

Patent ambush in standard-setting: the Commission accepts commitments from Rambus to lower memory chip royalty rates

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1. Introduction

Standardisation involves competitors sitting around a table agreeing technical developments for their industry. Normally, antitrust rules do not allow competitors to jointly decide on market conditions. However, the European Commission recognises the general benefits that standardisation brings, and so standard-setting is acceptable under antitrust rules, provided this takes place under strict conditions of openness and transparency. This is essential in order to avoid standards being abused by commercial interests. The Commission had concerns that this may have happened in the Rambus patent ambush case.

On 9 December 2009, the Commission adopted a decision that rendered legally binding commitments offered by Rambus Inc which, in particular, put a cap on its royalty rates for certain patents for “Dynamic Random Access Memory” chips (DRAMs). ⁽²⁾ The Commission initially had concerns that Rambus may have infringed EU rules on the abuse of a dominant market position (Article 102 of the Treaty on the Functioning of the European Union – TFEU) by claiming abusive royalties for the use of these patents. DRAMs are used to temporarily store data, for example in PCs.

The US-based standards organisation, JEDEC, developed an industry-wide standard for DRAMs. JEDEC-compliant DRAMs account for around 95% of the market and are used in virtually all PCs. In 2008, worldwide DRAM sales exceeded US\$ 34 billion (more than €23 billion).

On 30 July 2007, the Commission sent Rambus a Statement of Objections, setting out its preliminary view that Rambus may have infringed the then Article 82 of the EC Treaty (now Article 102 TFEU ⁽³⁾) by abusing a dominant position in the market for DRAMs. In particular, the Commission was concerned that Rambus had engaged in a so-called “patent ambush”, intentionally concealing that it had

patents and patent applications which were relevant to technology eventually included in the JEDEC standard, and subsequently claiming royalties for those patents.

To address the Commission’s concerns, Rambus undertook to put a worldwide cap on its royalty rates for products compliant with the JEDEC standards for five years. As part of the overall package, Rambus agreed to charge zero royalties for the SDR and DDR chip standards that were adopted when Rambus had been a JEDEC member, in combination with a maximum royalty rate of 1.5% for the later generations of JEDEC DRAM standards (DDR2 and DDR3), which is substantially lower than the 3.5% Rambus was charging for DDR in its existing contracts. The Commission’s decision confirmed that it considers the commitments are adequate to address these competition concerns.

This article provides an overview of the facts of the case and the competition concerns that the Commission had, and explains how similar situations can be prevented in the future.

2. The facts of the case

2.1. Relevant markets

2.1.1. Product market

The relevant market is a technology market for DRAM (Dynamic Random Access Memory) interface technology. DRAM chips are a type of electronic memory primarily used in computer systems, but also used in a wide range of other products which need to temporarily store data, including servers, workstations, printers, PDAs and cameras. The interface technology allows interoperability between a DRAM chip and other computer components which need to access the data stored in the DRAM chips. The Commission left open the issues of whether there was a single market for the full package of DRAM interface technologies or whether there were separate worldwide markets for individual DRAM interface sub-technologies.

2.1.2. Geographic market

Synchronous DRAM licences are granted on a worldwide basis, and the resulting products are both manufactured and sold worldwide according to uniform specifications. Synchronous DRAM chips

⁽¹⁾ The content of this article does not necessarily reflect the official position of the European Commission. Responsibility for the information and views expressed lies entirely with the authors

⁽²⁾ A non-confidential version of the Decision and the commitments is available on the Commission’s website at: <http://ec.europa.eu/competition/antitrust/cases/>.

⁽³⁾ With effect from 1 December 2009, Articles 81 and 82 of the EC Treaty have become Articles 101 and 102, respectively, of the TFEU; the two sets of provisions are in substance identical.

are made in a few production sites throughout the world. They are distributed globally before being incorporated into PCs and other equipment manufactured in a range of countries across the world.⁽⁴⁾ Therefore, the market for the licensing of synchronous DRAM interface technology is global in its geographic scope.

2.2. Position of the parties on the relevant market

JEDEC, an industry-wide US-based standard setting organisation, developed a standard for DRAMs. JEDEC SDR DRAM standard-compliant chips were the main type of DRAM chip on the market as early as 1999, accounting for 84% of DRAM chips sold. By August 1999, the JEDEC DDR DRAM standard had been agreed, further entrenching the evolutionary path of the JEDEC DRAM standards in question.

JEDEC-compliant synchronous DRAM chips account for the vast majority of DRAM chips currently sold worldwide, representing more than 96% in terms of overall sales of DRAM chips between 2004 and 2008. Virtually all market participants confirmed that it is commercially essential to comply with JEDEC standards in order to be able to sell DRAM chips on the Community or worldwide market. Rambus' RDRAM technology and its successor, XDR DRAM, are the main non-JEDEC-compliant DRAM interface technologies.

As Rambus asserts patents on all JEDEC-compliant SDRAM chips and owns the proprietary RDRAM and XDR DRAM technology, the percentage of worldwide commercial DRAM production exposed to Rambus' patent claims is thus more than 90%. Rambus has been and remains the only company asserting patents on DRAM interface technology.

Every manufacturer wishing to produce synchronous DRAM chips or chipsets complying with JEDEC standards must therefore either acquire a patent licence from Rambus or litigate its asserted patent rights.

There are substantial barriers to entry on the market, primarily due to the fact that the industry is locked into JEDEC standards. Firstly, the initial costs and efforts relating to standards development are substantial. Furthermore, there are significant costs associated with switching from a standard once it has been adopted.

⁽⁴⁾ See also Commission Decision of 03 May 2000 declaring a concentration to be compatible with the common market (Case No IV/M.0044 - *HITACHI/NEC - DRAM/JV*) according to Council Regulation (EEC) No 4064/89, OJ C 153, 1.6.2000, p. 8, paragraph 21.

First and foremost, the specifications of a new standard would need to be agreed with the companies active in the sector (DRAM manufacturers, microprocessor manufacturers, component manufacturers, original equipment manufacturers (OEMs) and others). This in itself would take a significant amount of time. Moreover, the marketing burden for a new standard and related technology would also be significant.

As adoption of a new technology would also carry a high risk and substantial costs for customers, those customers would in fact need to be convinced that the new technology was viable and would be available in sufficient volume at an acceptable cost. Companies producing PCs and servers would need to develop and test new system architectures. Microprocessor and chipset manufacturers would also need to design chips to accommodate the new standard.

In parallel with the development of a new standard, DRAM manufacturers would need to consider the design of compliant parts and the new chips would need to be tested before mass production.

On the basis of the above, the Commission provisionally took the view in its Statement of Objections that Rambus held a dominant position on the market at the point when it started asserting its patents and that it has continued to hold that dominant position since.

2.3. Practices raising concerns

In the Statement of Objections, the Commission provisionally considered that Rambus may have engaged in intentional deceptive conduct in the context of the standard-setting process by not disclosing the existence of the patents and patent applications which it later claimed were relevant to the adopted standard. Such behaviour is known as a "patent ambush."

The Commission took the preliminary view that Rambus may have been abusing its dominant position by claiming royalties for the use of its patents from JEDEC-compliant DRAM manufacturers at a level which, absent its allegedly intentional deceptive conduct, it would not have been able to charge. In the Statement of Objections, the Commission provisionally concluded that claiming such royalties was incompatible with Article 102 TFEU, in the light of the specific circumstances of this case, including Rambus' intentional breach of JEDEC policy and the underlying duty of good faith in the context of standard-setting, which resulted in a deliberate frustration of the legitimate expectations of the other participants in the standard-setting process.

Furthermore, the Commission provisionally considered that such behaviour by Rambus undermined

confidence in the standard-setting process, given that an effective standard-setting process is, in the sector relevant to the present case, a precondition for technical development and the development of the market in general to the benefit of consumers.

2.3.1. The standard-setting context and patent ambushes

In the Statement of Objections, the Commission provisionally considered that the specific context relating to standard-setting was important in order to properly assess Rambus' conduct. The process of standard-setting amounts to collective decision-making where there is a risk of an anti-competitive outcome. In essence, standard-setting provides a forum where companies come together and agree to exclude certain products or technologies from the market.

However, standards can have a positive economic effect insofar as they promote economic interpenetration on the internal market or encourage the development of new markets and improved supply conditions.⁽⁵⁾ Standards tend to increase competition and to lower output and sales costs, benefiting economies as a whole. Standards ensure interoperability, maintain and enhance quality, and provide information.⁽⁶⁾

For these benefits to be realised, and in view of the risk of anti-competitive outcomes, particular attention must be given to the procedures used to guarantee that the interests of the users of standards are protected. The Commission has therefore set forth the conditions that constitute appropriate behaviour in standard-setting organisations. In its 1992 Communication entitled "Intellectual Property Rights and standardisation",⁽⁷⁾ the Commission stated that an intellectual property right holder would act in bad faith if it was aware that its intellectual property related to a standard in development and did not disclose its intellectual property rights until after the adoption of the standard. This would force its competitors to accept higher licensing fees than those which could have been negotiated at an earlier stage before the adoption of the standard.⁽⁸⁾ The Communication also stated that, in order to ensure that a standard-setting process yields its benefits, intellectual property right holders should be required to

identify and report any intellectual property rights relating to a standard in development.⁽⁹⁾

The Commission's Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements⁽¹⁰⁾ ("Horizontal Guidelines") also provide a framework for the analysis of the effects of standardisation on competition. The Horizontal Guidelines state that standards must be set on a non-discriminatory basis, and that it must be justifiable why one standard is chosen over another.⁽¹¹⁾ By their nature, standards will not include all possible specifications or technologies and, in some cases, it may be necessary for the benefit of the consumers or the economy at large to have only one technological solution.⁽¹²⁾ The Horizontal Guidelines therefore stress the importance of "non-discriminatory, open and transparent procedures"⁽¹³⁾ to safeguard against anti-competitive outcomes.

Given these factors, standard-setting bodies generally adopt intellectual property rights policies which are designed to prevent or minimise the risk of anti-competitive outcomes. Such policies, including JEDEC's patent policy, generally stress the importance of good faith and early disclosure of potentially relevant intellectual property rights.

In order to ensure that any accepted open standard is accessible to the industry, JEDEC's policy was to exercise particular care when considering standards that might require the use of proprietary technology. Standards that require the use of a patent could not be considered by JEDEC unless all of the relevant technical information covered by the patent or pending patent was made known in advance of the standard being agreed.

To give effect to this policy, the Statement of Objections outlined that all members were required to disclose to JEDEC any and all issued or pending patents of which they were aware and which might be involved in the standard-setting work of JEDEC. The patent policy provided for a number of rules ensuring that the policy was effectively made known to all JEDEC members.

The Commission provisionally concluded that JEDEC and its members relied upon compliance with the patent policy in developing industry standards. Compliance with JEDEC patent policy, and in particular rules relating to disclosure of issue or pending patents, allowed JEDEC and its members to choose alternative technologies or to design around such potential or actual patents should JEDEC members be unable to obtain an assurance

⁽⁵⁾ Commission Notice - Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements, OJ C 3, 6.1.2001, p. 2, paragraph 169.

⁽⁶⁾ Commission Communication "The role of European standardisation in the framework of European policies and legislation", COM(2004) 674 final.

⁽⁷⁾ Commission Communication "Intellectual Property Rights and standardisation", COM(1992) 445, paragraph 4.2.10.

⁽⁸⁾ COM (1992) 445, paragraph 4.4.1.

⁽⁹⁾ COM (1992) 445, paragraph 4.4.3 and 6.2.6.

⁽¹⁰⁾ OJ C 3, 6.1.2001, p. 2.

⁽¹¹⁾ Horizontal Guidelines, paragraph 171.

⁽¹²⁾ Horizontal Guidelines, paragraph 171.

⁽¹³⁾ Horizontal Guidelines, paragraph 163.

from the patent (application) holder that a licence would be available under satisfactory terms consistent with the JEDEC patent policy.

The Commission provisionally concluded that the JEDEC patent policy and the underlying duty of good faith was intended to provide members with an opportunity to develop open standards free from potential patent claims. In other words, the policy was aimed at preventing one member company from secretly capturing the standard by not disclosing to JEDEC that technologies being included were covered by the member's granted patent or pending patent application, and at ensuring that licences for technologies protected by patent rights included in the standard are offered to JEDEC members on reasonable and non-discriminatory terms.

It should be noted, however, that while the Commission considered that Rambus may have breached JEDEC's patent policy in its Statement of Objections, an actual breach of the precise rules of a standard-setting body would not be a necessary requirement for a finding of abuse in this context. The finding of abuse would instead be conditioned by the conduct that has necessarily influenced the standard process, in a context where suppression of the relevant information necessarily distorted the decision making process within a standard-setting body.

2.3.2. Rambus' capture of the JEDEC standards

The Commission provisionally considered that Rambus planned to capture the standard for DRAM interface technology from the outset and that, pursuant to its business strategy, Rambus may have deliberately used its participation in JEDEC to revise and tailor its pending patent applications in an effort to gain control over JEDEC standard-compliant synchronous DRAM chips.

In the Statement of Objections, the Commission considered that Rambus, as a member of JEDEC from 1991 to 1996, was duly informed and aware of the obligation incumbent upon every member of the organisation to disclose issued and pending patents relating to the standard-setting work of JEDEC. Rambus was perfectly aware of the expectations of other participants and of the fact that, as a consequence of its failure to disclose issued or pending patents, standards would not be adopted on the basis of all the relevant information.

The Commission took the preliminary view that, pursuant to its business strategy, and notwithstanding: (i) its knowledge of the requirements of the JEDEC patent policy and of the underlying duty of good faith that is binding on a participant in a standard-setting process; and (ii) its awareness of the relationship between its patents and patent applications and JEDEC's standard-setting work, Rambus was

indeed aware of the benefits of keeping its patent positions secret and intentionally did not disclose to JEDEC any patents or patent applications which related to the relevant JEDEC standards.

2.3.3. The effects of the capture of the JEDEC standards

In the Statement of Objections, the Commission provisionally considered that, absent Rambus' deceit, JEDEC Members were likely to have designed a "patent-free" standard around Rambus' patents. The Commission provisionally concluded that a number of factors pointed clearly in this direction.

The Commission took the preliminary view that there was wide-ranging evidence that the industry was concerned about costs associated with any DRAM interface technology. In this regard, the Commission provisionally concluded that payment of royalties on memory interfaces has been very much the exception, rather than the rule, in the DRAM industry, showing a disposition against including patents in the relevant standards.

Indeed, the Commission provisionally concluded that users were willing to forego increases in performance in order to keep costs down. In this regard, several higher performance alternative solutions were not selected, as they were not essential for the PC market.

Moreover, it was the preliminary view of the Commission that there was significant evidence that, during Rambus' membership of JEDEC, a broad range of alternative technologies to those that were eventually included in the JEDEC DRAM standard was available. The alternative technologies to the ones which were eventually included in the standard were technically and commercially feasible. There is no evidence indicating that there were patents reading on the alternatives that could have been incorporated into the standards.

The Commission provisionally considered that there were substantial barriers to entry on the market and that the industry was locked into the JEDEC DRAM standards. Moreover, the Commission took the view that, for these reasons, the effects of the alleged abusive behaviour also extended to subsequent JEDEC standards and not only to the SDR and DDR DRAM standards that were adopted during the time in which Rambus was a member of JEDEC.

In the Statement of Objections, the Commission therefore provisionally considered that Rambus was abusing its dominant position on the market for DRAM microchip technology by claiming unreasonable royalties for the use of its patents against JEDEC-compliant DRAM manufacturers at a level

which, absent its conduct, it would not have been able to charge.

3. The Commitments

To address the Commission's concerns, Rambus offered a bundled set of Commitments which extend worldwide. First and foremost, as part of the overall package, Rambus agreed not to charge any royalties for DRAM chips based on the SDR and DDR DRAMs standards which were adopted when Rambus was a member of JEDEC.⁽¹⁴⁾ Secondly, Rambus committed to a maximum royalty rate of 1.5% for the subsequent DRAM chips standards, i.e. below the 3.5% it had previously been charging for DDR in its existing contracts.

The package of Commitments offered by Rambus covered not only chips, but also memory controllers that are not standardised by JEDEC, but which need to interface with DRAM chips and therefore need to comply with the JEDEC DRAM standards. For Memory Controllers, Rambus offered a maximum royalty rate of 1.5% for SDR Memory Controllers until April 2010, then dropping to 1.0%, and a rate of 2.65% for DDR, DDR2, DDR3, GDDR3 and GDDR4 Memory Controllers until April 2010, then dropping to 2.0%.

The Commission took the view that the whole package of the Commitments was sufficient to address the concerns identified by the Commission in its Statement of Objections. As the competition concerns arose from the fact that Rambus may have been claiming abusive royalties for the use of its patents at a level which it would not have been able to charge absent its conduct, the Commission considers that the whole package of the Commitments is proportionate, as it addresses the royalty rates for the JEDEC standards.

The Commitments guarantee that industry will not have to pay more than the capped rates. This predictability and certainty has a clear value for business. Potential new entrants will also have a clear perspective of future royalty costs, facilitating a decision to enter the market. The Commitments will be binding worldwide on Rambus for a total period of five years. On 19 January 2010, Samsung Electronics and Rambus announced the conclusion of a licence agreement covering all Samsung semicon-

ductor products in line with the conditions of the Commitments.⁽¹⁵⁾

4. Conclusion

Given the increase in patenting and the number of standards which incorporate protected technologies, it has become increasingly clear that standard-setting which does not take place under strict conditions of openness and transparency may lead to serious distortions of competition on a given market. In fact, a patent essential to the implementation of a standard may have a much higher value once the standard has been adopted than it has ex ante. This can therefore create an incentive for the patent holder to attempt to extract the ex post rather than the ex ante value of his technology. There is therefore an important pro-competitive rationale behind requiring disclosure of patents and patent applications in the framework of standard-setting before a standard is adopted.

An effective standard-setting process should take place in a non-discriminatory, open and transparent way so as to ensure competition on the merits and to allow consumers to benefit from technical development and innovation. Abusive practices in standard-setting can harm innovation and lead to higher prices for companies and consumers. For its part, the Commission will vigorously enforce the competition rules in this area, for the benefit of technical progress and European consumers.

Standards bodies have a responsibility to design clear rules that ensure the standard-setting process takes place in a non-discriminatory, open and transparent way and hence reduce the risk of competition problems, such as patent ambushes. The role of the competition authorities in this context is not to impose a specific IPR policy on standards bodies, but to indicate which elements may or may not be problematic. It is then up to industry itself to choose which scheme best suits its needs within these parameters.

The Commission is currently revising the antitrust guidelines for horizontal agreements and intends to improve the existing chapter on standardisation to provide more guidance on standard-setting. The draft will be ready for public consultation in early 2010. Lessons learned from recent experiences such as the Rambus case will be reflected in this document.

⁽¹⁴⁾ As outlined above, the Commission provisionally considered that during this time Rambus may have engaged in intentional, deceptive conduct in the context of the standard-setting process by not disclosing the existence of the patents and patent applications which it later claimed were relevant to the adopted standards.

⁽¹⁵⁾ See http://www.rambus.com/us/news/press_releases/2010/100119.html and http://www.samsung.com/us/aboutsamsung/news/newsIrRead.do?news_ctgry=irpublicdisclosure&news_seq=17034.