . . constitute ‘structural’ relief, particularly when intellectual property rights make up a significant part of defendant’s output.”).

⁷¹ 373 F.3d 1199 (D.C. Cir. 2004).

⁷² *Id.* at 1233.

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restrictive remedy that could undermine the attainment of procompetitive goals.⁷³

III.**A.**

The question, then, becomes whether Complaint Counsel are correct that we should order royalty-free licensing here. Complaint Counsel contend that they have offered “special proof” that justifies requiring Rambus to license its technology royalty-free. Specifically, according to Complaint Counsel, enjoining enforcement of the relevant patents against JEDEC-compliant products is appropriate because, absent Rambus’s deception, JEDEC would have selected alternative technologies — including alternatives with inferior performance — in lieu of paying royalties, thus leaving Rambus with no claim to royalties.⁷⁴

Rambus, however, contends that there is no basis for the Commission to assume that Rambus — had it disclosed its patents — would have been left with no claim to royalties. According to Rambus, JEDEC selected, and thereby showed a preference for, Rambus technologies after serious and searching consideration of the alternatives.⁷⁵ Furthermore, Rambus contends, JEDEC also would have preferred Rambus’s technologies in the “but for” world in which Rambus had disclosed its patent position.⁷⁶ At

⁷³ Op. at 3, 33. The Commission has stressed the contribution of intellectual property to innovation and consumer welfare, and has cautioned against unwarranted antitrust enforcement activity that might undermine the patent system’s incentives for innovation. See FED. TRADE COMM’N, TO PROMOTE INNOVATION, THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY, ch.1 at 2 (2003).

⁷⁴ CCBR at 4-5.

⁷⁵ RBR at 8, 11.

⁷⁶ RBR at 10; RRBR at 9.

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most, according to Rambus, JEDEC would have requested a commitment to license on reasonable and nondiscriminatory (“RAND”) terms, and Rambus would have had no real choice but to comply.⁷⁷ Thus, according to Rambus, because Rambus would have received royalties for its patented technologies, Complaint Counsel lack adequate support for their contention that “a zero-royalty remedy flows directly from Rambus’s misconduct.”⁷⁸

We recognize that Rambus’s unlawful conduct makes it difficult to reconstruct the “but for” world, as is typically the case when a party has violated the antitrust laws. We conclude, however, that Complaint Counsel have not satisfied their burden of demonstrating that a royalty-free remedy is necessary to restore the competition that would have existed in the “but for” world — *i.e.*, that absent Rambus’s deception, JEDEC would not have standardized Rambus technologies, thus leaving Rambus with no royalties.

We have examined the record for the proof that the courts have found necessary to impose royalty-free licensing, but do not find it. Our liability opinion identified two realistic possibilities for what would have occurred had Rambus not engaged in deception of JEDEC members: either (i) JEDEC would have chosen alternative technologies, or (ii) JEDEC would have incorporated Rambus’s technologies into the standard but would have demanded, as a pre-condition of adopting Rambus’s technology, that Rambus agree to license the technology on RAND terms.⁷⁹ There is evidence in the record to support both possibilities.

As to the first possibility, it is true that if JEDEC had chosen to include other, non-Rambus technologies, its members would have paid no royalties to Rambus. But that does not mean that

⁷⁷ RRBR at 10.

⁷⁸ CCRBR at 6.

⁷⁹ Op. at 74.

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incorporating those technologies rather than the Rambus technologies would have been costless. Because Rambus's cost analysis was faulty,⁸⁰ and Complaint Counsel did not provide a cost-benefit comparison of the available technologies, we do not know what the costs might have been. We do know, however, that without knowledge that payment of royalties to Rambus would be required, JEDEC found the Rambus technologies desirable and chose them for the JEDEC DRAM standards. On the current record, we can neither confirm nor reject the possibility that JEDEC would have preferred Rambus's technologies over the alternatives, even with some reasonable royalty. Yet, for purposes of supporting the need for a zero-royalty remedy, it was Complaint Counsel's burden to show that Rambus would not have received reasonable royalties in the "but for" world.

⁸⁰ Although Rambus presented its analysis of relative costs and performance characteristics of the relevant Rambus technologies and their alternatives, the Commission found Rambus's calculations "fraught with uncertainty and potential for error" and concluded that Rambus had failed to demonstrate that alternatives would have been more expensive or that JEDEC would have standardized Rambus's technologies even if Rambus had disclosed its patent position. Op. at 94. With respect to these and other evaluations of the evidence in the record — both here and in the July 31, 2006, liability opinion — the Commission, to the extent necessary or desirable, exercise[s] all the powers which it could have exercised if it had made the initial decision." 16 C.F.R. 3.54(a). Thus, in particular, any Commission citation to any trial testimony, exhibit, or deposition segment — either in this opinion or in the July 31, 2006, opinion — constitutes a determination by the Commission that the cited testimony, exhibit, or deposition segment is relevant, material, and reliable evidence, and therefore admitted into the record of this proceeding. 16 C.F.R. 3.43(b). Each such determination shall be conclusive, with respect to determining the contents of the record of this proceeding, notwithstanding any objection or response thereto registered by either Complaint Counsel or Counsel for Respondent. The Commission also has determined that all exhibits listed on the Joint Exhibit Index filed by Complaint Counsel and Counsel for Respondent on September 29, 2003, whether or not marked as "pending," are admitted into the record of this proceeding, with any objections and responses thereto as to any exhibit marked "pending" going to the weight to be accorded that exhibit, rather than to its admissibility.

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Complaint Counsel suggest that the evidentiary gap can be closed because Rambus would not have issued the commitment to license on RAND terms required by JEDEC and EIA regulations. Complaint Counsel point to evidence that shows that Rambus did not want to license technology on RAND terms and that it even made statements that offering RAND terms was contrary to its business model.⁸¹ Rambus, however, had not disclosed its patents at the time of these statements. An unwillingness to comport with JEDEC policy while pursuing a hold-up strategy is not necessarily indicative of how Rambus would have acted after disclosure, when hold up no longer was attainable.

It is hardly surprising that Rambus would rather have the freedom to choose what license fees to charge than to be required to license on RAND terms. Indeed, Rambus was so desperate to avoid having to license on RAND terms that it chose to deceive JEDEC rather than to succumb. But that also shows how desperate Rambus was to have its technology incorporated into the standard. Rambus does not manufacture anything; it innovates, obtains patents, and then licenses.⁸² To conclude that, had Rambus “come clean,” it still would have refused JEDEC’s demand for RAND terms because it preferred licensing according to its own terms, is to conclude that Rambus, faced with two choices it did not like, would have chosen the path that resulted in no royalties from SDRAM and DDR and other technologies becoming the industry standard.⁸³ This is hard to square with the fact that “[r]oyalties are the lifeblood of Rambus@⁸⁴ and its reiterated objective of “get[ting] royalties from competitive memory.”⁸⁵ Further, the record suggests that despite its

⁸¹ CCRBR at 10.

⁸² Op. at 7.

⁸³ See Teece, Tr. 10740-46.

⁸⁴ CX 2106 at 221 (deposition transcript at 220) (Farmwald FTC Dep.) (*in camera*). See also Farmwald, Tr. 8095, 8150, 8248; RX 82 at 18.

⁸⁵ CX 5110 at 2.

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protestations, Rambus was indeed willing to cater to the demands of powerful buyers,⁸⁶ and JEDEC, *ex ante*, was a very powerful potential source of business.⁸⁷ Given JEDEC's ability to turn to alternatives to Rambus's patented technologies and the historic importance of JEDEC standards to industry success, a choice by Rambus to forgo participation in the JEDEC standard at a reasonable royalty rate is not easily assumed without stronger evidence than Complaint Counsel have presented.⁸⁸

Both dissents express the view that Rambus would not have offered a RAND commitment because Rambus's proprietary DRAM technology, RDRAM, was a "flagship" product, and Rambus would not have torpedoed its flagship to secure royalties on SDRAM and DDR SDRAM.⁸⁹ Nothing in the record, however, suggests that SDRAM and DDR SDRAM would have foundered if Rambus had withheld its four patented technologies.⁹⁰ If the Rambus technologies in SDRAM and DDR SDRAM came at a royalty equal to their value-added, so that improved performance carried with it commensurately higher cost, it is not clear why RDRAM would have been disadvantaged by their adoption.

⁸⁶ For example, Rambus licensed its RDRAM technology at rates quite favorable to Samsung, a significant market participant. In the Samsung RDRAM license, the applicable royalty rate drops to zero five years after shipment of the 500,000th unit, provided that more than 10 million units had been shipped. CX 1592 at 23.

⁸⁷ See Op. at 78-79 (noting "the historical record of the predominant market position of DRAMs compliant with the JEDEC standards"). JEDEC was a "Abroad-based organization that included essentially all the DRAM manufacturers and their largest customers." *Id.* at 78.

⁸⁸ See Teece, Tr. 10740-46 (testifying that Rambus had economic incentives to offer RAND assurances in a "but for" world in which it had already disclosed its patent position).

⁸⁹ Rambus developed RDRAM as a proposed solution to the computer hardware industry's "memory bottleneck problem." See Op. at 6-7.

⁹⁰ Rambus documents evince a belief that development of SDRAM was inevitable. See, e.g., CX 672 at 1 ("SDRAMs will happen.").

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Moreover, the record suggests that Rambus was proceeding on *two* tracks — developing RDRAM *and* pursuing royalties through SDRAM/DDR SDRAM⁹¹ — and it seems unlikely that Rambus would have abandoned the latter track at the very time that royalties could have been secured.

As to the second possibility — that JEDEC would have standardized Rambus’s technologies upon receipt of a RAND commitment — the evidence shows, and in the liability opinion the Commission found, that JEDEC was reluctant to incorporate patented technologies.⁹² JEDEC’s minutes state, “If it is known that a company has a patent on a proposal then the Committee will *be reluctant* to approve it as a standard.”⁹³ This, too, is hardly surprising, given that all firms would strongly prefer to use technology without the cost of license fees. The minutes do not, however, state that the committee will *not* standardize a patented technology, and the basic JEDEC and EIA documents repeatedly spell out procedures under which patented technologies may be accepted.⁹⁴

⁹¹ See, e.g., CX 1267 (1995 Rambus document, identified at Diepenbrock, Tr. 6129-31, headed “IP Strategy” announcing, with equal weight, in one column a “Defensive” strategy built around protecting RDRAM and in the other column an “Offensive” strategy based on “[f]ind[ing] key areas of innovation in our IP that are essential to creating a competing device to [RDRAM]” and “claim[ing] these areas as broadly as possible within the scope of what we invented”); CX 543 at 16-17 (June 1992 Rambus business plan identifying the marketing of RDRAM as the number one strategy while simultaneously articulating a strategy of capturing royalties from SDRAMs by “be[ing] in a position to request patent licensing (fees and royalties) from any manufacturer of Sync DRAMs”).

⁹² Op. at 74-75.

⁹³ JX 5 at 4 (emphasis added).

⁹⁴ See CX 208 at 19 (JEDEC’s Manual of Organization and Procedure, JEP 21-I) (stating that “committees should ensure that no program of standardization shall refer to a product on which there is a known patent *unless* all the relevant technical information is known to the formulating committee[,], subcommittee, or working group” and specifically providing for including patented technologies on receipt of a written RAND assurance) (emphasis

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Moreover, the record identifies several occasions in which JEDEC incorporated patented technologies into some standards after securing agreement from the patent holder that the technologies would be licensed on RAND, or specific-royalty, terms: (1) JEDEC retained Texas Instruments's ("TI") Quad CAS patented technology in 1993 after TI provided written assurances complying with EIA patent policy⁹⁵; (2) JEDEC selected Motorola patented technology for the SDRAM standard in 1992 after Motorola provided a letter offering RAND assurances⁹⁶; and (3) JEDEC approved Digital Equipment Corporation's patented technology for an MPDRAM standard in 1990 after DEC agreed to license at a 1% royalty rate.⁹⁷ In addition, JEDEC's DRAM Task Group chairman, Gordon Kelley, testified that in "several instances[.]" JEDEC ceased consideration of alternatives once a RAND commitment letter on a patented technology had been received.⁹⁸ We have considered that on one occasion JEDEC rejected a technology known to be covered by a Rambus patent.⁹⁹ But that occurred nearly a year *after* Rambus had left JEDEC, leaving JEDEC with no way to impose the RAND requirement.

Complaint Counsel cite to the testimony of multiple JEDEC members that they likely would have opposed using the technologies in question and instead selected alternatives had they known of Rambus's patent applications.¹⁰⁰ While this testimony

added); *see also* EIA publications EP-7-A, CX 207a at 8, and EP-3-F, CX 203a at 11 (containing similar provisions).

⁹⁵ JX 25 at 5-6.

⁹⁶ JX 13 at 9-10, 136.

⁹⁷ JX 1 at 6, 24.

⁹⁸ G. Kelley, Tr. 2708-09.

⁹⁹ See Op. at 74 n.403 (describing JEDEC's reaction to a proposal for a "Aloop-back" clock system).

¹⁰⁰ CCBP at 5.

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has some persuasion, it is ambiguous at times and — because it is based on a “but for” hypothetical — necessarily speculative, albeit sincere. The testimony of market participants, especially customers, is always important in the Commission’s decisions. But we must look not only to what these members say they *would* have done, but also at what they actually have done. Here, the evidence shows that JEDEC members agreed to incorporate patented technologies into the SSO’s standards in several instances, described above.

We reiterate that we agree with our colleagues Commissioner Rosch and Commissioner Harbour that the Commission has the authority to order royalty-free licensing. We also respect their differing conclusion regarding the “but for” world, construction of which is no simple or certain task. If we shared their assessment of the facts on this issue, we might well have endorsed a more powerful form of relief. We conclude, however, that while there is some evidence that supports the possibility that JEDEC would have chosen alternative technologies, Complaint Counsel have not met the burden of demonstrating that restoring the competition that would have existed in the “but for” world requires that Rambus license its technology with no compensation.

B.

We therefore are left with the task of determining the maximum reasonable royalty rate that Rambus may charge those practicing the SDRAM and DDR-SDRAM standards.¹⁰¹ Royalty rates unquestionably are better set in the marketplace, but Rambus’s deceptive conduct has made that impossible. Although we do not relish imposing a compulsory licensing remedy, the facts presented make that relief appropriate and indeed necessary to restore competition.

¹⁰¹ Rambus argues that “if the Commission wishes now to replicate the conditions that would have existed in the but-for world, it should enter an order requiring Rambus to license the four relevant technologies to manufacturers of SDRAM or DDR SDRAM-compliant devices on RAND terms — that is, the

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There is no direct evidence as to what royalty rates would have resulted from *ex ante* SDRAM negotiations among the parties had Rambus not engaged in the unlawful conduct. Naturally, adjudicators rarely if ever have such direct proof of the “but for” world before them.¹⁰² An antitrust remedy, however, can be adequate even if knowledge of the “but for” world is imperfect. As the Supreme Court explained in *J. Truett Payne Co. v. Chrysler Motors Corp.*, “the vagaries of the marketplace usually deny [courts] sure knowledge of what [an antitrust] plaintiff’s situation would have been in the absence of the defendant’s antitrust violation.”¹⁰³ Indeed, to require the kind of detailed and concrete proof of injury that is available in other contexts would allow a wrongdoer to benefit from the uncertainty that its own unlawful conduct has created.¹⁰⁴

terms on which Rambus would have been obligated to license those technologies if it had given a RAND commitment when it was a member of JEDEC.” RBR at 14. To simply order Rambus to henceforth license on RAND terms undoubtedly would be fruitless, however. We already know that Rambus’s views about what RAND terms would be differs from the views of the licensees. Consequently, if we do not set the maximum rate now, we will simply invite more disputes that we likely will have to resolve eventually.

¹⁰² Even if we had a more complete record, we would not be able to apply a simple formula to predict “but for” royalties. In a “but for” world, the parties would have arrived at a rate on the basis of a number of factors that are not easily quantifiable — *e.g.*, the respective negotiating skills and strengths of the parties and their respective business plans. *Cf.* *Georgia Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1121 (S.D.N.Y. 1970) (economic significance of the factors relevant to establishing a reasonable royalty for purposes of calculating infringement damages cannot be “automatically transduced into their pecuniary equivalent”), *aff’d as modified*, 446 F.2d 295 (2d Cir. 1971).

¹⁰³ 451 U.S. 557, 566 (1981). *Accord* *Conwood Co. v. U.S. Tobacco Co.*, 290 F.3d 768, 794 (6th Cir. 2002).

¹⁰⁴ *J. Truett Payne Co.*, 451 U.S. at 566-67 (citing *Bigelow v. RKO Radio Pictures, Inc.*, 327 U.S. 251, 264-65 (1946)).

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Consistent with JEDEC policies and practices for the adoption of patented technologies in standards determinations, and our own findings in the liability opinion,¹⁰⁵ we conclude that in the “but for” world Rambus’s royalty rates would have been negotiated under the constraint of a RAND commitment. A reasonable royalty “is or approximates the outcome of an auction-like process appropriately designed to take lawful advantage of the state of competition existing ex ante . . . between and among available IP options.”¹⁰⁶ The parties agree that the “*ex ante* value of a technology is the amount that the industry participants would have been willing to pay to use a technology over its next best alternative prior to the incorporation of the technology into a standard.”¹⁰⁷

The adoption of Rambus’s technologies for the standard shows that JEDEC believed that — putting royalties aside — Rambus’s technologies were superior to alternatives. JEDEC members likely would have been willing to pay some amount reasonably reflecting that superiority. It is also true, however, that the record does not permit us precisely to quantify the closeness of substitution between Rambus’s technologies and the alternatives and the degree to which those alternatives would have entailed higher costs to achieve the same level of DRAM performance, higher costs in the form of decreased DRAM performance, or both.¹⁰⁸

¹⁰⁵ Op. at 97 (finding that JEDEC and EIA policies would have prohibited standardization of Rambus’s patented technologies absent a RAND commitment).

¹⁰⁶ Daniel G. Swanson and William J. Baumol, *Reasonable and Non-discriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1, 57 (2005).

¹⁰⁷ RBR at 12 (quoting Complaint Counsel’s Proposed Finding of Fact No. 2965 at 388).

¹⁰⁸ As discussed in our liability opinion, the evidence that Rambus provided was flawed and unreliable. Op. at 82-96.

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Lacking this information, we nevertheless consider and balance evidence that:

1. Alternative technologies were available, and it likely would have been possible for members to design around Rambus's patents, albeit possibly with some higher cost;¹⁰⁹
2. Absent any royalties, JEDEC members preferred Rambus's technology;
3. JEDEC had a stated preference for open, patent-free standards,¹¹⁰ and its members were highly cost-sensitive;¹¹¹ and
4. Rambus, despite its preference to avoid RAND commitments, had a strong economic incentive to do what was necessary to ensure that its technology was incorporated into JEDEC's standards.¹¹²

In determining what royalty rates likely would have resulted from *ex ante* SDRAM negotiations, the Commission may look to real-world examples of negotiations involving similar technologies. Rambus agrees that this is the correct approach, noting that "the best way to determine these [RAND] rates is by examining rates for other comparable licenses in the industry."¹¹³

¹⁰⁹ *Id.* at 76, 82-96.

¹¹⁰ *See, e.g.*, JX 5 at 4; CX 203a at 11; CX 207a at 8; CX 208 at 19.

¹¹¹ *Id.* at 74-75.

¹¹² *See, e.g.*, Teece, Tr. 10341-46. *See also* CX 2106 at 221 (deposition transcript at 220) (Farmwald FTC Dep.) (*in camera*) ("[r]oyalties are the lifeblood of Rambus"); CX 5110 at 2-3 (Rambus's business objective was "get[ting] royalties from competitive memory").

¹¹³ RBR at 16. As discussed below, Rambus disagrees with our specific application of the approach taken herein, but it nonetheless endorses the general methodology.

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Complaint Counsel seem to agree, at least by implication, because they argue that the October 2000 Samsung SDRAM/DDR SDRAM license agreement and the March 2005 Infineon SDRAM and DDR SDRAM license agreement with Rambus indicate that the highest possible royalty rate in the “but for” world would be less than 0.25% on JEDEC-compliant DRAMs.¹¹⁴ Similarly, the court in *Georgia Pacific*, a seminal source regarding the methodology for calculating a reasonable royalty owed to patent holders following a finding of infringement, identified several factors potentially pertinent to that exercise, including, prominently, “the rates paid by the licensee for the use of other patents comparable to the patent in suit.”¹¹⁵ That court looked to multiple factors, seeking to exercise “a discriminating judgment reflecting its ultimate appraisal of all pertinent factors in the context of the credible evidence.”¹¹⁶

C.

The Commission will extrapolate *ex ante* SDRAM and DDR SDRAM royalty rates using as its starting point the RDRAM license agreements found in the record. As we explained in our liability opinion, beginning in 1990, Rambus offered to license its RDRAM technology to manufacturers of DRAM chips and DRAM-compatible microprocessors, and it sought to “position RDRAM as the *de facto* standard.”¹¹⁷ RDRAM failed to achieve significant market success, however, as industry participants instead turned to standards promulgated by JEDEC — which they

¹¹⁴ CCBR at 19-20.

¹¹⁵ 318 F. Supp. at 1120. *Accord* Mobil Oil Corp. v. Amoco Chems. Corp., 915 F. Supp. 1333, 1354 (D. Del. 1994) (noting that parties’ experts agreed that the price of comparable technology was of primary importance in determining a royalty rate); *see also* Mahurkar v. C.R. Bard, Inc., 79 F.3d 1572, 1579 (Fed. Cir. 1996) (noting that the task of calculating reasonable royalty is simplified when the record shows an established rate for “related patents or products”).

¹¹⁶ *Georgia Pacific*, 318 F. Supp. at 1120-21.

¹¹⁷ Op. at 8.

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hoped would represent a better value proposition.¹¹⁸ RDRAM royalty rates nevertheless serve as an extraordinarily useful benchmark because they are the product of individual, arm's-length negotiations between Rambus and manufacturers of DRAM chips and DRAM-compatible components for the use of all of the technologies at issue in this case, and more.¹¹⁹ The manufacturers were aware early on that Rambus claimed patent protection for the RDRAM technologies,¹²⁰ and there was no lock-in at the time these agreements were negotiated. In our effort to restore competitive conditions to those that would have prevailed in the "but for" world, for the reasons described above, we deem the RDRAM license agreements as the best available evidence from which to base our estimate of the likely "but for" results of negotiation.¹²¹

¹¹⁸ *Id.*

¹¹⁹ See Op. at 115 n.624 ("RDRAM royalties cover all four of the technologies at issue in this proceeding, as well as additional proprietary technologies. See, e.g., Horowitz, Tr. 8547-48; RX 2183; RX 81 at 8."); CX 2092 at 132 (Crisp *Infinion* Trial Tr.) (*in camera*) (stating that the ideas added to Rambus patent applications for the mode register and for programmable CAS latency were ideas [redacted]. Rambus has acknowledged this point. See Rambus Response to Complaint Counsel's Proposed Findings of Fact No. 723 at 285 (stating that "[w]hen first developed, RDRAM technology contained . . . the use of registers on the DRAM to store latency values, a variable burst length for data transfers, dual edge clocking in a synchronous memory device, and on-chip DLL or PLL.")).

¹²⁰ See, e.g., G. Kelley, Tr. 2504; Kellogg, Tr. 5053; Bechtelsheim, Tr. 5828-29, 5841-42; Lee, Tr. 6610-11; RX 279 at 8.

¹²¹ Rambus cites evidence of royalty rates for other semiconductor technologies as a basis for an appropriate remedy. RBR at 18-20. We examined this evidence in our liability decision and determined that Rambus had provided no basis for treating the referenced licensing arrangements as comparable to licenses for the technologies here at issue. Op. at 114-15 n.624 (quoting Rambus CEO Geoffrey Tate's testimony that comparing royalty rates for different technology licenses mixes "apples and oranges" because "[t]he royalty rate for one patent and the royalty rate for another patent, even in the [semiconductor] industry, can vary tremendously based on the value of the patent and the applications involved"). Clearly, RDRAM, with the *same*

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During the 1990s, Rambus licensed its proprietary RDRAM technologies at high-volume rates averaging 1-2% for use in DRAM chips,¹²² with the rates declining significantly over time and with increases in the number of shipped units.¹²³ In the Samsung RDRAM license, for example, the rate drops to zero five years after shipment of the 500,000th unit, provided that more than 10 million units had been shipped.¹²⁴

Rambus argues that 2% was its “standard rate” for RDRAM licenses, and that even this standard rate was an introductory, promotional rate reflecting an investment in the future. However, the 1-2% average RDRAM rate is corroborated by a November 1998 e-mail by Rambus CEO Geoff Tate (observing that three DRAM companies were “at 1% long term” and expressing the hope of *raising* their long-term rates to join three other “biggies” at 1.5%)¹²⁵ and by a November 2000 Rambus slide presented by Tate that reflects the company’s desire to “drive royalties from 1-2% *average* to 3-5%.”¹²⁶ These documents not only confirm the

technologies at issue in this case, offers a superior point of comparison than the disparate semiconductor technologies cited by Rambus.

¹²² See RDRAM licenses included in the record — CX 1592 (Samsung); CX 1600 (Hyundai); CX 1609 (Mitsubishi); CX 1612 (“mendment to Hyundai); CX 1617 (Siemens); CX 1646 (Micron); RX 538 (NEC).

¹²³ Although Commissioner Rosch’s dissenting opinion correctly notes that *initial* royalty rates set by the RDRAM licenses sometimes were higher, SDRAM and DDR SDRAM have been high-volume products for several years. See Rapp Tr. 10248-49; CX 2112 at 310-11 (deposition transcript at 309-10) (Mooring FTC Dep.) (*in camera*). Our goal — restoring competition — thus requires that we look to the royalties that the RDRAM licenses required for the later years in the life of a high-volume product.

¹²⁴ CX 1592 at 23.

¹²⁵ CX 1057.

¹²⁶ CX 1391A at 33 (emphasis added).

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1-2% average,¹²⁷ but reveal that that average held steady for the long term, not just for an introductory period as Rambus claims. Indeed, four alternative Rambus projections all assume RDRAM royalties of **[redacted]** on DRAM chips for each year from **[redacted]**.¹²⁸

In making the required Adiscriminating judgment reflecting [our] ultimate appraisal of all pertinent factors in the context of the credible evidence,”¹²⁹ we must consider several factors, each of which points to a reasonable royalty rate lower than the typical RDRAM royalty. First, Rambus’s RDRAM licenses covered substantially more technologies than those relevant here;¹³⁰ consequently, the royalties that Rambus collected for RDRAM

¹²⁷ See also CX 1751 (*in camera*), a 1997 Rambus compilation in Rambus Vice President for Intellectual Property Joel Karp’s notebook, showing high-volume RDRAM rates **[redacted]**.

¹²⁸ See CX 527-30 (*in camera*) (identified in the Joint Exhibit List as “Rambus spreadsheet re: 2000-2005 Royalty scenarios”). Rambus also argues that RDRAM rates were artificially constrained because an agreement giving Intel any proceeds from RDRAM licenses in excess of 2% eliminated any incentive for Rambus to negotiate for a higher royalty rate. See RBR at 22. For present purposes, however, the important point is that Rambus was unable to achieve even a 2% royalty across the market — many licensees negotiated rates below that level for high-volumes and out-years. See Op. at 115 n.624. The alleged arrangement with Intel would not explain why Rambus licensed RDRAM for less than 2%.

¹²⁹ *Georgia Pacific*, 318 F. Supp. 1116 at 1120-21.

¹³⁰ See, e.g., Farmwald, Tr. 8115-18, 8270, 8275-77; Horowitz, Tr. 8619-25, 8646-47; RX 81 at 6-14; CX 1451. Indeed, Rambus has argued that “RDRAM technology in the early 1990s included numerous inventions,” Rambus Response to Complaint Counsel’s Finding of Fact No. 717 at 282, and Rambus has criticized Complaint Counsel for suggesting that a change from the four patented technologies in DDR SDRAM would require “anywhere near the magnitude of change required for the industry to switch to RDRAM” or “anywhere near the time involved” for switching to RDRAM. See Rambus Response to Complaint Counsel’s Proposed Findings of Fact No. 2557 at 1032-1033, No. 2564 at 1037 (describing RDRAM as “an entirely new DRAM architecture”).

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provide too high an estimate of a reasonable royalty for just a subset of the RDRAM technologies.¹³¹ Second, RDRAM royalty rates typically declined substantially for high volumes and with the passage of time; for Samsung, a significant DRAM producer,¹³² the rates ultimately declined all the way to zero. Given the success of SDRAM and DDR SDRAM and the years that have passed since their introduction, we must take full account of the pattern of discounts specified in RDRAM licenses for high volumes and out-year production. Third, there is substantial evidence that market participants viewed the RDRAM royalties as too high for RDRAM to achieve a major presence in the market. For example, Intel regarded a royalty of less than .5% as appropriate for commodity RDRAM,¹³³ and JEDEC JC-42.3 subcommittee minutes from March 1997 reflect broad-based misgivings regarding RDRAM royalty rates.¹³⁴ Again, a rate below the RDRAM royalty range is appropriate for market-dominating products such as SDRAM and DDR SDRAM.¹³⁵ Finally, because it is Rambus's own unlawful conduct that

¹³¹ In terms of the criterion that both parties would apply, the additional technologies included in RDRAM licenses would have increased "the amount that the industry participants would have been willing to pay to use [RDRAM] over its next best alternative" and hence would have increased its *ex ante* value. See *supra* note 106 and accompanying text.

¹³² See CX 1057 (e-mail from Rambus CEO Tate describing Samsung as one of the "biggies").

¹³³ See CX 952; CX 961.

¹³⁴ See JX 36 at 7 ("Some Committee members did not feel that the Rambus [RDRAM] patent license fee fit the JEDEC requirement of being reasonable.").

¹³⁵ One Rambus document, CX 960, reflects Rambus CEO Tate's insistence that royalties on infringing DRAMs exceed royalties on RDRAM. By its terms, the document deals with a license of "all of our present and future patents for use for any infringing dram," a substantially more extensive license than at issue here. In any case, Tate's statement came in 1997, when Rambus was still pursuing its hold-up strategy. See Op. at 47. Rambus's preferences when hold-up was in the offing are not good evidence of royalties achievable in a "but for" world in which *ex ante* disclosure had occurred.

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prevents perfect replication of the “but for” licensing picture, plausible doubts should be resolved against Rambus.¹³⁶ Together, these factors point to a reasonable royalty substantially below the 1-2% RDRAM range.

On the other hand, RDRAM licenses, in addition to requiring per-unit royalties, obligated licensees to make up-front, lump-sum payments of licensing fees.¹³⁷ We deem it appropriate to trade off compensation payable up-front and compensation based on future usage, with an increase in one compensating for a decrease in the other. For purposes of our remedial Order, we couch Rambus’s compensation entirely in terms of per-unit royalties, with no up-front licensing fees. Although we have accounted for up-front licensing fees by increasing slightly our estimate of the maximum royalty rates consistent with restoring competition, our remedy’s coverage of a substantially shorter period than the RDRAM licenses and its exemption of a substantial portion of Rambus’s JEDEC-compliant business, suggest that the adjustment should be small.¹³⁸

Thus, starting at 1% — apart from the Samsung arrangement, the lower end of the RDRAM licensing range — and accounting for the factors presented above, we find that a maximum royalty rate of .5% for DDR SDRAM, for three years from the date the Commission’s Order is issued and then going to zero, is

¹³⁶ 3 AREEDA, ANTITRUST LAW & 653c.

¹³⁷ RDRAM licenses required up-front license fees ranging from \$1.25 million (CX 1646 at 10-11, 20) to \$5.5 million (CX 1617 at 11, Siemens license) for use of Rambus technology in DRAMs.

¹³⁸ The RDRAM licenses ran (or were renewable without additional license fees) for the life of Rambus’s patents. *See, e.g.*, CX 1592 at 31; CX 1600 at 17; CX 1609 at 15; CX 1617 at 16; CX 1646 at 17; RX 538 at 33. The RDRAM licenses contained no limitation comparable to our remedy’s exclusion of DDR2 SDRAM.

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reasonable and appropriate.¹³⁹ We also find that a corresponding .25% maximum rate for SDRAM is appropriate. Halving the DDR SDRAM rate reflects the fact that SDRAM utilizes only two of the relevant Rambus technologies, whereas DDR SDRAM uses four.¹⁴⁰ Moreover, Rambus's quality-adjusted cost comparison data indicate that alternatives to its two SDRAM technologies

¹³⁹ Complaint Counsel suggest that appropriate downward adjustments to RDRAM royalties yield a royalty rate of 0.1%, but it is not clear what assumptions they have made to support this calculation. Further, we cannot accept Complaint Counsel's arguments in favor of a maximum royalty rate of 0.25% or less drawn from extrapolations from terms of known or reported Rambus agreements with Samsung and Infineon. Neither the agreements nor the facts on which Complaint Counsel premise their extrapolations are in the record, and in each instance cited Rambus was at the most disadvantageous stage of its infringement litigation — *i.e.*, when it had lost its case at the trial court level.

Rambus, on the other hand, argues that it should be allowed to charge a royalty rate in excess of 2.5% — the rate agreed to in the “other DRAM” clause of the 1995 Hyundai-Rambus license agreement. RBR at 17-18. This is hardly a realistic estimate of reasonable royalty rates in the “but for” world: the Hyundai rate was not accepted by anyone other than Hyundai, and, at least according to Rambus, it was not even retained by that firm. *See* CX 1878 (Rambus answer and counterclaim alleging infringement by Hyundai for using Rambus technologies in JEDEC-compliant products); *Hynix Semiconductor Inc. v. Rambus Inc.*, 2006 WL 565893 at *3-4 (N.D. Cal. 2006) (finding of fact describing Rambus position that the “other DRAM” provision has been superseded and no longer is in effect). Thus, from a market perspective, the Hyundai rate was neither broadly accepted nor sustained. Moreover, the 2.5% figure may have been inflated as a result of trade-offs with other aspects of the license. For example, Rambus's SDRAM and DDR/SDRAM licenses normally include up-front licensing fees of \$3 million, and Rambus RDRAM licenses required licensing fees varying from \$1.25 million to \$5.5 million. The Hyundai license, CX 1600 at 11, conferred a license for purposes of RDRAM memories for a licensing fee of \$2 million, with no additional license fee for rights covering SDRAM and DDR/SDRAM — so that Hyundai received its SDRAM and DDR/SDRAM license without having to make the normal \$3 million up-front payment. Similarly, there may have been trade-offs between the royalties payable by Hyundai for various uses of RDRAM technologies (and the dates and volume levels specified for setting those royalty rates) and the 2.5% royalty payable by Hyundai on other DRAMs. Such trade-offs, within a single license agreement, could have affected the “other DRAM” rate.

¹⁴⁰ Op. at 9-12; CX 1363 at 3.

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would add *less than half* the cost of alternatives to the four Rambus technologies in DDR SDRAM.¹⁴¹ Applying Rambus’s own cost figures to Rambus’s own analytical paradigm—which looks to “the amount that the industry participants would have been willing to pay to use a technology over its next best alternative”¹⁴²—we find the .25% maximum rate for SDRAM to be both reasonable and fully supported. As with DDR SDRAM, this maximum rate would go to zero three years after the date the Commission’s Order is issued.

It is true that we cannot calculate to the penny the downward adjustment from 1%. Yet these royalties certainly are within the range of reasonableness in approximating the result drawn from what we know of the *ex ante* negotiating positions of Rambus and the other JEDEC members. The royalty rates take account of the relevant parties’ preferences (*i.e.*, JEDEC’s cost-sensitivity and preference for open, patent-free standards on the one hand, and Rambus’s disinclination to agree to RAND terms on the other hand). They reflect appropriate downward adjustments from the prevailing RDRAM rates based on the nature and extent of the technology at issue, and prevent Rambus from benefitting from the uncertainty that its unlawful actions generated. They also follow the negotiated RDRAM agreements pursuant to which the applicable royalty rate declined over time.¹⁴³ Setting a maximum royalty rate that is applicable for a period of three years before dropping to zero follows from the Samsung RDRAM agreement in particular; lends temporal and rate certainty to this remedy; and requires that the royalty rate decline to zero before the relevant patents expire, according to Complaint Counsel, in 2010.

¹⁴¹ Rapp, Tr. 9832, 9852. The Commission has questioned the accuracy of Rambus’s cost data, but we have not suggested that this relationship is invalid. Op. at 95 n.532-33.

¹⁴² RBR at 12.

¹⁴³ See, *e.g.*, CX 1592; CX 1600; CX 1609; CX 1612.

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The Commission also must determine an appropriate maximum royalty rate for memory controllers and other components that use the relevant Rambus technologies in complying with JEDEC's SDRAM and DDR SDRAM standards. The RDRAM licenses in the record, cited above, either set a royalty of between 3% and 5% (but 2 to 3% for NEC¹⁴⁴) for the use of Rambus technologies in memory controllers, microprocessors, and other non-DRAM components, or they leave the rates open for future negotiation, generally specifying a maximum of between 3% and 5%. That is more than double the large-volume royalties for DRAMs. The SDRAM licenses charge **[redacted]** for the DRAM and **[redacted]** for the SDR Controllers; the DDR SDRAM licenses charge less **[redacted]** for the DRAMs and **[redacted]** for the DDR Controllers.¹⁴⁵ In addition, the record contains several exhibits that appear to provide Rambus's internal revenue projections based on anticipated royalties and licensing fees. In each, the stated royalty rate for RDRAM Controllers is **[redacted]**, exactly **[redacted]** that for RDRAM devices.¹⁴⁶

Based on this evidence, we adopt a coefficient of two for determining the maximum royalty rate for memory controllers and other non-memory-chip components that use the relevant Rambus technologies. For such products compliant with the

¹⁴⁴ See RX 538 at 22.

¹⁴⁵ The SDRAM/DDR SDRAM licenses define "Controllers" broadly to include **[redacted]**. See, e.g., CX 1680 at 22 (*in camera*); CX 1681 at 7 (*in camera*); CX 1687 at 6-7 (*in camera*). Although the licenses in the record involve firms known as DRAM manufacturers, several of those licenses identify specific products of the licensees that pursuant to the licenses qualify, and give rise to royalties, as Controllers. See, e.g., CX 1681 at 7, 34 (*in camera*) (Hitachi license identifying approximately **[redacted]** Hitachi products as SDR and DDR Controllers); CX 1685 at 6 (*in camera*) (NEC license identifying **[redacted]** NEC products as SDR Controllers); CX 1689 at 6 (*in camera*) (Mitsubishi license identifying **[redacted]** Mitsubishi products as SDR Controllers).

¹⁴⁶ See CX 527-30 (*in camera*).

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SDRAM standard, this yields a maximum royalty of .5%, dropping to zero after three years; for such products compliant with the DDR SDRAM standard, this yields a maximum royalty of 1%, again dropping to zero after three years.

We also find it appropriate to define the scope of Rambus royalties when products such as memory controllers become integrated into larger products.¹⁴⁷ Absent some limitation, our remedy could have unintended consequences if product integration were to markedly raise the selling price of the unit subject to the percentage royalty. This is best avoided by articulating a rule that specifies controller royalties in terms of dollars per unit, based on historical experience. Using terms derived from existing RDRAM licenses, our Order limits Rambus to the controller royalties per unit that would result from applying the .5% or 1% royalty rate to the average net sales per unit for SDR Controllers and DDR Controllers, respectively, **[redacted]**. Such an approach places a cap on these royalties consistent with historical experience and based on reported and verifiable information.¹⁴⁸

Rambus points out that its RDRAM licenses entailed long-run, co-development efforts with licensees and argues for further compensation on that basis.¹⁴⁹ Given the importance that SDRAM and DDR SDRAM achieved in the market, and the retention of Rambus technologies in DDR2 SDRAM, Rambus already has largely secured the outcome sought by licensees' support without the *ex ante* risk that those efforts might fail.¹⁵⁰ No adjustment on this account appears necessary.

¹⁴⁷ See CCBR at 15.

¹⁴⁸ See, e.g., CX 1687 at 29 (showing licensees' **[redacted]** requirements) (*in camera*).

¹⁴⁹ RBR at 22.

¹⁵⁰ The RDRAM licenses also imposed corresponding duties on Rambus to ensure full technology transfer. See, e.g., CX 1592 at 19-21 (Samsung license

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Rambus's RDRAM licenses provided additional compensation in the form of non-exclusive cross licenses and grant-backs.¹⁵¹ These provisions, however, typically were limited to (i) patented technologies that would block Rambus from using its proprietary RDRAM technologies, and (ii) the licensee's improvements on RDRAM technologies.¹⁵² Given the limited nature of these terms, and subject to those limitations, we will permit Rambus to include comparable provisions in any SDRAM/DDR SDRAM licenses entered under the Commission's remedial Order.

IV.**A.**

As discussed above, the Commission has "wide latitude for judgment" in selecting a remedy, subject to the constraint that it must be reasonably related to the violation.¹⁵³ Furthermore, the Commission is not limited to merely proscribing unlawful conduct "in the precise form in which it [was] found to have existed in the past."¹⁵⁴ The Commission is authorized to both prohibit the practices that it has found unlawful and — in order to prevent future unlawful conduct — to "fence-in" the violator with

stating Rambus technology transfer obligations); CX 1646 at 8-10 (Micron license stating Rambus technology transfer obligations). These obligations would be unnecessary given the long-established nature of the SDRAM and DDR SDRAM standards.

¹⁵¹ See, e.g., CX 1600 at 16; CX 1609 at 14; CX 1646 at 15.

¹⁵² See CX 1600 at 4-5; CX 1609 at 3-4; CX 1646 at 4.

¹⁵³ *Jacob Siegel Co.*, 327 U.S. at 612-13; see *FTC v. Nat'l Lead Co.*, 352 U.S. at 428; *Ruberoid Co.*, 343 U.S. at 473.

¹⁵⁴ *Colgate-Palmolive Co.*, 380 U.S. at 395 (quoting *Ruberoid Co.*, 343 U.S. at 473).

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provisions that are broader in scope.¹⁵⁵ So long as the remedy has a reasonable relationship to the violation that the Commission has found, the Commission may “close all roads to the prohibited goal,” including proscribing conduct that is lawful.¹⁵⁶

As we explained most recently in *Telebrands Corp.*,¹⁵⁷ in determining the appropriate scope of fencing-in relief, the Commission considers three factors: (1) the seriousness and deliberateness of the violation; (2) the ease with which the violation may be transferred to other products; and (3) whether the respondent has a history of prior violations. No single factor is determinative, but “the more egregious the facts with respect to a single element, the less important is it that another negative factor be present.”¹⁵⁸

We find that Rambus’s intentional and willful deception,¹⁵⁹ described in detail in the Commission’s liability opinion, is sufficient, without more, to justify broad fencing-in relief. Furthermore, factors such as Rambus’s large portfolio of intellectual property and the company’s status as a developer and licensor of memory technologies (but not a manufacturer) could increase the incentive for Rambus to attempt to circumvent the Commission’s Order. Given these circumstances, we believe that merely prohibiting Rambus from “knowingly” engaging in a deceptive course of conduct as a member of an SSO — as

¹⁵⁵ See, e.g., *Colgate-Palmolive Co.*, 380 U.S. at 395; *Kraft, Inc. v. FTC*, 970 F.2d 311, 326-27 (7th Cir. 1992).

¹⁵⁶ *Ruberoid Co.*, 353 U.S. at 473.

¹⁵⁷ *Telebrands Corp.*, 140 F.T.C. 278, 334 (2005), available at <http://www.ftc.gov/os/decisions/docs/volume140.pdf>, *aff’d*, 477 F.3d 354 (4th Cir. 2006).

¹⁵⁸ *Sears, Roebuck & Co. v. FTC*, 676 F.2d 385, 392 (9th Cir. 1982).

¹⁵⁹ In our liability opinion, we found that Rambus’s deceptive course of conduct was “intentionally pursued,” Op. at 51, and that Rambus “intentionally and willfully engaged in deceptive conduct.” Op. at 68.

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Rambus proposes — would provide inadequate incentive for it to put into place the procedures and policies that are necessary to ensure that its future participation in SSOs is conducted in an honest and forthright manner and that it does not simply circumvent the Commission's Order. The Order provisions described below represent the Commission's efforts to prohibit Rambus from engaging in the practices that we found in our liability opinion to violate Section 5 of the FTC Act, as well as to prevent future related conduct.

B.

Paragraph II of the Commission's Order prohibits Rambus from making any misrepresentations concerning its patents, or applications for patents, to any SSO, or its members, and constrains Rambus from taking any action, or refraining from taking any action, that would lead the SSO, or any of its members, to unknowingly infringe any current or future Rambus patent. Additionally, Paragraph II requires Rambus to abide by any requirement or policy of an SSO in which it participates to make complete, accurate, and timely disclosures. These prohibitions are substantially the same as those set forth in Rambus's proposed order, but the scope of our Order is drawn more broadly to protect the public against a repetition of the same deceptive conduct with respect to other products.

Paragraph III of the Order requires Rambus to employ a compliance officer, who shall be responsible for communicating Rambus's intellectual property rights relating to any standard that is under consideration by an SSO in which Rambus participates. The compliance officer shall also be responsible for verifying the contents of Rambus's periodic reports to the Commission, and to supplement such reports when it is necessary to provide a complete and accurate picture of the status of Rambus's compliance with the terms of this Order. We believe that such a provision is necessary and appropriate to ensure that Rambus will adhere to SSO rules and policies, and to facilitate the

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Commission's efforts to monitor its compliance with the instant Order.

Paragraphs IV-VII are designed to restore — to the extent possible — the competitive conditions that would have existed but for Rambus's unlawful conduct. Our remedy covers all technologies used in JEDEC-compliant products and protected by patents derived from applications that Rambus filed while it was a member of JEDEC. Rambus contends that our remedy must be limited to the four technology markets that are identified in the Commission's liability decision.¹⁶⁰ However, claims of infringement based on JEDEC-compliant use of any of these technologies would take advantage of the same deceptive conduct — indeed, the same intentional failure to disclose — identified in the Commission's liability decision.¹⁶¹ That is, the same violation condemned with regard to the four relevant technologies at issue in the liability decision (programmable CAS latency, programmable burst length, dual-edge clocking, and on-chip PLL/DLL) could be readily transferred to additional technologies covered by Rambus's undisclosed patent rights.¹⁶² Rambus repeatedly has indicated that it contemplates seeking infringement rulings against JEDEC-compliant uses of technologies other than

¹⁶⁰ See RBR at 9-10.

¹⁶¹ Op. at 28-68.

¹⁶² This would include both patents derived from Rambus's original '898 application and those derived from any other applications filed by Rambus prior to its withdrawal from JEDEC. Rambus was hard at work during the period of its JEDEC membership to obtain patent rights on technologies other than those directly at issue in the liability opinion. See, e.g., CX 1949 at 5, CX 711 at 58, and Crisp, Tr. 3247-48 (all relating to source synchronous clocking); CX 1932, CX 3125 at 279-80, (Vincent *Infineon* Dep.) (*in camera*), CX 3126 at 448-52 (Vincent *Infineon* Dep.) (*in camera*), CX 1963 at 4, and Crisp, Tr. 3046 (all relating to low voltage swing signaling); CX 702, CX 734 at 1, CX 1949 at 1, and Crisp, Tr. 3097-99 (all relating to multi-bank technologies); CX 734 at 1 and, CX 738 (both relating to auto precharge technology); CX 691 and Crisp, Tr. at 3190-91 (both relating to externally supplied reference voltage).

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the four at issue in the liability decision.¹⁶³ Consequently, coverage of all technologies used in JEDEC-compliant products and protected by patents derived from applications filed while Rambus was a member of JEDEC is necessary as fencing-in, in order to Aeffectively close all roads to the prohibited goal, so that [the Commission's] order may not be by-passed with impunity.”¹⁶⁴

Paragraph IV prohibits Rambus from collecting royalties relating to the sale, manufacture or use of any JEDEC-Compliant

¹⁶³ See, e.g., CX 1888 (May 2001 Rambus press release noting that “the Virginia case against Infineon [in which the trial court had dismissed infringement claims] involve[d] only four Rambus U.S. patents” but that “Rambus holds newly issued U.S. and European patents covering Rambus inventions used by SDRAMs and DDR SDRAMs that have not yet been asserted in any litigation and are not impacted by the [Infineon] Court’s decision”); CX 1403 at 30 (July 2001 Rambus Presentation stating, “Virginia decision involved only 4 patents; we have many others which are used by SDRAM/DDR.”); CX 1371 at 5 (April 2000 Rambus patent licensing presentation to nVIDIA listing numerous alleged “Rambus Innovations” involving technologies beyond the four specifically at issue in the liability decision); CX 1383 at 4 (September 2000 Rambus patent licensing presentation to ATI listing numerous alleged “Rambus Innovations” involving technologies other than the four specifically at issue in the liability decision); CX 1363 at 3 (January 2000 Rambus presentation claiming that DDR SDRAM used a patented Rambus innovation involving “two bit prefetch architecture” as well as alleged Rambus innovations involving two external clocks, low voltage signaling, quadrature data alignment and source synchronous signaling).

¹⁶⁴ See *Ruberoide*, 343 U.S. at 473. *New York v. Microsoft*, 224 F. Supp. 2d 76 (D.D.C. 2002), relied upon by Rambus, RRBR at 7, is fully consistent. In that case, the court shaped its remedy to ensure that Microsoft’s exclusionary conduct “broadly” defined was “fully enjoined.” *Id.* at 148 (quoting language now appearing in 3 AREEDA, ANTITRUST LAW & 653f at 102-03 (2d ed. 2002)), and stating that in cases involving a monopolist’s consummated exclusionary act, “equitable relief beyond a mere injunction against repetition of the act is generally appropriate” and must be tailored with “sufficient breadth to ensure that a certain ‘class’ of acts, or acts of a certain type or having a certain effect, not be repeated”). The fact that the identical deceptive conduct found in the Commission’s liability opinion also infected a broader range of technologies makes these fencing-in principles wholly apposite here.

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DRAM or Non-DRAM Products that are greater than those that Rambus is allowed to collect under the terms of the present Order. The purpose of this provision — which applies both to U.S. patents and, with respect to imports or exports to or from the United States, to foreign patents¹⁶⁵ — is to preclude Rambus from continuing to collect monopoly rents with respect to JEDEC-Compliant DRAM or Non-DRAM Products. Paragraph V requires Rambus to make available a worldwide, nonexclusive license — under the relevant U.S. patents only — to make, use, and sell JEDEC-compliant DRAM and non-DRAM products at rates that do not exceed the Maximum Allowable Royalty Rates, as defined

¹⁶⁵ The global nature of the DRAM industry requires that our remedy reach Rambus's enforcement of foreign patent rights with respect to imports and exports to and from the United States. DRAMs often are manufactured abroad, *see, e.g.*, Bechtelsheim, Tr. 5886; Appleton, Tr. 6267; CX 2107 at 15-16, 18-20 (Oh FTC Dep.) (*in camera*), and even when manufacturing occurs in the United States, some steps in the processing frequently take place abroad. *See* Appleton, Tr. 6268-70; CX 2107 at 19-20 (Oh FTC Dep.) (*in camera*). Moreover, major DRAM customers often incorporate DRAM chips into their products at foreign manufacturing facilities. *See* Bechtelsheim, Tr. 5886; Appleton, Tr. 6273-74. Because of the geographically dispersed nature of these activities, Rambus could use its foreign patents to collect royalties that would undermine a remedy confined to U.S. patents. *See* McAfee, Tr. 7521.

Although Rambus argues that the Commission lacks authority to extend its remedy to foreign patent rights, it cites no relevant support. RB at 133. For example, *Western Electric Co. v. Milgo Electronic Corp.*, 450 F. Supp. 835, 837 (S.D. Fla. 1978), actually ruled that the court possessed “the power to enjoin a party over whom it ha[d] personal jurisdiction from pursuing [patent] litigation before a foreign tribunal.” The Commission’s remedy similarly would constrain the patent enforcement efforts of a party over which it has personal jurisdiction. *Medtronic, Inc. v. Catalyst Research Corp.*, 518 F. Supp. 946, 955 (D. Minn. 1981), *aff’d*, 664 F.2d 660 (8th Cir. 1981), supports the proposition that because U.S. and foreign patents confer distinct rights, parties cannot obtain injunctions against foreign claims on the basis of validity and infringement rulings regarding U.S. patents. The Commission’s remedy, however does not affect determinations of validity or infringement. Like the *Medtronic* court, which went on to preliminarily enjoin the defendant from pursuing patent enforcement activities abroad, 518 F. Supp. at 956, the Commission’s remedy governs only the actions of Rambus.

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and set forth in Paragraph I. To ensure that the Commission's efforts to restore competition are not undermined by the threat of patent infringement litigation, Paragraphs VI and VII prohibit Rambus from enforcing the royalty agreements that would be prohibited by the terms of the instant Order.

Paragraphs VIII through XI contain ancillary provisions that are designed to help the Commission oversee Rambus's compliance with this Order. Rambus is required, for example, to distribute copies of the Commission's Order, make periodic compliance reports to the Commission, and provide the Commission with access to its documents.

Finally, paragraph XII specifies that the Order will sunset in 20 years. As we noted in *Kentucky Household Goods Carriers Association*,¹⁶⁶ a 20-year sunset provision is common to most of the Commission's orders. Respondent, of course, may seek to modify or set aside the Order, pursuant to Section 2.51 of the Commission's Rules of Practice,¹⁶⁷ if at any time prior to the expiration of 20 years it is no longer in the public interest.

C.

We do not believe that the Commission's remedy should extend to Rambus's patents used in products that are compliant with JEDEC's DDR2 SDRAM or succeeding generations of JEDEC standards. There is no doubt that some relationship exists between Rambus's deceptive conduct and its position in the DDR2 SDRAM market. Nevertheless, in our liability decision, we concluded that Complaint Counsel had not proved a sufficient causal link between Rambus's deceptive course of conduct and the DDR2 standard and, indeed, between the issuance of the SDRAM and DDR SDRAM standards and the DDR2 standard

¹⁶⁶ 139 F.T.C. 420, 434 (2005), available at <http://www.ftc.gov/os/decisions/docs/volume139.pdf> (June 21, 2005).

¹⁶⁷ 16 C.F.R. § 2.51.

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(because there was insufficient evidence of lock in).¹⁶⁸ Absent a sufficient causal link, extending our remedy to cover DDR2 SDRAM would not restore competition lost because of Rambus's deceptive conduct. Nor do we believe that "fencing in" justifies extending our remedy to the DDR2 standard (or subsequent generations of JEDEC DRAM standards) under these circumstances. Indeed, absent the necessary causal links, applying our remedy to DDR2 SDRAM could conflict with the warnings in *Jacob Siegel*, *National Lead*, and *Ruberoid*, discussed above, that the Commission cannot issue an order that is not sufficiently related to the violation.

Commissioner Harbour's dissent emphasizes that the relief ordered—confined to products compliant with JEDEC's SDRAM and DDR SDRAM standards but not reaching products compliant with JEDEC's DDR2 SDRAM standard—will have declining impact as the market progressively shifts to DDR2. This follows not from any policy choice, but rather from the timing of underlying events. Rambus revealed its patents well before the DDR2 SDRAM standard was set, and we were unable to conclude in our liability opinion that in the relevant time frame lock in conferred durable monopoly power over DDR2.¹⁶⁹ Had the evidence demonstrated a sufficient causal link between Rambus's deceptive conduct and JEDEC's standardization of Rambus technologies in DDR2 SDRAM, our relief would have covered products compliant with that standard. The evidence, however, does not carry us that far, and we limit our order accordingly.

¹⁶⁸ Op. at 110, 114.

¹⁶⁹ Op. at 110-14.

Final Order

FINAL ORDER

This matter having been heard by the Commission upon the appeal of Counsel Supporting the Complaint and the cross-appeal of Respondent; and the Commission having determined that Respondent has violated Section 5 of the Federal Trade Commission Act, for the reasons stated in the Opinion of the Commission issued on July 31, 2006; and the Commission having reversed and vacated the Initial Decision, and vacated the Order accompanying the Initial Decision, by Order issued on July 31, 2006, for the reasons stated in the Opinion of the Commission; and the Commission having considered the briefs filed by, and oral arguments presented by, Counsel Supporting the Complaint and Respondent on the issues of remedy, the Commission has now determined to issue a Final Order to remedy Respondent's violations of Section 5 of the Federal Trade Commission Act. Accordingly,

It is ordered that the following Order to cease and desist be, and it hereby is, entered:

I.

IT IS ORDERED that for purposes of this Order, the following definitions shall apply:

- A. "Action" means any lawsuit or other action, whether legal, equitable, or administrative, as well as any arbitration, mediation, or any other form of private dispute resolution, in the United States or anywhere else in the world.
- B. "Compliance Officer" means the Person employed by Respondent pursuant to Paragraph III. of this Order.
- C. "DRAM" means Dynamic Random Access Memory.

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- D. "First Royalty Period" means the period that begins on the date this Order is issued and ends on the date three years after the date this Order is issued.
- E. "JEDEC" means the JEDEC Solid State Technology Association, originally known as the Joint Electron Device Engineering Council, a non-stock corporation organized and existing under the laws of the Commonwealth of Virginia.
- F. JEDEC-Compliant DRAM Product means:
 - 1. JEDEC-Compliant SDRAM and
 - 2. JEDEC-Compliant DDR SDRAM.
- G. JEDEC-Compliant Non-DRAM Product means memory controllers or other non-memory-chip components that comply with:
 - 1. the SDRAM Standards,
 - 2. the DDR SDRAM Standards, or
 - 3. both the SDRAM Standards and the DDR SDRAM Standards.
- H. JEDEC-Compliant DDR SDRAM means any DRAM that complies with the JEDEC DDR SDRAM specification, published as JESD 79, as revised (the "DDR SDRAM Standards").
- I. JEDEC-Compliant SDRAM means any DRAM that complies with the JEDEC SDRAM Standard, published as JC 21-C, Release 4, as revised; or the JEDEC SDRAM standard, published as JC 21-C, Release 9, as revised (the "SDRAM Standards").

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J. "Maximum Allowable Royalty Rates" means

1. During the First Royalty Rate Period, the maximum allowable royalty rates shall be no greater than the following percentages of Net Sales of JEDEC-Compliant DRAM Products or JEDEC-Compliant Non-DRAM Products:
 - a. 0.25% for JEDEC-Compliant SDRAM;
 - b. 0.5% for JEDEC-Compliant DDR SDRAM;
 - c. 0.5% for JEDEC-Compliant Non-DRAM Products that comply with SDRAM Standards; and
 - d. 1.0% for JEDEC-Compliant Non-DRAM Products that comply with DDR SDRAM Standards.
2. During the Second Royalty Rate Period, the maximum allowable royalty rate for JEDEC-Compliant DRAM Products and JEDEC-Compliant Non-DRAM Products shall be 0.0%.
3. Notwithstanding the calculations described in Paragraph I.J.I. and Paragraph I.K., the royalties per unit for JEDEC-Compliant Non-DRAM Products shall be limited to the following:
 - a. For JEDEC-Compliant Non-DRAM Products that comply with the SDRAM Standards, royalties per unit shall not exceed the amount obtained by multiplying .005 by the average net sales per unit for single data rate controllers -as those products are defined in Rambus's licenses for JEDEC-Compliant Non-DRAM products in effect prior to July 31, 2006- that all licensees reported to

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Rambus, pursuant to those licenses, prior to July 31, 2006.

- b. For JEDEC-Compliant Non-DRAM products that comply with the DDR SDRAM Standards, royalties per unit shall not exceed the amount obtained by multiplying .01 by the average net sales per unit for double data rate controllers - as those products are defined in Rambus's licenses for JEDEC-Compliant Non-DRAM products in effect prior to July 31, 2006- that all licensees reported to Rambus, pursuant to those licenses, prior to July 31, 2006.
- 4. JEDEC-Compliant Non-DRAM Products that comply with both the SDRAM Standards and the DDR SDRAM Standards shall all be treated, for purposes of calculating the Maximum Allowable Royalty Rates for such products pursuant to Paragraphs I.J.1.-3., as products that comply with DDR SDRAM Standards.
- K. "Net Sales" means the gross sales amount invoiced or otherwise charged to customers of a licensee or its subsidiaries, less amounts invoiced for returned goods for which a refund is given, less separately stated charges for insurance, handling, duty, freight, and taxes, where such items are included in the invoiced price, and less credit amounts invoiced; *provided, however*, that (1) for each JEDEC-Compliant DRAM Product sold by the licensee at a combined price covering both the JEDEC-Compliant DRAM Product and a module, board, or system, Net Sales shall be calculated based on the licensee's average gross selling price for the relevant JEDEC-Compliant DRAM Product alone, during the relevant calendar period, less the deductions specified above; and (2) for each JEDEC-Compliant Non-DRAM product sold by the licensee at a combined price covering both the JEDEC-Compliant Non-

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DRAM Product and a board or system, Net Sales shall be calculated based on the licensee's average gross selling price for the relevant JEDEC-Compliant Non-DRAM Product alone, during the relevant calendar period, less the deductions specified above.

- L. "Person" means natural person, partnership, joint venture, firm, corporation, association, trust, unincorporated organization, joint venture, or other business or legal entity, including any governmental entity.
- M. "Relevant Foreign Patents" means all current or future patents issued by a foreign government to Respondent that claim a priority date of June 17, 1996, or before.
- N. "Relevant U.S. Patents" means all 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 to any other U.S. Patent Application filed by or on behalf of Rambus on or before June 17, 1996.
- O. "Respondent" or "Rambus" means Rambus Inc., its directors, officers, employees, agents, representatives, successors, and assigns; its joint ventures, subsidiaries, divisions, groups and affiliates controlled by Rambus Inc., and the respective directors, officers, employees, agents, representatives, successors, and assigns of each.
- P. "Second Royalty Period" means a period to begin on the date after the First Royalty Period expires and to end on the date on which the last of Respondent's Relevant U.S. Patents and Relevant Foreign Patents expires.
- Q. "Standard-Setting Organization" means any group, organization, association, membership or stock corporation, government body, or other entity that, through voluntary participation of interested or affected parties, is engaged in the development, promulgation,

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promotion or monitoring of product or process standards for the electronics industry, or any segment thereof, anywhere in the world.

II.

IT IS FURTHER ORDERED that, while a member of or a participant in a Standard-Setting Organization, Respondent:

- A. Shall not make any misrepresentation or omission to the Standard-Setting Organization or its members concerning Respondent's patents or patent applications (including, but not limited to, failing to cooperate with the Compliance Officer in the satisfaction of his or her responsibilities as described in Paragraph III., below);
- B. Shall make complete, accurate, and timely disclosures to the Standard-Setting Organization or its members concerning Respondent's patents or patent applications to the extent the rules, practices, and policies of such Standard-Setting Organization require such disclosure (including, but not limited to, cooperating with the Compliance Officer's satisfaction of his or her responsibilities as described in Paragraph III., below); and
- C. Shall be prohibited from taking any other action or refraining from taking any other action that would lead the Standard-Setting Organization to develop a standard that would infringe a claim in any issued or future Rambus patents without knowledge by the Standard-Setting Organization of Respondent's patents and patent applications and of the potential scope thereof.

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III.

IT IS FURTHER ORDERED that:

- A. No later than thirty (30) days after the date this Order becomes final, Respondent shall employ, at Respondent's expense, a Compliance Officer, or shall include within the responsibilities of a current employee of Respondent all the responsibilities of a Compliance Officer, as described in this Paragraph III.
1. The employee serving as the Compliance Officer shall be employed subject to the approval of the Commission, which approval Respondent shall seek pursuant to § 2.41(f) of the Commission's Rules of Practice, 16 C.F.R. § 2.41(f).
 2. The Compliance Officer shall be the sole representative of Respondent for the purpose of communicating Respondent's existing and potential patent rights related to any standard under consideration by any and all Standard-Setting Organizations of which Respondent is a member or in which Respondent is a participant; *provided, however*, that the Compliance Officer may, subject to the approval of the Commission, delegate a portion of his or her responsibilities to another employee of Respondent if he or she is unable to satisfy his or her responsibilities as described in this Paragraph III. because of the large number of Standard-Setting Organizations of which Respondent is a member or in which Respondent is a participant or because of the large number of standards under consideration by the Standard-Setting Organizations at any one time.

B. Respondent shall:

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1. Provide the Compliance Officer with full and complete access to Respondent's books, records, documents, personnel, facilities and technical information relating to compliance with this Order, or to any other relevant information, as the Compliance Officer may reasonably request;
 2. Assure that the Compliance Officer has all information necessary to satisfy his or her responsibilities as described in this Paragraph III.;
 3. Cooperate with any reasonable request of the Compliance Officer, including, but not limited to, requests to develop or compile data and information for the Compliance Officer's use; and
 4. Take no action to interfere with or impede the Compliance Officer's ability to satisfy his or her responsibilities as described in this Paragraph III.
- C. Failure of the Compliance Officer to satisfy his or her responsibilities as described in this Paragraph III. shall be considered a violation of this Order by Respondent, except to the extent that such failure results from misfeasance, gross negligence, willful or wanton acts, or bad faith by the Compliance Officer.
- D. If at any time the Commission determines that the Compliance Officer has ceased to act or failed to act diligently, or is unwilling or unable to continue to serve, the Commission may require Respondent to employ a substitute to serve as Compliance Officer, or include within a different current employee's job responsibilities those of the Compliance Officer, in the same manner as provided by this Order.

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- E. Respondent shall, in its reports to the Commission submitted pursuant to Paragraph IX. of this Order, include a description of all disclosures made to all Standard-Setting Organizations pursuant to this Paragraph III., including the date of the disclosure, the patents and patent applications disclosed, the standards under consideration, and the Standard-Setting Organization to which it was made. The Compliance Officer shall verify each such report and submit supplemental reports directly to the Commission or its staff, on a confidential basis, to the extent the Compliance Officer considers such supplemental reports necessary.

IV.**IT IS FURTHER ORDERED** that:

- A. Respondent shall cease any and all efforts by any means, either directly or indirectly, in or affecting commerce as "commerce" is defined in Section 4 of the Federal Trade Commission Act, 15 U.S.C. § 44, to seek to collect or to collect, under the Relevant U.S. Patents and, with regard to imports or exports to or from the United States, the Relevant Foreign Patents, any fees, royalties or other payments, in cash or in kind, relating to the manufacture, sale, or use of any JEDEC-Compliant DRAM Product or JEDEC-Compliant Non-DRAM Product after the date this Order becomes final, that are in excess of the Maximum Allowable Royalty Rates or are otherwise inconsistent with this Order.
- B. Respondent shall allow any party to a license agreement that requires payment, under the Relevant U.S. Patents and, with regard to imports or exports to or from the United States, the Relevant Foreign Patents, of any fees, royalties or other consideration, in cash or in kind, relating to the manufacture, sale, or use of any JEDEC-Compliant DRAM Product or JEDEC-Compliant Non-DRAM

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Product after the date this Order becomes final, that are in excess of the Maximum Allowable Royalty Rates of this Order or are otherwise inconsistent with this Order, to terminate or rescind that license agreement - at the option of the licensee – without penalty, and release that licensee from any further payments pursuant to that license agreement that are in excess of the Maximum Allowable Royalty Rates or are otherwise inconsistent with this Order.

V.**IT IS FURTHER ORDERED** that:

- A. No later than thirty (30) days after the date this Order becomes final, Respondent shall offer and make available to all interested persons, a worldwide, nonexclusive license under the Relevant U.S. Patents, to make, have made, use, offer to sell, or sell JEDEC-Compliant DRAM Products and JEDEC-Compliant Non-DRAM Products. Such licenses shall not seek to collect any fees, royalties or other consideration, in cash or in kind, in excess of or in addition to the Maximum Allowable Royalty Rates, other than fees in an amount not to exceed the fair market value of any services to be rendered by Respondent to the licensee to the extent such services have been rendered at the request of the licensee.
- B. Notwithstanding the provisions of Paragraph V.A. of this Order, Rambus may include in the licenses offered pursuant to Paragraph V.A.,
 - 1. a requirement that the licensee grant Rambus a royalty-free, nonexclusive license under the licensee's patents to make, have made, use, offer to sell, and sell any product, the manufacture, use, offer to sale, or sale of which would, if not authorized, infringe one of the

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licensee's patents by reason of the implementation or use of any Rambus interface technology or of any of the licensee's improvements to a Rambus interface technology (or by reason of the use of any apparatus required by (i) any Rambus interface technology or (ii) any of the licensee's improvements to a Rambus interface technology), where such infringement:

- a. would not have occurred but for the implementation of the Rambus interface technology or the licensee's improvement and
 - b. could not have been avoided by another commercially reasonable implementation or resulted from use of an example included in the Rambus interface technology or in the licensee's improvement; and
2. a right to sublicense Rambus's rights under the license provided pursuant to Paragraph V.B.1., to any and all of the other licensees of any Rambus interface technology that have provided reciprocal rights through Rambus to the licensee under Paragraph V.A. at no separate, additional royalty or other charge to that licensee, provided that such sublicensed rights shall be limited to the products as to which Rambus receives a license (as identified in Paragraph V.B.1.), and provided further that no sublicense shall be granted for the use of rights with respect to
 - a. semiconductor manufacturing technology, and
 - b. any other portion of any integrated circuit including, without limitation, the core of a memory integrated circuit.
- C. A licensee pursuant to Paragraph V.A. may sublicense to its subsidiaries the rights that arise under a license

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pursuant to Paragraph V.A. at no additional royalty or charge to the licensee or sublicensee.

D. The license described in Paragraph V.A. shall continue until expiration of the last to expire of the Relevant U.S. Patents; *provided, however*, that:

1. The licensee may, solely at the option of the licensee, terminate the license at any time upon sixty (60) days' written notice to Respondent; and
2. If either party defaults in the performance of any material obligation under the license described in Paragraph V.A. and if any such default is not corrected within forty-five (45) days after the defaulting party receives written notice thereof from the non-defaulting party, the non-defaulting party, at its option, may, in addition to any other remedies it may have, terminate the license.

E. Rambus shall not argue in any Action that a licensee's acceptance of, or participation in, a license pursuant to Paragraph V.A. of this Order bars the licensee from:

1. asserting that any Relevant U.S. Patent or Relevant Foreign Patent is invalid, unenforceable, or not infringed or
2. offering any defense based on contentions that any Relevant U.S. Patent or Relevant Foreign Patent is invalid, unenforceable, or not infringed.

VI.

IT IS FURTHER ORDERED that Respondent shall cease and desist any and all efforts it has undertaken by any means, either directly or indirectly, in or affecting commerce as

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"commerce" is defined in Section 4 of the Federal Trade Commission Act, 15 U.S.C. § 44, including, without limitation, the threat or prosecution of, or assertion of any affirmative defense in, any Action, to the extent that Respondent: (1) has asserted that any Person, by manufacturing, selling, or otherwise using any JEDEC-Compliant DRAM Product or JEDEC-Compliant Non- DRAM Product, infringes any Relevant U.S. Patents or by manufacturing, selling, or otherwise using any JEDEC-Compliant DRAM Product or JEDEC-Compliant Non-DRAM Product for import or export to or from the United States, infringes any Relevant Foreign Patents and (2) for periods after this Order becomes final, is seeking relief that would result in payments to Respondent in excess of the Maximum Allowable Royalty Rates or that would otherwise be inconsistent with the requirements of this Order.

VII.

IT IS FURTHER ORDERED that Respondent shall not undertake any new efforts by any means, either directly or indirectly, in or affecting commerce as "commerce" is defined in Section 4 of the Federal Trade Commission Act, 15 U.S.C. § 44, including, without limitation, the threat or prosecution of, or assertion of any affirmative defense in, any Action, pursuant to which Respondent: (1) asserts that any Person, by manufacturing, selling, or otherwise using any JEDEC-Compliant DRAM Product or JEDEC-Compliant Non-DRAM Product any time after the date this Order becomes final, infringes any Relevant U.S. Patents or by manufacturing, selling, or otherwise using any JEDEC-Compliant DRAM Product or JEDEC-Compliant Non-DRAM Product for import or export to or from the United States any time after the date this Order becomes final, infringes any Relevant Foreign Patents, and (2) is seeking relief that would result in payments to Respondent in excess of the Maximum Allowable Royalty Rates or would otherwise be inconsistent with the requirements of this Order.

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VIII.**IT IS FURTHER ORDERED** that:

- A. No later than thirty (30) days after the date this Order becomes final, Respondent shall distribute a copy of this Order and the complaint in this matter to JEDEC, to those members of JEDEC that Respondent contacted regarding possible infringement of any of its patents by JEDEC-Compliant DRAM Products or JEDEC-Compliant Non-DRAM Products, and to any other Person that Respondent contacted regarding possible infringement of any of its patents by JEDEC-Compliant DRAM Products or JEDEC-Compliant Non-DRAM Products.
- B. No later than ten (10) days after the date this Order becomes final, Respondent shall distribute a copy of this Order and the complaint in this matter to every officer and director of Respondent, to every employee or agent of Respondent whose responsibilities include acting as Respondent's designated representative to any Standard-Setting Organization, and to every employee or agent having managerial responsibility for any of Respondent's obligations under this Order.
- C. Until ten (10) years after the date this Order becomes final, Respondent shall furnish a copy of this Order and the complaint in this matter to each new officer and director of Respondent and to every new employee or agent of Respondent whose responsibilities will include acting as Respondent's designated representative to any Standard-Setting Organization or who will have managerial responsibility for any of Respondent's obligations under the Order. Such copies must be furnished within thirty (30) days after any such persons assume their position as an officer, director or employee. For purposes of this Paragraph IX.C., "new employee" shall include without

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limitation any of Respondent's employees whose duties change during their employment to include acting as respondent's designated representative to any Standard-Setting Organization.

- D. Until ten (10) years after the date this Order becomes final, Respondent shall furnish each Standard-Setting Organization of which it is a member and which it joins a copy of this Order, and Respondent shall identify to each such organization the name of the Compliance Officer who will serve as Respondent's designated representative to the Standard-Setting Organization.

IX.**IT IS FURTHER ORDERED** that:

- A. Respondent shall file a verified written report with the Commission setting forth in detail the manner and form in which it intends to comply, is complying, and has complied with this Order:
1. no later than sixty (60) days after the date this Order becomes final; and
 2. annually for ten (10) years on the anniversary of the date this Order becomes final.
- B. Respondents shall include in its reports, among other things required by the Commission, a full description of the efforts being made to comply with this Order, a description of all substantive contacts or negotiations relating to Respondent's participation in any Standard-Setting Organization of which Respondent is a member, the identity of all parties contacted, copies of all written communications to and from such parties, internal documents and communications, and all reports and

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recommendations concerning Respondent's participation in any Standard-Setting Organization.

- C. Until ten (10) years after the date this Order becomes final, Respondent shall maintain records adequate to describe in detail any action taken in connection with the activities covered by this Order, including, but not limited to, the annual amount of royalties received from each licensee pursuant to Paragraph V. of this Order.

X.

IT IS FURTHER ORDERED that, for the purpose of determining or securing compliance with this Order, and subject to any legally recognized privilege, and upon written request with reasonable notice, Respondent shall permit any duly authorized representative of the Commission:

- A. Access, during office hours and in the presence of counsel, to all facilities and access to inspect and copy all books, ledgers, accounts, correspondence, memoranda and other records and documents in the possession or under the control of Respondent relating to any matter contained in this Order; and
- B. Upon five days' notice to Respondent and without restraint or interference from Respondent, to interview the Compliance Officer and any other of Respondent's officers, directors, or employees, who may have counsel present, regarding any such matters.

XI.

IT IS FURTHER ORDERED that Respondent shall notify the Commission at least thirty (30) days prior to (1) any proposed dissolution of Respondent; (2) any proposed acquisition, merger, or consolidation of Respondent; or (3) any other change in

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Respondent including, but not limited to, assignment or creation or dissolution of subsidiaries, if such change might affect compliance obligations arising out of this Order.

XII.

IT IS FURTHER ORDERED that this Order shall terminate on February 7, 2027.

By the Commission, Commissioner Harbour and Commissioner Rosch dissenting.

**REMEDY STATEMENT OF
COMMISSIONER PAMELA JONES HARBOUR
CONCURRING IN PART AND DISSENTING IN PART¹**

I join Parts I, II, IV.A., and (subject to the exception described below) IV.B. of the majority's remedy opinion. In particular, I strongly agree that the Commission's remedial authority in Section 2 cases extends beyond narrowly constrained cease-and-desist orders and includes the ability to order compulsory, royalty-free licensing.

Along with Commissioner Rosch, I dissent from Part III of the majority opinion and the above-zero royalty rate licensing provisions described in Part IV.B. of the majority opinion (and also from the Order, to the extent it is based on those portions of the majority opinion), because I believe the Commission should have imposed a royalty-free remedy in this case. With one exception, I join Commissioner Rosch's dissenting statement, and I elaborate further in Part I below.

¹ This opinion uses the same abbreviations used in the majority's opinion on remedy (hereinafter Majority Remedy Opinion).

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As explained in Part II below, and unlike Commissioner Rosch, I also dissent from Part IV.C. of the majority opinion. I do not believe the remedy adopted by the majority goes far enough to restore competition. Given the Commission's remedial authority and the current "actual market realities"² for SDRAM technologies, the Commission can and should impose a remedy reaching the DDR2 generation of SDRAM. A remedy extending to DDR2 would be a legitimate and appropriate exercise of the Commission's remedial discretion.

I. THE REMEDY SHOULD BE ROYALTY-FREE

All five Commissioners agree that the Commission has the authority to require royalty-free licensing under certain circumstances.³ Commissioner Rosch sets forth compelling arguments why the Commission should exercise that authority in this case. I write separately to highlight one key reason why I concur with Commissioner Rosch on this point: Rambus's argument for an above-zero royalty rate is premised on a flawed logical construct regarding the incentives of Rambus and other JEDEC members in a plausible "but for" world.

Rambus would have us believe that - if faced with a choice between collecting RAND royalties or no royalties at all - Rambus would have offered JEDEC a RAND commitment, in order to entice JEDEC to adopt Rambus technologies as part of the SDRAM standards.⁴ Based on the record before us, I cannot agree.

2 See *Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 466-67 (1992) ("Legal presumptions that rest on formalistic distinctions rather than actual market realities are generally disfavored in antitrust law.").

3 Majority Remedy Opinion at II.A.-B.; Dissenting Statement of Commissioner J. Thomas Rosch [hereinafter Rosch Remedy Dissent].

4 RBR at 3, 10-12 & n.9; RRBR at 10-11.

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As noted by Commissioner Rosch in his dissenting statement,⁵ RDRAM was Rambus's flagship technology. In its unanimous liability opinion, the Commission found that Rambus's goal was the adoption of its proprietary RDRAM technology as the *de facto* industry standard.⁶ The Commission also found that a primary objective of the JEDEC standard-setting process was to establish a royalty-free alternative to RDRAM. The industry resisted RDRAM precisely because of the high royalties Rambus was expected to charge,⁷ in keeping with the company's business model of earning its revenue through patent licensing.⁸

If Rambus had decided to offer a RAND commitment to JEDEC, presumably Rambus would have offered something less than the full package of technology comprising RDRAM, because Rambus would have wanted to continue to push for industry adoption of RDRAM. Rambus also would have known that its RAND rates for this package of technology must be proportional to the anticipated cost of alternative technologies under consideration by JEDEC, or else the RAND commitment would not be an attractive proposition to manufacturers of DRAM components. The RAND rates for this technology package, however, would have represented a significant discount off of the RDRAM rates Rambus was expected to charge. As a result,

5 Rosch Remedy Dissent at 8.

6 Rambus Liability Opinion at 8.

7 See, e.g., CX 961 at 1 (quoting a September 1997 Intel e-mail to Rambus Chief Executive Officer, expressing concern that "absolute cost is the critical factor" at least for the low end of the market and warning that, upon analyzing the royalty obligations attached to RDRAM, the industry would develop alternatives).

8 See Rambus Liability Opinion at 7 ("Rambus develops, secures patents on, and licenses technologies to companies that manufacture semiconductor memory devices. Rambus is not a manufacturing company; rather, Rambus earns its revenue through the licensing of its patents.") (citations omitted); CX 2106 (Farmwald FTC Dep.) at 220 (*in camera*) ("[r]oyalties are the lifeblood of Rambus"); see also Rosch Remedy Dissent, notes 29-30 and accompanying text.

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manufacturers would have been able to forgo the pricier RDRAM standard, yet still license some portion of Rambus's DRAM technology at the discounted RAND rates for incorporation into rival JEDEC-compliant devices. But this outcome would have been fundamentally inconsistent with the Rambus business model, because it would have reduced even further the industry's incentives to adopt RDRAM as a *de facto* standard. Therefore, it is difficult to conclude on this record that Rambus would have offered RAND terms in a plausible "but for" world.

Even if we were to suppose, nevertheless, that Rambus would have offered a RAND commitment, the inquiry cannot end there. We must ask, as well, how the JEDEC members would have responded. Again, based on the record before us, it is implausible to conclude that the JEDEC members would have accepted Rambus's RAND offer and incorporated Rambus technology into the JEDEC standards. The record demonstrates that JEDEC members not only were wary of adopting patented technology generally, but also went out of their way to avoid Rambus's patented technology specifically.⁹

Moreover, as the Commission's unanimous liability opinion explains in detail, the Commission assumes a "but for" world where lock-in had not yet occurred and where viable, cost-effective alternative technologies were available to JEDEC¹⁰

9 See, e.g., Rambus Liability Opinion at 74 & n.403 ("Indeed, the one time that JEDEC members had advance knowledge that a Rambus patent was likely to cover a standard under consideration, the members took deliberate steps to avoid standardizing the Rambus technology."); Rosch Remedy Dissent at II.C.

10 See, e.g., Rambus Liability Opinion at 76 ("Alternative technologies were available when JEDEC chose the Rambus technologies, and could have been substituted for the Rambus technologies had Rambus disclosed its patent position."), 82 ("We find that the evidence does not establish that Rambus's technologies were superior to all alternatives on a cost/performance basis."), 97-98 ("No matter what the specific outcome might have been [if Rambus had disclosed its patent position], the consequences of incorporating Rambus's

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- all the more reason why the JEDEC members likely would have rejected a RAND offer by Rambus in a plausible "but for" world.¹¹

II. THE REMEDY SHOULD EXTEND TO DDR2

All of the other Commissioners have chosen to limit the scope of the remedy to the SDRAM and DDR SDRAM standards. The Commission's unanimous liability opinion found lock-in only with respect to the two earlier standards; therefore, my colleagues conclude, the remedy should go no further. I disagree.

When the Commission fashions a remedy, it should strive to restore, as completely as possible, the competitive environment

patented technologies into the standards would have been identified and weighed *before* the standards were adopted, *when Rambus's technologies were competing with the alternatives*. That 'but for world' would have been more competitive than the current DRAM marketplace, in which Rambus has monopoly power and can charge whatever royalties it chooses.") (emphasis in original).

11 See Rambus Liability Opinion at 63-65 (various industry participants believed that the JEDEC standards under consideration would be Rambus-free and royalty-free). Their beliefs were consistent with Rambus's behavior, in light of the Commission's findings regarding Rambus's course of exclusionary conduct. The Commission found that Rambus's business strategy included amending its patent applications to cover JEDEC-compliant products, based on information gleaned during Rambus's participation in JEDEC while the standards were under development. *Id.* at 4 ("through its participation in JEDEC, Rambus gained information about the pending standard, and then amended its patent applications to ensure that subsequently-issued patents would cover the ultimate standard"), 40-48 (detailing the chronology of Rambus's conduct, including relevant amendments), 67 (holding that Rambus's amendment program was deceptive); see also CX 837 at 2 (internal email advising Rambus management that the company should "redouble [its] efforts to get the necessary amendments completed, the new claims added and make damn sure this ship is watertight before we get too far out to sea."). It is entirely possible that the JEDEC standards *were* Rambus-free at some point, before Rambus repeatedly amended its patent applications to cover them.

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that would have existed in the "but for" world.¹² In this case, the Commission can and should impose a remedy that would apply to technologies included in all JEDEC standards that were developed, *or in development*, at the time Rambus began enforcing its patents. This test would yield a remedy covering DDR2 (but not DDR3 or successive generations).

This formulation would reflect an appropriate use of fencing-in relief consistent not only with existing jurisprudence regarding the scope of the Commission's remedial authority, but also with burden-of-proof requirements during the remedy phase. A DDR2 remedy would more completely and effectively mitigate the likely and foreseeable effects of Rambus's exclusionary conduct and would create an opportunity for the market to establish a competitive equilibrium.

The proposed test also recognizes the need for a clearly articulated limiting principle. The remedy would be purely prospective and reasonably bounded in breadth, yet aggressive enough to prevent Rambus from being unjustly enriched by the lingering effects of its unlawful conduct.

Finally, such a remedy would enhance the deterrent effect of the Commission's enforcement action by sending a forceful message: companies will not be allowed to profit from monopoly power obtained by hijacking a standard-setting organization.

A. The Commission's Liability Opinion Does Not Rule Out
The Possibility of DDR2 Lock-In

In its unanimous liability opinion, the Commission held that "[t]he record does not support a finding that lock-in conferred

12 See Majority Remedy Opinion at 6 ("[T]he Commission's authority extends to restoring, to the extent possible, the competitive conditions that would have been present absent Rambus's unlawful conduct.").

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durable monopoly power over DDR2 SDRAM by 2000"- subject . . . to the caveat expressed in footnote 621: "Although we do not, on this record, find durable monopoly power as to DDR2 SDRAM, neither do we rule it out. It is possible that Rambus did, in fact, obtain durable monopoly power over DDR2 SDRAM."¹³

As footnote 621 recognized, the Commission "might have found lock-in with respect to DDR2 SDR if the record had demonstrated, for example, that backward compatibility concerns were a substantial determinative factor in JEDEC's DDR2 SDRAM standard-setting decisions."¹⁴ For purposes of establishing liability, however, the record was deemed insufficient to make such a finding.

B. The Commission Has The Authority to Reach DDR2

When the Commission finds that the law has been violated, the Commission has three responsibilities: to stop the unlawful conduct; to prevent the unlawful conduct from recurring; and, importantly, to restore competition lost as a result of the unlawful conduct. As the majority opinion explains, the Commission has the authority to order relief that goes beyond a cease and desist order - including the prohibition of otherwise lawful conduct - if such relief is necessary to alleviate competitive harm and prevent future harm from occurring. The Commission is exercising this authority by prescribing maximum royalty rates that Rambus may charge for SDRAM and DDR SDRAM. The same core principles that support the majority's remedial choice also would justify a remedy extending to DDR2.

The Supreme Court in its 1946 *Jacob Siegel* decision described the Commission as "the expert body to determine what remedy is necessary to eliminate the unfair or deceptive trade practices which have been disclosed."¹⁵ As discussed in the

¹³ Rambus Liability Opinion at 110, 114 & n.621.

¹⁴ *Id.* at 114 n.621.

¹⁵ *Jacob Siegel Co. v. FTC*, 327 U.S. 608, 612 (1946).

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majority opinion,¹⁶ the Court further stated that the Commission "has wide latitude for judgment"¹⁷ and "wide discretion in its choice of a remedy deemed adequate to cope with the unlawful practices in ... trade and commerce."¹⁸ The Court concluded that "the courts will not interfere except where the remedy selected has no *reasonable relation* to the unlawful practices found to exist."¹⁹ The Supreme Court and lower courts consistently have affirmed the breadth of the Commission's remedial authority under Section 5 of the FTC Act.²⁰

As the majority opinion explains, the Court repeatedly has upheld the Commission's authority to go beyond a cease and desist order. The Commission may require relief that prohibits otherwise lawful conduct, if such relief is necessary to prevent ongoing harm to competition. As the Court explained in *Ruberoid*,

the Commission is not limited to prohibiting the illegal practice in the precise form in which it is found to have existed in the past. If the Commission is to attain the objectives Congress envisioned, it cannot be required to confine its road block to the narrow lane the transgressor has traveled; it must be allowed effectively to close all roads to the prohibited goal, so that its order may not be by-passed with impunity.²¹

16 Majority Remedy Opinion at 6-7.

17 *Siegel*, 327 U.S. at 613.

18 *Id.* at 611.

19 *Id.* at 613 (emphasis added).

20 See, e.g., *FTC v. Colgate-Palmolive Co.*, 380 U.S. 374, 392 (1965); *FTC v. Nat'l Lead Co.*, 352 U.S. 419, 428-30 (1957); *FTC v. Ruberoid Co.*, 343 U.S. 470, 473 (1952).

21 *Ruberoid*, 343 U.S. at 473.

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The Court later gave a name to this concept: "those caught violating the [FTC] Act must expect some fencing in."²² The Commission - with the approval of the courts - has included a variety of fencing-in provisions in its remedial orders.²³ The Commission may use its fencing-in authority as long as the relief is reasonably related to the illegal conduct and is not punitive.²⁴

In this case, extending the relief to the DDR2 SDRAM standard would be reasonably related to Rambus's deceptive and exclusionary conduct. The Commission's unanimous liability opinion found that Rambus's course of deceptive conduct was causally linked to Rambus's acquisition of a monopoly position in technologies used in products compliant with JEDEC's SDRAM and DDR SDRAM standards. By the time Rambus began enforcing its patents against JEDEC-compliant products, the industry already had begun to develop the third-generation SDRAM standard - *i.e.*, DDR2. DDR2 was based on the existing SDRAM and DDR SDRAM standards, reflecting JEDEC's preference for "evolutionary" progression from one generation to the next. Given the industry's desire for backward compatibility,²⁵ Rambus reasonably could have anticipated - and

22 *Nat'l Lead*, 352 U.S. at 431.

23 *See, e.g.*, *Litton Industries, Inc. v. FTC*, 676 F.2d 364, 370 (9th Cir. 1982) (quoting *ITT Continental Baking Co. v. FTC*, 532 F.2d 207, 223 (2d Cir. 1976)) (multi-product order to address "all products in a broad category, based on violations involving only a single product or group of products," to prevent respondent from transferring unlawful conduct to other products); *Toys "R" Us, Inc.*, 126 F.T.C. 415, 615 (1998), *aff'd*, 221 F.3d 928, 939-940 (7th Cir. 2000) (respondent enjoined from making certain otherwise lawful requests for information from suppliers, because the requests were "the means used by TRU to implement and police the illegal restraints of trade").

24 *See* Majority Remedy Opinion at 7 (a compulsory licensing order that attempts to replicate the "but for" world is not punitive).

25 *See* Rambus Liability Opinion at 112 & n.613-14 ("Several industry witnesses expressed concerns that changing DDR2 SDRAM to avoid Rambus's patents would have disrupted backward compatibility. One witness testified

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would have hoped- that its technologies also would be incorporated into DDR2.

In the "but for" world, the SDRAM and DDR SDRAM standards would have been Rambus- free. Due to the path-dependent nature of JEDEC standard-setting, the inclusion of Rambus technologies in the first- and second-generation standards made it all but inevitable that Rambus technologies also would be included in DDR2. Rambus's exclusionary conduct therefore facilitated the creation of Rambus's DDR2 monopoly. This would satisfy the "reasonable relation" test.

As for the "punitive" prong of the analysis, courts have upheld a variety of fencing-in provisions as not punitive²⁶ and a remedy reaching DDR2 also would pass muster. By extending the remedy to technologies included in all JEDEC standards developed or in development at the time Rambus began enforcing its patents against JEDEC-compliant products, the Commission would do no more than restore the competitive *status quo ante*. Rambus would not be deprived of the entire value of its intellectual property, because Rambus still would have total freedom to enforce its patents with respect to all non-JEDEC-compliant uses (such as RDRAM). True, a royalty-free remedy would "hurt" Rambus more than the remedy endorsed by the majority. But one must be careful not to equate financial pain with excessive punishment. If a remedy is proportional to the

that an effort to maintain backward compatibility after eliminating dual-edge clocking would have had 'a big impact' from the perspective of design and that a desire to maintain backward compatibility was the reason that a sub-unit of JEDEC's task group . . . chose to maintain dual-edge clocking.").

26 The courts have upheld fencing-in provisions that prohibit otherwise lawful conduct, finding that they are not punitive. See, e.g., *L.G. Balfour Co. v. FTC*, 442 F.2d 1 (7th Cir. 1971) (affirming divestiture order in § 5 case, by implication finding remedy not punitive); *Golden Grain Macaroni Co. v. FTC*, 472 F. 2d 882 (9th Cir. 1972), *cert. denied*, 412 U.S. 918 (1973) (same); see also *Curtis Publ'g Co. 78 F.T.C. 1472* (1971) (Commission required restitution of monopoly profits, describing remedy as prospective only and not punitive).

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underlying offense, it is not punitive, regardless of whether it inflicts pain. In contrast, if a remedy is not proportional to the offense, the Commission's remedial goals are unlikely to be fully achieved. The wrongdoer will benefit; the remedy will not restore the *status quo ante*; and future violations may be encouraged rather than deterred.

C. The Burden Of Proof Must Be Properly Allocated

The Commission's unanimous liability opinion found insufficient proof of a causal linkage between Rambus's exclusionary conduct and its DDR2 monopoly. But the burden of proof in the remedial phase is less stringent than in the liability phase, and the evidence must be weighed accordingly. Finding a "reasonable relation" to the unlawful practices requires less evidence than would be needed to establish the violation.

For remedial purposes, Complaint Counsel should not bear the burden of proving the "but for" world with absolute certainty. Yet, the other Commissioners would limit the Commission's remedial reach to anticompetitive effects directly caused by the unlawful conduct. In effect, therefore, my colleagues seek to restore the "but for" world only to the extent Complaint Counsel has proven what that world would have looked like. I believe their approach incorrectly allocates the burden of proof.

In our liability opinion, the Commission unanimously agreed that, for purposes of establishing Section 5 liability, Complaint Counsel needed to prove a causal relationship between Rambus's unlawful conduct and Rambus's acquisition or maintenance of monopoly power in the relevant technology markets. The Commission found that Complaint Counsel had satisfied its burden with respect to the SDRAM and DDR SDRAM standards, but not with respect to DDR2. Significantly, however, the Commission found *no* proof of Rambus's portrayal of the "but for" world. The Commission explicitly rejected Rambus's contention that the JEDEC members would have chosen to include the Rambus technologies in the SDRAM standards, even if Rambus

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had not engaged in its course of deceptive conduct and JEDEC had full information about Rambus's intellectual property. Moreover, as discussed above, footnote 621 preserved the possibility that Rambus's exclusionary conduct might have been causally linked to Rambus's monopolization of the four relevant technologies with respect to the DDR2 standard.

It is black-letter Supreme Court law that "once the Government has successfully borne the considerable burden of establishing a violation of law, all doubts as to the remedy are to be resolved in its favor."²⁷ Areeda and Hovenkamp reflect this principle when they state:

[T]he monopolist bears the risk of the uncertain consequences created by its exclusionary acts. Thus, at the least, equitable relief properly goes beyond merely "undoing the act"; the proper relief is to eradicate all the consequences of the act and provide deterrence against repetition; and any plausible doubts should be resolved against the monopolist.²⁸

As discussed, but not decided, in the Commission's unanimous liability opinion, Rambus intentionally destroyed a large volume of documents, including documents regarding Rambus's participation in JEDEC and Rambus's patent prosecution litigation.²⁹ While the Commission found it unnecessary to resolve the spoliation issue for purposes of determining liability, Rambus's alleged spoliation of evidence should not be wholly

27 *United States v. E.I. DuPont de Nemours & Co.*, 366 U.S. 316, 334 (1961) (Commission entitled to decree directing complete divestiture in merger case, to remedy violations of Clayton Act § 7), *quoted in* *Ford Motor Co. v. United States*, 405 U.S. 562, 575 (1972) (upholding divestiture and various other injunctive provisions in Commission order in §7 case).

28 III PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* 653f (2d ed. 2002).

29 Rambus Liability Opinion at 115-18.

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ignored for remedy purposes. Rambus destroyed contemporaneous records that might have corroborated Complaint Counsel's position on remedy. In particular, on July 17, 2000, Rambus Vice President and in-house counsel Neil Steinberg instructed Rambus executives to destroy all documents, other than executed contracts, that referred or related to patent licensing negotiations.³⁰ Clearly, such records would have been particularly relevant to the Commission's consideration of what the real world might have looked like and, thus, what the "but for" world should be. Instead, Rambus's systematic and successful document destruction campaign has enhanced doubts regarding how DDR2 should be treated in the "but for" world.

The proper relief in this case must eradicate all consequences of Rambus's exclusionary conduct. Rambus's monopoly power with respect to DDR2 is reasonably related to Rambus's exclusionary conduct. Because "any plausible doubts" are to be resolved against Rambus - especially doubts exacerbated by Rambus's destruction of documents - the Commission may extend its remedy to DDR2.

D. Marketplace Realities: A DDR2 Remedy Will More Effectively Restore Competition

Enforcement litigation in complex antitrust cases presents an inherent paradox: by the time any remedy is achieved, the market may have moved on. This is especially true in fast-moving technology markets. The *Rambus* case was worthwhile, irrespective of remedial issues, because the Commission's unanimous liability opinion will provide valuable guidance.³¹

30 CX 5020(July 17, 2000 email from Neil Steinberg to "exec"). This directive was issued after Rambus had begun to enforce its patents against DRAM manufacturers and only days before Rambus filed an additional enforcement action against Infineon.

31 Cf. *United States v. Microsoft Corp.*, 253 F.3d 34,48-49 (D.C. Cir.), *cert. denied*, 534 U.S. 952 (2001):

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But having said that - and given that the Commission *can* rightfully reach DDR2 - the Commission *should* do so.

It is impossible to ignore what has happened in the SDRAM marketplace since the Commission voted out its administrative complaint in June 2002. The market is now rapidly migrating to DDR2. Therefore, the Commission's remedial order applies only to products that soon will be obsolete. A quick check of retail websites of major computer system manufacturers confirms that even entry-level computers targeted to the price-sensitive consumer segment of the market overwhelmingly feature DDR2 components.³² It has been projected that DDR2 will achieve a market share of over 77 percent of DRAM revenues in 2007, and over 84 percent by 2008.³³

[It] is somewhat problematic ... that just over six years have passed since Microsoft engaged in the first conduct plaintiffs allege to be anticompetitive. As the record in this case indicates, six years seems like an eternity in the computer industry. By the time a court can assess liability, firms, products, and the marketplace are likely to have changed dramatically. This, in turn, threatens enormous practical difficulties for courts considering the appropriate measure of relief in equitable enforcement actions, both in crafting injunctive remedies in the first instance and reviewing those remedies in the second.... [But we] do not mean to say that enforcement actions will no longer play an important role in curbing infringements of the antitrust laws in technologically dynamic markets, nor do we assume this in assessing the merits of this case. Even in those cases where forward-looking remedies appear limited, the Government will continue to have an interest in defining the contours of the antitrust laws so that law-abiding firms will have a clear sense of what is permissible and what is not.

32 As of January 2007, the lowest-priced "home and home office" desktop computers from Dell, Hewlett Packard, Gateway, and Apple all featured DDR2 SDRAM, according to their retail websites.

33 Semico Research Corp., *Computing Applications Dominate DRAM Volume: The Growth of White Box*, Appx. Table 6 (June 2004, Report No. VM-102-04). According to this report, DDR2 DRAM has been projected to account for nearly \$25 billion out of a total of \$32.2 billion in DRAM revenues in 2007, and \$33.6 billion out of \$39.9 billion in 2008.

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If the Commission's remedy does not reach DDR2, it will fail to eradicate the lingering effects of Rambus's illegal conduct.³⁴ Consumers deserve more effective and complete relief, wherever possible. Complaint Counsel correctly assert³⁵ that a DDR2 remedy would help to "creat[e] a breathing spell during which independent pricing might be established without the hang-over of the long existing pattern of [anticompetitive conduct]."³⁶ By extending the remedy to DDR2, the Commission would give the market an opportunity to consider alternative technologies for DDR3 and subsequent standards.

E. Unjust Enrichment and Deterrence: Rambus Should Not Be Allowed to Profit From Its Unlawful Conduct

A remedy that fails to reach DDR2 will leave Rambus free to extract royalties on sales of a vast majority of JEDEC-compliant components currently, and soon to be, in the SDRAM marketplace. If Rambus is allowed to keep all of its DDR2 royalties on a going-forward basis, Rambus's exclusionary conduct will continue to be rewarded, as it already has been. This constitutes unjust enrichment, which is unfair to consumers.

It also may hamper effective deterrence, which should be one of the primary objectives of any remedy. As Areeda and Hovenkamp state, "the goal of antitrust remedies is general deterrence, not simply destruction of a single monopoly for

34 "A public interest served by such civil [antitrust] suits is that they effectively pry open to competition a market that has been closed by defendants' illegal restraints. If this decree accomplishes less than that, the Government has won a lawsuit and lost a cause." *Int'l Salt Co. v. United States*, 332 U.S. 392, 401 (1947), *quoted in* *Ekco Products Co.* 1964 FTC LEXIS 115, 125 (1964)

35 CCBP at 18.

36 *Assoc. of Conference Interpreters*, 123 F.T.C. 465, 659-60 (1997) (quoting *FTC v. Nat'l Lead*, 352 U.S. 419, 425 (1957)).

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whatever social good that in itself might impose."³⁷ The Commission has sent a strong message in its liability opinion, and most participants in standard-setting organizations will take this message to heart. But the bottom-line result of the Commission's remedy is this: Rambus will continue to reap financial benefits that are reasonably related to its successful subversion of JEDEC's standards.

37 III AREEDA & HOVENCAMP, *supra* note 28, at ¶710b4(C).

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**STATEMENT OF COMMISSIONER J. THOMAS ROSCH,
CONCURRING IN PART AND DISSENTING IN PART****I.**

I concur in Parts I, II and IV of the majority decision, with the exception of the above zero royalty rate licensing provisions of the majority's decree that are described in Part IV — of the decision.¹ I respectfully dissent from Part III of the decision and from those above zero royalty rate provisions of the decree.

With respect to the majority's discussion of the Commission's remedial authority in Part II of its decision, I would only add that the Section 2 violation the Commission has found is a *continuing* violation of Section 2. The Commission found not just that Rambus engaged in a deceptive course of conduct, but that Rambus obtained enduring monopoly power by virtue of that deceptive course of conduct. Rambus continues to exploit that monopoly power by seeking royalties from those who practice the SDRAM and DDR-SDRAM standards. When a monopoly position is wrongfully acquired, exploitation of that monopoly position constitutes monopolization violative of Section 2.² Thus, by continuing to exploit its unlawfully acquired monopoly position, Rambus is engaging in a continuing violation of Section 2.

1 This opinion uses the same abbreviations used in the majority opinion.

2 See *In re American Cyanamid Co.*, 72 F.T.C. 623,690 (1967), *aff'd* *Charles Pfizer & Co. v. Federal Trade Commission*, 401 F.2d 574, 579-80 (6th Cir. 1968) (upholding Commission finding that defendants engaged in attempted monopolization by exploiting a patent acquired by withholding information from the Patent Office); *see also* *Warner-Lambert Co. v. Federal Trade Commission*, 562 F.2d 749,766, note 3 (D.C. Cir. 1977) (dissenting opinion) (distinguishing between an order eliminating the effects of a violation from an order stopping a continuing violation and stating with respect to the latter that while "[a] legally obtained patent permits a valid monopoly for the period of the patent; an illegally obtained patent shelters an invalid monopoly which can be 'broken up' by requiring the patent holder to license its patents to competitors.").

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Rambus does not deny that when there is a continuing violation, the Commission can issue whatever order is reasonably necessary to stop the violation from continuing. For example, Rambus admits that when a merger violates Section 7 of the Clayton Act, the Commission is not limited to enjoining future acquisitions violative of Section 7, but can order divestiture of the merged assets.³ This admission is not gratuitous. Courts may issue whatever order is reasonably necessary to stop a monopolist from continuing to exploit its unlawfully acquired monopoly power. There is no principled reason why the Commission's power to remedy a Section 2 violation should be more cramped than the remedial authority of a district court to deal with such a continuing violation.

I agree with the majority's discussion in Part II — of the legal principles governing the Commission's authority to order royalty free licensing. Specifically, I acknowledge that there are significant limiting principles on the Commission's power to require royalty-free licensing. First, as the majority states, that remedy cannot go beyond what is reasonably necessary to stop a continuing violation of Section 2 and/or to terminate the ill effects of the violation.⁴ That means in this case that the Commission must conclude on the basis of the record that in the "but for world" - *i.e.*, the world that would have existed had Rambus not engaged in its deceptive course of conduct - Rambus would not have obtained any royalties. The parties agree on this limiting principle.⁵

3 See RRB at 1.

4 See *Ford Motor Co. v. United States*, 405 U.S. 562, 573 n. 8 (1972); *Reynolds Metals Co. v. Federal Trade Commission*, 309 F.2d 223, 231 (D.C. Cir. 1962).

5 See CCB at 1; RBR at 6; RRB at 1.

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Second, as the majority says, there is a spectrum of remedies with controls on conduct at one end and structural measures such as divestiture at the other end. The Commission should impose an order based on the record which is as close to the "conduct" end of the spectrum as possible so long as that remedy will insure that Rambus cannot continue to exercise its monopoly power and/or retain the fruits of its violation. That means that, having determined what the "but for world" would have looked like, the Commission must consider whether there is a more "conduct-like" remedy than royalty-free licensing which will reflect the conditions of the "but for world."

Third, the majority is correct in asserting that there must be "special proof" of the need for that remedy. Rambus is also correct that Complaint Counsel bears the burden of proving what the "but for world" would have looked like.⁶ Rambus's counsel conceded at oral argument that it is unclear what proof would suffice.⁷ Areeda and Hovenkamp state that where the relief sought is necessary "to eradicate all the consequences of the act, . . . any plausible doubts should be resolved against the monopolist."⁸ That said, however, I agree that there must be strong proof that Rambus would not have reaped royalties in the "but for world" in order to support royalty-free licensing, and that proof must substantially outweigh the evidence of the "but for world" proffered by Rambus.⁹

6 See 16 C.P.R. § 3.43 (a).

7 Oral Argument before the Commission on the Issue of Remedy (Nov. 15, 2006), at 70-71.

8 AREEDA & HOVENKAMP, ANTITRUST LAW ¶ 653(f), at 104 (2002).

9 The majority expresses itself somewhat differently, concluding that "Complaint Counsel must show that this form of relief is necessary to restore competitive conditions that would have prevailed absent Rambus's misconduct." Majority Opinion at 10. I do not discern any daylight between our views in this respect. Under both formulations, Complaint Counsel must bear the ultimate burden of proving that the compulsory licensing remedy they seek is needed to restore the conditions that would have existed but for Rambus's misconduct.

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II.**A.**

To begin with, it bears emphasis that the parties have stipulated to three points related to the appropriate remedy.¹⁰ First, assuming the Commission's remedial authority extends beyond entry of an order requiring Rambus to cease and desist engaging in deceptive conduct, the Commission must seek to restore conditions to those that would have existed in the "but for world." Second, the remedy should address only patents with respect to JEDEC-compliant products. Third, the Commission should adopt a remedy expeditiously and based on the existing record. The third stipulation is especially important here, reinforcing the Commission's obligation to insure that the remedy adopted is firmly grounded in the record. Based on the record before the Commission in this case, I would issue a royalty-free decree more limited in scope than that sought by Complaint Counsel, ordering Rambus to license its technologies royalty free to those practicing JEDEC's SDRAM and DDR SDRAM standards. I therefore respectfully dissent from the majority's decree in that respect.

B.

Rambus insists that the fact that JEDEC adopted standards incorporating its four patented technologies establishes that JEDEC and its members preferred those technologies over alternatives and that this preference would have enabled Rambus to obtain substantial royalties in the "but for world."¹¹ Complaint Counsel, on the other hand, insist that the Commission has already found that but for Rambus's deceptive course of conduct, JEDEC would have selected unpatented technologies over

¹⁰ See RRBR at 1, CCBP at 1, 23-24.

¹¹ See RBR at 3-4, 8, 22; RRBR at 9-10.

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Rambus's patented technologies.¹² Both sides overstate the record and the Commission's earlier findings.

Rambus's argument that JEDEC and its members would have selected its technologies even if they were fully informed about Rambus's patents and patent applications is not supported by the fact that they did so when they were *not* informed about those patents and patent applications. On the other hand, Complaint Counsel are wrong in asserting that the Commission has already concluded that a fully informed JEDEC and its members would not have incorporated the patented technologies in the standards. The Commission has, to be sure, concluded that Rambus failed to establish that the costs of alternatives exceeded the costs of Rambus's patented technologies, but in that analysis the Commission included as a portion of Rambus's costs the royalties Rambus has been demanding.¹³ The Commission did not hold that a fully-informed JEDEC would have adopted the alternatives if Rambus's technologies were demonstrably superior to them on a net cost/performance basis. Thus, I reject both of these contentions.

C.

However, there is strong evidence in the record that if JEDEC had been aware of the potential scope of Rambus's patent portfolio, it would have adopted standards that would have avoided Rambus's patents. JEDEC's rules, the expectations of its membership, and the market's concerns with costs generally and the cost of Rambus's technologies in particular all strongly support a finding that a fully informed JEDEC would have adopted standards that did not read on Rambus's patents.

JEDEC's written policies reflected deep concern with incorporating patented technologies into standards.¹⁴ Those

¹² See CCBR at 4-5.

¹³ See Op. at 95-96.

¹⁴ See CX 207a at 8 (1990 EIA Style Manual that governed standards issued by JEDEC [one of EIA's units], stated that JEDEC should "[a]void

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concerns were echoed by JEDEC's members who repeatedly testified about their opposition to incorporating patents into JEDEC standards.¹⁵ The record demonstrates that the consensus needed to adopt Rambus's patented technologies could not have been achieved because some of JEDEC's most powerful members (*e.g.*, Sun Microsystems) were especially loathe to adopt patented technologies.

The record also demonstrates that JEDEC's membership was particularly concerned with incorporating technologies into JEDEC's standards that could potentially read on Rambus's patents. JEDEC members testified that if they had known of Rambus's patents and patent applications at the time, they would not have voted to incorporate those technologies into the

requirements in EIA standards that call for the exclusive use of a patented item or process"); CX 208 at 19 (1993 JEDEC Manual of Organization stated that "committees should ensure that no program of standardization shall refer to a product on which there is a known patent unless all of the relevant technical information covered by the patent is known"); JX 53 at 11 (1993 EIA Manual stated that "[r]equirements in EIA Standards which call for the use of patented items should be avoided"); *see also* JX 5 at 4 (JEDEC minutes stated, "If it is known that a company has a patent on a proposal then the Committee will be reluctant to approve it as a standard."); J. Kelly, Tr. 2073-2074 ("JEDEC, however, is concerned and I said before that JEDEC and EIA do not have a preference for including intellectual property in standards because of the fact that there may be a royalty that may increase the cost. The goal is always to try to produce a standard which is going to gain marketplace acceptance, and if the cost of the product is going to -- is likely to be increased by intellectual property, that's a general concern. That doesn't go to the licensing terms, however. That goes to the basic question of whether to include the IP at all or not.").

15 *See* Bechtelsheim, Tr. 5813-14; *see also* Sussman, Tr. 1417 (Sanyo's JEDEC representative testified, "If I understood that there was IP on the programmable, I would have voted- changed my direction and voted to take the fixed one."); G. Kelley, Tr. 2576 (IBM's JEDEC representative noting that "[p]atent issues are a concern on every JEDEC proposal" and that when a technology was considered for the first time "it was especially valuable to have the consideration of patents so that we could possibly avoid them").

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standard.¹⁶ That testimony is consistent with the real world behavior of JEDEC and its membership. For example, several members objected to a proposal for the DDR SDRAM standard because they were concerned that it might be covered by Rambus's '703 patent - the one patent that Rambus had disclosed while it was a member of JEDEC.¹⁷ JEDEC immediately dropped the proposal and turned to consideration of technologies that it believed avoided Rambus's patent.¹⁸ Another example was the reaction of the marketplace to Rambus's proprietary DRAM standard- RDRAM. Rambus failed in its efforts to position RDRAM as the de facto market standard, at least in part, because the DRAM manufacturers' concerns about cost led them to adopt standards that they believed were not proprietary.¹⁹

Rambus tried to rebut this evidence by pointing to evidence that JEDEC sometimes adopted patented technologies into its

16 See, e.g., Landgraf, Tr. 1714 (liP's JEDEC representative testified that if Rambus had disclosed its patent applications, and "[i]f we knew in advance that they were not going to comply with the JEDEC patent policy, we would have voted against it"); Lee, Tr. 6686, 6717 (Micron's JEDEC representative testified that knowledge of Rambus's patent applications would have caused Micron to oppose on-chip PLL/DLL and dual-edge clocking).

17 See JX 36 at 7; Lee, Tr. 6695-96 ("Many other people in the room also objected. There was a variety of comments from quite a few people from the committee who were -- strongly objected to the consideration of this proposal for the standard").

18 See Rhoden, Tr. 527-28; CX 368 at 2 (Micron presentation to JEDEC proposing an alternative standard to avoid Rambus's technology noted that "[l]oop-back strobe could have intellectual property problems"). Rambus would have the Commission ignore JEDEC's rejection of its patented technology because it occurred after Rambus left JEDEC. Rambus argued that at that point JEDEC could not seek or enforce a RAND commitment from Rambus. There is nothing in the record to suggest that JEDEC could seek or enforce a RAND commitment only from its members.

19 See CX 961 at 1 (September 1997 Intel e-mail to Rambus CEO Tate stating the concern that, for at least the low end of the market, "absolute cost is the critical factor" and alternatives "need not be equivalent performance," and warning that, upon analyzing the royalty obligations attached to RDRAM, the industry would develop alternatives); RX 1482 at 12.

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standards after it received RAND assurances.²⁰ However, in all but one instance (Mosaid, whose patents were not essential to the standard), the evidence shows that the holders of those patents were, unlike Rambus, manufacturers, and that JEDEC viewed manufacturers differently from non-manufacturers, believing that the former had incentives to cross-license their technology for *de minimis* or no royalties.²¹ Thus, it does not follow that because JEDEC was willing to adopt the technologies of those manufacturer patent holders it would have been willing to do so in Rambus's case.

It is also suggested that the testimony of JEDEC members should not be credited because their testimony is, *inter alia*, "necessarily speculative even if sincere."²² However, in the context of mergers the Commission has embraced unimpeached

20 See JX 1 at 6 (DEC's patented technology was incorporated into the SDRAM standard after DEC agreed in writing to a 1% royalty); JX 13 at 9, 136 and CX 54 at 8 (Motorola's patented technology was incorporated into the standard after it agreed to RAND terms); JX 19 at 12, 28 (JEDEC adopted a standard that could incorporate a Texas Instruments patent. Several members had voiced concerns but those concerns were assuaged after Texas Instruments wrote that "a review of TI's patent makes clear that, while the TI patent presents advantages in making Quad CAS memories, it is not essential."); CX 400 at 2 (JEDEC adopted a standard that incorporated Mosaid's patent after Mosaid stated that it would license its technology on RAND terms); Sussman Tr. 1423-1424 (Mosaid also stated that its patent applied only to particular implementations of the technology and consequently "you can design around it").

21 See Lee, Tr. 6717 ("We have a responsibility in JEDEC to try to avoid the use of patents whenever possible in creating a standard, and also our company has a similar policy, as we try to avoid the use of patents whenever possible. Particularly I'd have to say in the case where Rambus is not a manufacturer, it wouldn't have even been a situation where we could have cross-licensed. So, we would have been strongly opposed [to using the technology in the standard]."); G. Kelley, Tr. 2640-41 ("I believe that IBM was concerned, ... with licensing the royalties for companies that it was not cross-licensed with."); see also McAfee, Tr. 7493-94.

22 See Majority Opinion at 16.

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customer testimony as powerful evidence of the "but for world."²³ Where, as here, customer testimony is not only given under oath but is supported by the actions of the customers before the controversy has arisen, and is otherwise unimpeached, there is no reason not to credit it. Although it is also said that the testimony of JEDEC's members is contrary to their agreement "to incorporate patented technologies into the SSO's standard in several instances," that is not supported by the record respecting the actions of JEDEC's members where Rambus or companies like Rambus that were pure inventors (as contrasted with manufacturers) were involved.²⁴

In short, the record seems to me strongly to support the conclusion that in the "but for world" JEDEC and its principal stakeholders (the DRAM manufacturers), if fully informed about Rambus's patents and pending patents, would not have incorporated Rambus's technologies in the SDRAM and DDR SDRAM standards. In a world with alternative technologies, which was the real world here,²⁵ Rambus would not be in a position to collect royalties from those practicing those standards. That conclusion in turn would support a decree requiring Rambus to license on a royalty-free basis the patents that were not disclosed to those practicing the SDRAM and DDR SDRAM standards.

D.

It also seems to me that on this record there is no remedy which comports with the "but for world" but which, at the same

23 See Deborah Platt Majoras, Chairman Federal Trade Comm'n, "Recent Actions at the Federal Trade Commission," Remarks Before the Dallas Bar Association's Antitrust and Trade Regulation Section at 2 n. 4 (January 18, 2005) available at <http://www.ftc.gov/speeches/majoras/050126recentactions.pdf>.

24 See Majority Opinion at 16.

25 See Op. at 76 (discussing the presence of alternative technologies at the time JEDEC made its standard decisions).

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time, is closer to the "conduct" end of the remedy spectrum than is the limited compulsory licensing remedy I would adopt. Rambus claims otherwise, contending that the evidence respecting the "but for world" described above is outweighed by evidence of a "but for world" in which Rambus and a fully informed JEDEC and its members would have agreed to licenses of Rambus's patents at royalty rates above zero. I do not agree.

Specifically, Rambus argued that, at a minimum, in the "but for world" it would be able to collect a 2.5% royalty from those practicing JEDEC's SDRAM and DDR SDRAM standards.²⁶ Rambus's claims about the "but for world" are threefold. First, Rambus asserts that if it had disclosed its potential patent portfolio, JEDEC would have requested a RAND commitment from Rambus ("commitment to license its technology on reasonable and non-discriminatory terms), and Rambus would have obliged.²⁷ To be sure, JEDEC policies permitted (but did not require) JEDEC to incorporate patented technologies into its standards when RAND commitments were given.²⁸ However, the record shows that Rambus was strongly opposed to RAND terms because they were contrary to its business model.²⁹ There is also

²⁶ See RBR at 3-4.

²⁷ See RBR at 10-11; RRBR at 9-10.

²⁸ See ex 208 at 27 (1993 JEDEC Manual of Organization and Procedure states that "[s]tandards that call for use of a patented item or process may not be considered by a JEDEC committee unless all of the relevant technical information covered by the patent or pending patent is known to the committee, subcommittee, or working group," and the patent holder submits written assurance that it will license without charge or under "reasonable terms and conditions that are demonstrably free of any unfair discrimination"); see also J. Kelly, Tr. 1885-86; ex 208 at 19 (noting that "the word 'patented' also includes items and processes for which a patent has been applied and may be pending"); ex 203a at 11 (1981 EIA Manual); ex 207a at 8 (1990 EIA Manual) (1990); JX 55 at 28 (1995EIA Manual).

²⁹ See ex 873 ("Rambus Inc. cannot agree to the terms of the JEDEC patent [licensing] policy"); ex 874 ("the patent [licensing] policy of JEDEC does not comport with our business model"); ex 888 ("Rambus plans to

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evidence that on at least two occasions, Rambus made it clear that it would not commit to RAND terms in the standard setting context.³⁰

Rambus urged the Commission to ignore what it said because its statements and documents do not mean what they say. It cites testimony from its expert, Dr. Teece, that Rambus had every incentive to commit to RAND terms.³¹ However, Dr. Teece's

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"); Diepenbrock, Tr. 6228-29 ("RAND terms [were] inconsistent with Rambus's existing business practices").

30 Rambus's June 17, 1996 letter resigning from JEDEC stated that "Rambus plans to continue to license its proprietary technology on terms that are consistent with the business plan of Rambus." ex 887; see ex 3129 at 488-489 (Vincent). The IEEE, another SSO working on DRAM, sought to get a RAND commitment from Rambus for its RamLink and SyncLink standards. See CX 487 (letter from an IEEE standards committee asking Rambus whether a proposed standard infringed on any of Rambus's patents and if so whether Rambus was willing to commit to RAND licensing terms.). In noting that it was not a member of the IEEE, Rambus refused to make a RAND commitment. See CX 855 (Rambus's letter responding that it will "continue to license its technology in accordance with [Rambus's] existing business practices."); CX 853 ("draft of Rambus's response made its position on RAND even clearer, "Rambus will not, however, issue the letter of assurance that you have requested regarding a non-discriminatory license. Indeed, Rambus is offering no such license. Rambus reserves all rights to enforce its intellectual property on whatever terms Rambus decides."); see also CX 490; CX 869.

31 Teece, Tr. at 10341-10351. Dr. Teece's testimony assumed that Rambus would have been desperate to be included in JEDEC's standards because Rambus would have been left with nothing if they were left out of those standards. Yet at the time those standards were adopted, it was not clear that they would be the marketplace standards. Thus in the "but for world" Rambus would not have been desperate to be included in JEDEC's standards. See, e.g., Macri, Tr. 4620-21 (discussing CX1315, he states, "[U]sually in the DRAM world, there is only one choice. You know, it's not a matter of what; it's a matter of when. So, users, they can plan their transition based on their own--you know, their own internal decision-making process, plan their transition to meet their own business needs. The suppliers, they know making the investment up front is going to be realized, because they know the users will eventually move over. It may not all be at once, but over a period of time, they can count on the market slowly building up. In this particular case [when both

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testimony was the only evidence in the record that contradicted the position staked out in Rambus's documents and the testimony of its own executives that it would not consent to licensing on RAND terms. Rambus's counsel could not cite the testimony of a single percipient witness, nor a single document in the record, to support its position that Rambus would have offered a RAND commitment.³² Thus, while it is arguable that, as a matter of logic, Rambus might have accepted something rather than nothing, it is another matter to say that is what would have happened in a "but for world" when there is no *factual evidence* to support that conclusion.

The record also shows that Rambus was willing to act contrary to its own self-interest in setting its RDRAM royalty rates; its RDRAM royalty rates were substantially above those that the industry participants like Intel felt were necessary to make RDRAM successful.³³ Moreover, it is not clear, even as a matter of logic, that committing to RAND terms for SDRAM and DDR SDRAM would necessarily have been in Rambus's self-interest. The record shows that Rambus considered RDRAM to be its

DDR SDRAM and RDRAM could have become the dominant standard], there were two choices, and it was very unclear which way the world would go.")

32 See Oral Argument before the Commission on the Issue of Remedy (Nov. 15, 2006), at 60-61. The assertion was made that Dr. Teece's testimony about Rambus's incentives to agree to RAND terms in the "but for world" was uncontroverted. See *id* at 59-61. But see McAfee, Tr. 11311 ("In my understanding of Rambus's business strategy -- and I should say the business strategy that one uses in the 'but for world' should mimic the business strategy one sees in the actual world, and so the actual business strategy would be the relevant strategy -- I see not a certainty but a significant likelihood that Rambus would refuse to issue a RAND letter. In fact, I think more likely than not they may refuse to issue a RAND letter, based on their business strategy.").

33 See CX 952 (Rambus executive Geoff Tate reported in an email that "they [Intel] want us to have license deals that reward time to market, etc (old request) AND have long term reduction of royalty based on volume going to less than Y2% [0.5%] for rdrms ("t this point i choked/gasped)").

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flagship technology.³⁴ A RAND commitment in return for the incorporation of Rambus's technology into JEDEC's standards would have been counter to Rambus's economic interest because it would have facilitated the acceptance of SDRAM and DDR SDRAM, rather than RDRAM, as the dominant industry standard.³⁵

34 See ex 533 at 9-10; ex 535 at 1, 4-5; ex 543a at 11-12, 16; Farmwald, Tr. 8204-8205.

35 The majority reasons that since the adoption of SDRAM and DDR SDRAM standards was inevitable, RDRAM would not have been disadvantaged if Rambus made a RAND commitment to license its SDRAM and DDR SDRAM technology at royalties limited to the "value added" of those technologies. See Majority Opinion at 14. But the record shows that is not how Rambus felt. Rambus expressly rejected a RAND commitment because it "does not comport with our business model." See sources cited *supra* note 30. That is not surprising. However "inevitable" the adoption of the SDRAM standards was, there is nothing in the record to support a hypothesis that it was inevitable that those standards, instead of RDRAM, would be the dominant standards. Had Rambus offered a low royalty rate for its SDRAM and DDR SDRAM technologies, it not only would have been competing against itself (*i.e.*, against its higher RDRAM royalty rates) but it would have insured that the SDRAM standards, instead of RDRAM, would become the dominant standard.

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Second, Rambus contends that in the "but for world" it would have been able to negotiate royalties that would "compensate it for the incremental value of its patented inventions over the alternatives."³⁶ However, there is no evidence that JEDEC or its members had ever negotiated a royalty rate based on a patented technology's "incremental value" *ex ante* in return for incorporating a patented technology into its standards. Nor is there evidence that JEDEC or its members even had the expertise to do that.

Beyond that, the evidence relied on by Rambus to support this argument was shown to be unreliable and without foundation. Rambus's expert, Dr. Rapp, presented a cost-benefit analysis that purported to show that Rambus's patented technologies had "incremental value" as compared with alternative technologies.³⁷ Rambus used that to argue that it should be compensated for that "incremental value." However, Dr. Rapp's testimony was rooted in the opinion of Rambus's cost expert, Mr. Geilhufe. Mr. Geilhufe's cost estimates were largely without foundation - he admitted that in formulating those estimates he failed to review JEDEC records, interview JEDEC members or review cost information from DRAM manufacturers.³⁸ He also admitted that he had no identifiable methodology, much less one with general acceptance among DRAM developers and manufacturers, and that there was no way to test his conclusions.³⁹ Thus, it appears that his testimony did not measure up to the standards for expert testimony described by the Supreme Court in *Kumho Tire Co. v. Carmichael*.⁴⁰ Rambus's reliance on a flawed cost-benefit

36 RBR at 10.

37 Rapp, Tr. 9815-9827.

38 Geilhufe, Tr. at 9617-23.

39 Geilhufe, Tr. at 9622, 9665-9666.

40 526 U.S. 137, 149-150 (1999).

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analysis is juxtaposed against Complaint Counsel's "but for world" that is supported by contemporaneous documents and testimony and buttressed by the testimony of their experts.

Mention is made that Complaint Counsel did not submit a cost-benefit analysis of their own. Insofar as that is considered to undercut Complaint Counsel's challenge to Rambus's position that it would have been compensated for the "incremental value" of its technology in the "but for" world, the contention fundamentally misconceives of the way that a fact is proved at trial. One way to prove what would have happened in the "but for world" is by the submission of direct evidence. However, there is no such direct evidence of what would have happened had Rambus fully informed JEDEC and its members of its patent and patent applications because Rambus did not do so. Hence, the "but for world" must of necessity be proved by circumstantial evidence.⁴¹

One kind of circumstantial evidence is an after-the-fact cost-benefit analysis by an expert witness. However, it is only one kind. Complaint Counsel were not obligated to submit the same kind of circumstantial evidence, and that is especially true here. Rambus having failed to show that JEDEC would (or could) conduct an *ex ante* cost-benefit analysis and Complaint Counsel having impeached the after-the-fact analysis submitted by Rambus, there was no need for Complaint Counsel to submit a dueling cost-benefit analysis. Complaint Counsel could submit the other forms of circumstantial evidence that they did - *i.e.*, evidence of the contemporaneous views and actions of JEDEC and its members vis-a-vis patented technologies and of Rambus's antipathy toward a RAND commitment - in order to prove the ultimate fact regarding what would have happened in the "but for world." In short, there is no basis in the record for concluding that JEDEC would have embraced Rambus's technology in any event.

41 See *In re Citric Acid Litig.*, 191 F.3d 1090, 1093 (9th Cir. 1999).

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Third, Rambus argues that the best record evidence of the royalty rate that it would have charged after an *ex ante* negotiation with JEDEC members is the 2.5% royalty rate for "other DRAM" in its 1995 RDRAM license agreement with Hyundai.⁴² However, the Hyundai agreement was predominantly a *RDRAM* license agreement and the record provides little context for the negotiation of that clause.⁴³ For example, as the majority opinion points out, the 2.5% figure may have been inflated as a result of trade-offs with other aspects of the license.⁴⁴ There is also evidence in the record that this provision was nothing more than "insurance" against what Hyundai considered improbable claims by Rambus based on other unknown patents.⁴⁵ Finally, the "other DRAM" clause was unique to the Hyundai agreement, and it was not retained by Hyundai when it renegotiated its license with Rambus.

E.

Nor can I subscribe to the royalties above zero that are ordered in the majority's mandatory licensing decree. Specifically, the decree would order Rambus to license its SDRAM technologies to DRAM manufacturers at a royalty rate of .25% and to license its DDR SDRAM technologies to those manufacturers at a royalty rate of .50% for three years, after which the royalty rates would drop to zero; the decree's mandatory rates for controller

42 RBR at 17-18; RRBR at 13. Rambus asserts elsewhere that any attempt by JEDEC members to fix *ex ante* royalty rates collectively would have been in violation of the antitrust laws. See RBR at 23-25.

43 See CX 782; CX 711 at 61-63.

44 See Majority Opinion at note 139.

45 See CX1599 ("Semiconductor Technology License Agreement between Hyundai Electronics Industries Co., Ltd. and Rambus, Inc." dated December 1995); CX2107 at 84-85, 91-96, 99-102 (Oh FTC Dep.) (*in camera*).

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manufacturers and others would be 2x those rates.⁴⁶ Those royalty rates represent an 80% discount for DDR SDRAM and a 90% discount for SDRAM from the rates proposed by Rambus. Those above zero royalty rates are arguably a more "conduct-like" remedy than the limited zero based royalties I favor ("t least for three years). However, I am mindful of the Supreme Court's admonition that "each case arising under the Sherman Act must be determined upon the particular facts disclosed by the record."⁴⁷ I am also mindful of Rambus's admonition that the Commission should not involve itself in speculative price administration.⁴⁸ The decree's above zero royalty rates, and the underlying premise that in the "but for world" Rambus would have agreed to them *ex ante*, seem to me to be contrary to the record as it relates to Rambus's positions and conduct.

First, the decree's royalty rates above zero assume that Rambus would have agreed *ex ante* (i.e., in 1996 and 2000 respectively when Rambus technology was incorporated into JEDEC's SDRAM and DDR SDRAM standards) to RAND terms. As discussed above, Dr. Teece, who was not a percipient witness, is the sole support in the record for this assumption; the record established that Rambus insisted both privately and publicly it would not commit to RAND terms; and Dr. Teece's opinion that, notwithstanding those repeated declarations, Rambus would not

46 The royalty rates for controllers and devices other than DRAMs are extrapolated from royalties that Rambus negotiated with DRAM manufacturers if and to the extent that those manufacturers also made controllers or other downstream devices. There is no basis in the record for determining royalty rates for independent manufacturers of controllers or other downstream devices.

47 *Maple Flooring Mfg. Ass'n v. United States*, 268 U.S. 563, 579 (1925); *see also Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 467 (1992)

48 *See RBR* at 15, (citing Judge (now Justice) Breyer's decision in *Town of Concord, Mass. v. Boston Edison Co.*, 915 F.2d 17,25 (1st Cir. 1990) and *United States v. Addystone Pipe & Steel Co.*, 85 F. 271,283-84 (6th Cir. 1898).

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have acted contrary to its self-interest, is contrary to its RDRAM pricing conduct.⁴⁹ Rambus's fundamental goal was to make RDRAM the industry standard. A RAND commitment to JEDEC would have made it even more difficult for Rambus to get the industry to adopt its competing product - RDRAM - as the marketplace standard.⁵⁰

Second, the decree's above zero royalty rates use RDRAM royalty rates as the starting point for calculating *ex ante* "reasonable" royalty rates for SDRAM and DDR SDRAM.⁵¹ However, Rambus has repeatedly asserted that RDRAM rates are not appropriate benchmarks to use in calculating SDRAM or DDR SDRAM royalty rates⁵² because, *inter alia*, the RDRAM rates Rambus negotiated were lower than they would have been had it not been necessary to "jump-start" demand for this new technology in order to make a market for it.⁵³ This contention is supported by the record, which shows that Rambus's initial RDRAM royalty rates started out at 1% in 1991 and rose to 2.5% after RDRAM appeared to gain traction in the market due to

49 See Oral Argument before the Commission on the Issue of Remedy (Nov. 15, 2006), at 60-61; *supra* notes 29-31, 33 and accompanying text.

50 See discussion *supra* pp. 8-9.

51 This assumption is based on a Samsung licensing agreement, which is just one of many different RDRAM licensing agreements in the record.

52 RBR at 21-22; RRBR at 15.

53 See RX 1532 at 1 (Intel timeline "December '95: chose RDRAM as the direction we [Intel] would pursue."); Hampel, Tr. 8677-78 (Rambus saw an increase in customer interest after Intel endorsed RDRAM: "There were more customers interested. We did increase kind of the workload ... to support the effort"); Appleton, Tr. 6345 ("once Intel endorsed [] RDRAM, then the probabilities of customers in the marketplace actually using it increased quite a bit, and as a result, we also then believed that some customers would use RDRAM and that we needed to then engage to negotiate for a license."); CX 2107 at 117 (Oh FTC Dep.) (*in camera*).

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Intel's endorsement of RDRAM in late 1995.⁵⁴ Nor has Complaint Counsel asserted that RDRAM rates are appropriate benchmarks for calculating SDRAM or DDR SDRAM rates. Thus, the use of RDRAM rates as the starting point for calculating SDRAM and DDR SDRAM rates in the "but for world" is not supported by either party.

Third, the decree's royalty rates above zero assume that Rambus would have been willing to agree to *discount* its *lowest* initial RDRAM royalty rate by more than 50% to 75% in calculating "reasonable" SDRAM and DDR SDRAM royalty rates. More specifically, the lowest initial RDRAM royalty rate given to a DRAM manufacturer was 1% and that was given to NEC alone.⁵⁵ The decree's "but for world" royalty rates are .25% for SDRAM manufacturers and .50% for DDR SDRAM manufacturers (or 25% and 50% of NEC's RDRAM royalty rates). Moreover, NEC (and all other RDRAM licensees) were obliged to pay substantial up-front fees in addition to the royalty rate.⁵⁶

54 See RX 538 at 22 (In 1991, NEC was one of the first to license RDRAM. Its agreement with Rambus provided for a 1% rate); CX 1592 at 23 (In November 1994, Samsung licensed RDRAM. Its agreement with Rambus provided for an initial 2% royalty rate on the first ten million units); CX1600 at 12 (In December 1995, Hyundai signed its RDRAM licensing agreement with Rambus. Hyundai agreed to pay an initial 2.5% royalty on sales made between 1995 and 2000); CX 1609 at 11 (In February 1997, Mitsubishi licensed RDRAM from Rambus. That agreement provided for an initial 2.5% royalty until 2000); CX 1617 at 11-12 (Siemens/Infineon signed a RDRAM licensing agreement with Rambus in July 1997. That agreement provided for an initial 2.5% royalty rate.).

55 See sources cited *supra* note 54.

56 See RX 538 at 21 (1991 NEC RDRAM license agreement included a \$2 million up-front license fee in addition to royalties on sales); ex 1592 at 21 (1994 Samsung RDRAM license agreement included a \$3 million up-front license fee); ex 1600 at 11-12 (1995 Hyundai RDRAM license agreement included a \$2 million up-front license fee and \$1.5 million "Design Fee."); ex 1609 at 10 (1997 Mitsubishi RDRAM license agreement included a \$2 million up-front license fee and a \$3.5 million "Direct Rambus DRAM Engineering Fee."); ex 1617 at 11 (1997 Siemens/Infineon RDRAM license agreement included a \$5.5 million up-front license fee and a \$4 million "Engineering Fee.").

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After accounting for those up-front fees, the decree's royalty rates assume that Rambus would have been willing to agree to discount its lowest initial RDRAM royalty rate by *more* than 50%-75% in calculating a "reasonable" royalty rate for JEDEC's principal stakeholders.⁵⁷ As previously discussed, the record shows that Rambus considered RDRAM to be its flagship technology. There is nothing in the record to suggest that Rambus would have been willing to make RDRAM less desirable by giving such better licensing terms to those practicing competitive standards such as SDRAM and DDR SDRAM.⁵⁸

Fourth, the decree's above zero royalty rates assume that, as part of its RAND commitment, Rambus would have agreed not to discriminate against any JEDEC stakeholder in calculating "reasonable" SDRAM and DDR SDRAM royalty rates. The assumption that Rambus would charge all JEDEC stakeholders the same royalty rate is contradicted by the record as it respects Rambus's RDRAM licensing practice. As previously noted, it shows that Rambus's RDRAM license agreements contained initial royalty rates ranging between 1 and 2.5%.⁵⁹

57 See ex 960 (Rambus executive Geoff Tate stated in an email that "i advised clearly that if a chip co wants to license all of our present and future patents for use for any infringing dram, then the only acceptable deal is the royalty on infringing drams must be greater than the royalty on rambus drams.").

58 It is argued that these discounted royalty rates reflect the fact that SDRAM and DDR SDRAM demand has matured and products using those technologies are being manufactured in volume. However, there is no evidence that Rambus would have agreed *ex ante* to such deeply discounted royalty rates based on *current demand* (which was hypothetical in 1996 and 2000).

59 See sources cited *supra* note 54. Rambus asserts elsewhere that any attempt by JEDEC members to fix *ex ante* royalty rates collectively would have been in violation of the antitrust Jaws. See RBR at 23-25.

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Finally, I am not convinced that a royalty rate above zero is more desirable on policy grounds. I take seriously the majority's concerns that a zero-based royalty might stifle innovation and/or participation in SSOs. However, the existence of complete and accurate information in the marketplace can stimulate output and competition.⁶⁰ If that is so, it is equally plausible that honest inventors would be more, rather than less, inclined to innovate if they felt that rivals who engaged in deceptive conduct during the standard-setting process would be denied the fruits of their wrongdoing in their entirety.

Ultimately, I conclude that licensing on terms above zero would enable Rambus to obtain royalties it would not have obtained in the "but for world." That would enable Rambus to continue to reap the fruits of its ongoing violation of Section 2.

F.

Rambus asserts that the Commission has described this conclusion as "extreme."⁶¹ However, that misdescribes the Commission's liability decision. In its decision the Commission described the parties' positions as being at "opposing extremes."⁶² We (or at least I) meant by that that the positions of the parties respecting the royalties Rambus would have obtained in the "but for world" were at opposite ends of the spectrum. On the basis of this record, the limited royalty free license that I favor is not extreme.

60 See *United States v. United States Gypsum Co.*, 438 U.S. 422, 441 n. 16 (1978); see also U.S. DEP'T OF JUSTICE AND FED. TRADE COMM'N, STATEMENTS OF ANTITRUST ENFORCEMENT POLICY IN HEALTH CARE 1-7 (August 18, 1996), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,153.

61 See RBR at 5.

62 See Op. at 119.

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In rejecting Rambus's characterization of the remedy as extreme, I must emphasize that the royalty free licensing order I would issue would not run against any patents in their entirety. To the contrary, as previously discussed, I would only order royalty free licensing with respect to patents reading on SDRAM and DDR SDRAM standards in favor of those who are practicing those standards. Thus, for example, Rambus would be able to collect royalties on any patents reading on DDR2 SDRAM and all other JEDEC standards from those who practice those standards.

III.

I do not wish to exaggerate my differences with the majority. The majority has done its best to try to construct above zero royalty rates. I simply believe that the assumptions the majority has made in doing that are contrary to the evidence in the record - particularly the evidence related to Rambus's positions and conduct - both in terms of whether *ex ante* negotiations would have occurred in the "but for world" and in terms of the royalty rates such negotiations would have yielded. However, if I agreed with the majority's assumptions, I would subscribe to the majority's decree because I agree entirely that the Commission has the authority to issue such a mandatory licensing decree.

Complaint

IN THE MATTER OF

ADVOCATE HEALTH PARTNERS, ET AL.CONSENT ORDER, ETC., IN REGARD TO ALLEGED VIOLATIONS
OF SEC. 5 OF THE FEDERAL TRADE COMMISSION ACT*Docket C-4184; File No. 031 0021**Complaint, February 7, 2007 — Decision, February 7, 2007*

This consent order addresses horizontal agreements to fix prices, engage in collective bargaining, and refuse to deal individually with health plans by competing independent physicians and physician practice groups in the Chicago metropolitan area. Respondents Advocate Health Partners and its members, eight physician-hospital organizations, orchestrated and implemented these agreements; respondents Advocate Health Centers, Inc., and Dreyer Clinic, Inc., participated in the agreements. Respondents' actions restrained price and other forms of competition among physicians; increased prices for physician services; and deprived health plans, employers, and individual consumers of the benefits of competition among physicians. The consent order prohibits respondents from entering into or facilitating any agreement among physicians with respect to their provision of physician services, exchanging information among physicians concerning any physician's terms or conditions of dealing with a payor, attempting to engage in any of these prohibited actions, or attempting to induce any person to engage in any of these actions. In addition, for three years from the date of this order, respondents shall notify the Commission before entering into any arrangement to act as a messenger or as an agent on behalf of any physicians with payors regarding contracts. Also, for three years, respondents shall notify the Commission before participating in contracting with health plans on behalf of a qualified risk-sharing joint arrangement or a qualified clinically integrated joint arrangement.

Participants

For the Commission: *John P. DeGeeter, Connie Salemi, Garth Huston, Jonathan Lutinski, and Daniel P. Ducore.*

For the Respondents: *Robert Leibenluft, Sharis Pozen, and Tracy Weir, Hogan & Hartson L.L.P. ; and John Marren and Thomas J. Babbo, Hogan & Marren, Ltd.*

COMPLAINT