In the Matter of Rambus, Inc.
Docket No. 9302

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 B 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.

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

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[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.").

[3] *See* RRBR at 1.

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 B 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]

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

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[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* CCBR at 1; RBR at 6; RRBR at 1.

[6] *See* 16 C.F.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).

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]

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 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

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[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.

[10] *See* RRBR at 1, CCBR at 1, 23-24.

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

[12] *See* CCBR at 4-5.

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 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

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[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 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").

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 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 standards after it received RAND assurances.[20] However,

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[16] *See, e.g.*, Landgraf, Tr. 1714 (HP'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.

[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

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 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

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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.

[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).

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 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 (a 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 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]

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[26] *See* RBR at 3-4.

[27] *See* RBR at 10-11; RRBR at 9-10.

[28] *See* CX 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; CX 208 at 19 (noting that "the word 'patented' also includes items and processes for which a patent has been applied and may be pending"); CX 203a at 11 (1981 EIA Manual); CX 207a at 8 (1990 EIA Manual) (1990); JX 55 at 28 (1995EIA Manual).

[29] *See* CX 873 ("Rambus Inc. cannot agree to the terms of the JEDEC patent [licensing] policy"); CX 874 ("the patent [licensing] policy of JEDEC does not comport with our business model"); CX 888 ("Rambus plans to continue to license its proprietary technology on terms that are consistent with the business plan of Rambus, and those terms may not be consistent with the terms set by standards bodies, including JEDEC"); 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." CX 887; *see* CX 3129 at 488-489 (Vincent). The IEEE, another SSO working on DRAM, sought to get a RAND commitment from

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 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

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 (a 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 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 ½% [0.5%] for rdrams (at this point i choked/gasped)").

SDRAM would necessarily have been in Rambus's self-interest. The record shows that Rambus considered RDRAM to be its 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]

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

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[34] *See* CX 533 at 9-10; CX 535 at 1, 4-5; CX 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.

[36] RBR at 10.

[37] Rapp, Tr. 9815-9827.

[38] Geilhufe, Tr. at 9617-23.

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

described by the Supreme Court in *Kumho Tire Co. v. Carmichael*.[40] Rambus's reliance on a flawed cost-benefit 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.

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

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

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

[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.

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 manufacturers and others would be 2x those rates.[46] Those royalty rates represent an *80%* discount for DDR SDRAM and an *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 (at 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

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[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).*

[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 manfacturers 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).

would not 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 rates[52] 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 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

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[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).*

[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 1617at 11-12 (Siemens/Infineon signed a RDRAM licensing agreement with Rambus in July 1997. That agreement provided for an initial 2.5% royalty rate.).

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] 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]

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

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[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); CX 1592 at 21 (1994 Samsung RDRAM license agreement included a $3 million up-front license fee); CX 1600 at 11-12 (1995 Hyundai RDRAM license agreement included a $2 million up-front license fee and $1.5 million "Design Fee."); CX 1609 at 10 (1997 Mitsubishi RDRAM licenses agreement included a $2 million up-front license fee and a $3.5 million "Direct Rambus DRAM Engineering Fee."); CX 1617 at 11 (1997 Siemens/Infineon RDRAM licenses agreement included a $5.5 million up-front license fee and a $4 million "Engineering Fee.").

[57] *See* CX 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 laws. *See* RBR at 23-25.

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.

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.

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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.