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ANTITRUST

RAMBUS V. INFINEON: PATENT DISCLOSURES IN STANDARD-SETTING ORGANIZATIONS

By David Alban

Standard-setting activity permeates modern-day life. The most compelling factor driving the rise of standard-setting is product interoperability. Interoperability facilitated by standards has significant consumer benefits. This is especially true in "network markets," where the value of a product to a particular consumer is a function of how many other consumers use a compatible product. While standards may have many pro-competitive and other beneficial effects, group standards can present a risk to competition. The standards process can at times deny consumers the benefits of technological competition. In nonnetwork markets, economists presume that consumers fare best when many companies compete to offer a variety of products. To the extent that standards dictate a single product to consumers and reduce consumer choice, the standard may be undesirable.

An analysis of standard-setting is complicated by the fact that the technology underlying the standard may be protected by intellectual prop-


1. For the purposes of this article, the term "standard" will be defined rather broadly as any set of technical specifications that either provides or is intended to provide a common design for a product or process. See Mark A. Lemley, IP Rights and Standard-Setting Organizations, 90 CALIF. L. REV. 1889 (2002).

2. For example, one or more hardware or software standards govern practically every aspect of using a computer. Larry Seltzer, The Standards Industry: Corporate Consortia are Supplanting Traditional Rule-Making Bodies, INTERNET WORLD, Apr. 15, 2001, at 50, available at http://www.internetworld.com/magazine.php?inc=041501/04.15.01internettech1.html.


5. See, e.g., Lemley, supra note 1. For additional literature on network effects, see Michael Katz & Carl Shapiro, Network Externalities, Competition, and Compatibility, 75 AM. ECON. REV. 424 (1985); Mark A Lemley & David McGowan, Legal Implications of Network Economic Effects, 86 CALIF. L. REV. 479 (1998).


7. Lemley, supra note 1, at 1899.
While granting IP rights may foster innovation, IP law should encourage the benefits of network effects and provide appropriate incentives for the development of improved standards. Granting IP rights in a standardized technology may allow the IP owner to exclude others from obtaining the benefits of the standard. In order to realize the benefits of network markets, many commentators have argued for weaker IP protection with respect to the elements that are required to facilitate interoperability.

To address the problems presented by IP rights in network standards, many standard-setting organizations ("SSOs") have implemented policies outlining a spectrum of obligations for owners of IP covered by the standard. Such policies provide a contractual safe harbor designed to prevent IP owners from unfairly leveraging their IP and capturing a network standard. In the recent case of *Rambus v. Infineon*, the Federal Circuit interpreted an SSO's IP policy very narrowly, holding that the members of the SSO only had to disclose patent applications that read on the final proposed standard, as opposed to those applications that disclosed the proposed standard, and that members did not have to disclose these applications until members actually sat down to vote on the final proposed standard.

This Note aims to address two issues. First, it compares the Federal Circuit's interpretation of the SSO's IP policy in *Rambus v. Infineon* to various other courts' interpretations of other IP policies to see if the Federal Circuit's interpretation is consistent with the interpretation of previous

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11. See, e.g., *id.* at 533 (suggesting that denying all forms of intellectual property protection to software interfaces would truly permit competition within de facto standards); Mark A. Lemley & David W. O'Brien, *Encouraging Software Reuse*, 49 STAN. L. REV. 255 (1997) (suggesting that the threshold for patentability for programming interfaces should be raised to promote interoperability); Peter S. Menell, *Tailoring Legal Protection for Computer Software*, 39 STAN. L. REV. 1329 (1987) (suggesting that due to, *inter alia*, considerations of network externalities, network features of computer software should not receive direct protection under copyright, and that Congress should adopt a hybrid form of patent law); Pamela Samuelson et al., *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308 (1994) (arguing for the creation of a period of automatic anticloning protection for technical innovations).
13. 318 F.3d 1081, 1100, 1106 (Fed. Cir. 2003).
courts. Second, this Note discusses the benefits of SSOs' IP policies as a form of private governance. Along these lines, it suggests that a broad duty to disclose facilitates technological competition within the standard-setting process while having little impact on the incentive to invent. To accomplish this, Part I provides some background regarding network effects, types of standards, and the risks presented by standards. Part II provides an overview of the Rambus v. Infineon litigation. Part III addresses the implications of such a narrow holding on the policies of the IP laws, concluding that such a narrow holding is inconsistent with precedent and will weaken the effectiveness of the SSOs' IP policies as a contractual safe-harbor.

I. NETWORK EFFECTS AND THEIR INTERACTION WITH STANDARDS

Network effects exist, in general, where purchasers find a good more valuable as additional purchasers buy the same good. Standardization provides consumers with significant benefits in network markets. If consumers were in doubt about the compatibility of a telephone jack with the existing telephone sockets in their homes or with the sockets in their future homes, they would hesitate to purchase a telephone. Similarly, if consumers doubted the ability of their ATM cards to work at a variety of ATMs, they might hesitate to obtain an ATM card. Standards, therefore, serve to provide consumers with information concerning the compatibility of their products allowing producers to increase demand for those products.

14. There are essentially two types of network markets: actual networks and virtual networks. The classic example of an actual network market is the market for telephones. The value that any consumer places on a telephone increases with each additional telephone purchaser. The value of the telephone increases with the number of other people that can be contacted with the telephone. Thus, the benefit to the consumer is additional access to other purchasers.

Virtual networks exist where the products do not actually connect with each other, but instead the value of the product increases with the number of consumers purchasing identical or interoperable goods. Operating system software is a paradigmatic example of a virtual network. The value consumers place on an operating system increases with the number of application programs the operating system is able to run. At the same time, application developers will develop applications for the more popular operating systems. Consumers are therefore more likely to buy the more popular operating systems. Similar effects are evident in the markets for a variety of goods. Some of the most popular examples include application programs that enable users to share files, ATM cards and the automatic teller machines they can access, and credit cards and the vendors who accept them. For a more thorough description of actual and virtual network markets, see generally Lemley, supra note 1; Menell, supra note 9.
Many commentators argue that in the absence of technological differences between standards, consumers generally prefer one nonproprietary or “open” standard. This argument is premised on the notion that a single standard in a network market that is open to competition will generate competition among firms in supplying products, lowering prices, and preventing monopolies.\textsuperscript{15} Interoperability increases consumer welfare not only by enhancing consumer choice and reducing the costs of goods,\textsuperscript{16} but also by allowing consumers to exchange information with others who use the same standard.\textsuperscript{17} Thus, for interoperability standards, the intrinsic value of the technology chosen as the standard is only part of the social benefit of standard-setting. Simply agreeing on a standard—any standard—for two products to interact has independent value in a network market. This additional value has been labeled the standard’s “coordination” value.\textsuperscript{18}

A. Types of Standards

Standards may take a variety of forms. Specifically, it is important to distinguish between \textit{de facto} and \textit{de jure} standards. \textit{De facto} standards are not promulgated by a particular body, but evolve as a result of network effects.\textsuperscript{19} A technology becomes a standard by virtue of significant market share in a particular network market. For example, consider the market for computer operating systems. The costs of developing application software across multiple platforms can be prohibitively expensive. These pressures generally cause development to focus on one particular platform, which in turn makes that platform more desirable for consumers—a phenomenon known as “tipping.”\textsuperscript{20} This suggests that network markets will tend toward one or a limited number of standards. Such standards, chosen by the market, are called \textit{de facto} standards.


\textsuperscript{16} See Cowie & Lavelle, \textit{supra} note 3, at 99.

\textsuperscript{17} See Lemley, \textit{supra} note 1, at 1896.

\textsuperscript{18} See Gifford, \textit{supra} note 4, at 351.

\textsuperscript{19} Mueller, \textit{supra} note 3, at 633; Schallop, \textit{supra} note 8, at 215.

\textsuperscript{20} Lemley, \textit{supra} note 1, at 1897; Schallop, \textit{supra} note 8, at 208.
In contrast, *de jure* standards are rules for implementing a technology that are set by some official body. That official body may be a government or a private industry SSO.\(^{21}\) This Note is primarily concerned with private, consensual *de jure* standards: standards set by private industry organizations open to all companies. Generally, if the members of such a group collectively have a significant market share, their adoption of a standard may produce the "tipping" effect discussed above. Other industry members will be inclined to gear their production to work with the accepted standard, rather than a different product or standard that has only a small market share.\(^{22}\) This in turn reinforces the desire of consumers to buy the product with the dominant market share.

**B. Risk of Standards**

While standards may have many pro-competitive and other beneficial effects, group standards can present a risk to competition. The standards process can at times deny consumers the benefits of technological competition.\(^{23}\) In nonnetwork markets, economists presume that consumers fare best when many companies compete to offer a variety of products. To the extent that standards dictate a single product to consumers and reduce consumer choice, the standard may be undesirable.\(^{24}\) Where an IP owner is able to incorporate her technology into a dominant industry standard, the IP owner has greater ability to raise prices and is able to capture the coordination value of the standard itself. The presence of IP rights can therefore cause industry participants to compete for domination of an industry standard to maximize their revenue stream to the detriment of consumers.

The network externalities driving adoption of a single industry standard can trap the industry into a standard based on obsolete and inferior technology, undermining IP law’s goal of encouraging innovation.\(^{25}\)

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25. Menell, *supra* note 9, at 677; see also Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation*, 76 AM. ECON. REV. 940 (1986) (arguing that the presence of an installed base will cause consumers to not adopt a new superior technology, stifling innovation); Sean P. Gates, *Standards, Innovation, and Antitrust: Integrating Innovation Concerns into the Analysis*
Through control of a dominant industry standard, an IP owner can exercise substantial control over innovation in that platform. The adverse affect on innovation may be enhanced because monopolists often have less incentive to develop improvements in their technology, as such improvements may serve to displace their monopoly profits.\footnote{Menell, supra note 9, at 674.}

In addition, technology may develop rapidly as a result of periodic minor improvements. Since rapid change undermines the value of capital invested in existing technology, opposition to adoption of a new technology that decreases the value of an existing investment is to be expected.\footnote{Gifford, supra note 4, at 363-64 (discussing the number of ways changes in technology will impact standards).}

This is true whether a single IP owner or a consortium of members controls the standard, as collusion in the SSO could prevent the adoption of beneficial technology.\footnote{Cowie & Lavelle, supra note 3, at 99.}

**C. SSOs' Policies**

SSOs increasingly face situations in which one or more companies claim to own proprietary rights that cover a proposed standard, preventing the industry from adopting the standard without the permission of the IP owner.\footnote{Lemley, supra note 1, at 1893.} To counter this problem, many SSOs have implemented IP policies outlining a spectrum of contractual obligations for holders of patents and other IP rights in the subject matter of the standard. The terms of these policies are critical, yet the terms of the numerous SSOs’ policies are very diverse.\footnote{See id. (surveying a number of different SSOs and analyzing their varied IP policies).}

The most burdensome policies require the owner of any patent deemed essential to practicing the standard to grant a royalty-free license to any user of the standard. Such “open” standards may be freely practiced by anyone. At the other end of the spectrum are SSOs that allow completely “closed” standards. These organizations generally have no policy regarding IP rights. The majority of SSOs are somewhere in the middle and usually include two types of provisions in their IP policies: disclosure

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of Collaborative Standard Setting, 47 EMORY L.J. 583, 595-96 (1998) (arguing that network effects create a first-mover advantage, locking in a particular technology); Michael L. Katz & Carl Shapiro, *Technology Adoption in the Presence of Network Externalities*, 94 J. POL. ECON. 822, 825 (1986) (“Our analysis supports the conventional view that the technology that is superior today has a strategic, first-mover advantage: it can become locked in as the standard.”); Steven A. Lippman & John W. Mamer, *Preemptive Innovation*, 61 J. CON. THEORY 104, 105 (1993) (suggesting that industries can become trapped in an intrinsically inferior technology as a result of network effects).
requirements and licensing terms. The licensing provisions usually require that patent owners grant licenses under terms that are "reasonable and nondiscriminatory." There is greater variation in the disclosure provisions. Most SSOs consider only issued patents. A few, however, like that of the Joint Electronic Devices Engineering Council in the Rambus case, require disclosure of all pending patent applications. Some SSOs have adopted an intermediate policy requiring the disclosure of only published patent applications.

D. Enforceability of SSOs' IP Policies

An SSO's IP policy is only useful to the extent that it is enforceable. This section focuses on three bodies of rules that may apply when a patent owner has failed to comply with an SSO's disclosure requirement: antitrust laws, IP laws, and fraud-based common law doctrines.

1. Antitrust Laws

In the standard-setting context, antitrust claims against IP owners usually concentrate on any competitive advantage received by an IP owner by misleading the SSO members to adopt a particular standard covered by the owner's IP rights. This section will focus on one of the most common antitrust mechanisms used to enforce SSOs' policies: section 5 of the FTC Act.

a) Unfair Competition—Section 5 of the FTC Act

Section 5 of the FTC Act prohibits unfair methods of competition. The Federal Trade Commission (FTC) invoked this section in its seminal case against Dell. In In re Dell, the FTC prohibited Dell from enforcing its pat-
ent against those using the adopted standard.\textsuperscript{34} The Dell case involved an effort by the SSO to identify potentially conflicting patents and to avoid creating standards that would infringe those patents.\textsuperscript{35} To achieve this goal, the SSO had a policy that required members to certify that they did not own any patent rights that covered the standard.\textsuperscript{36} Dell certified that it had no such IP rights.\textsuperscript{37} Nonetheless, Dell owned a patent that covered the standard, and after the SSO adopted the standard, Dell sought to enforce its patent against firms planning to conform to the standard.\textsuperscript{38} Seeking to prevent harm to the competitive process, the FTC entered a decree prohibiting Dell from enforcing its patent against companies implementing the standard.\textsuperscript{39}

The Dell decision has been widely criticized for muddling the requirements for bringing an action under section 5. For example, the consent order held that enforcement was appropriate where there was evidence that (1) Dell failed to act in good faith to disclose its patents, and (2) the association would have implemented a different, non-proprietary standard had it been informed of the patent conflict.\textsuperscript{40} The dissent sharply criticized the majority for ignoring the traditional antitrust test. Namely, the dissent argued that the majority should have focused on two issues: whether Dell intentionally misled the SSO into adopting a standard covered by Dell’s patent; and whether, as a result of the adoption of such a standard, Dell obtained market power beyond that lawfully conferred by the patent.\textsuperscript{41} As a result of the Dell decree, it is unclear what level of intent and market power must be shown when bringing an action under section 5.

2. \textit{IP Laws}

Another avenue available to SSO members to enforce the SSO’s IP policy is the IP laws. At least two patent law doctrines may apply when a participant in an SSO violates the disclosure requirement: equitable estoppel and patent misuse.

\begin{itemize}
\item \textsuperscript{34} \textit{In re} Dell Computer Corp., 121 F.T.C. 616, 624 (1996).
\item \textsuperscript{35} \textit{Id.} at 623.
\item \textsuperscript{36} \textit{Id}.
\item \textsuperscript{37} \textit{Id.} at 624.
\item \textsuperscript{38} \textit{Id}.
\item \textsuperscript{39} \textit{Id}.
\item \textsuperscript{40} \textit{Id}.
\item \textsuperscript{41} \textit{Id.} at 628-33 (Azcuenaga, Comm’r, dissenting).
\end{itemize}
a) Equitable Estoppel

Equitable estoppel is a judge-made doctrine that permits a court to refuse to enforce a patent when inequitable to do so.\(^2\) Equitable estoppel applies where "a patentee, through misleading conduct, leads the alleged infringer to reasonably infer that the patentee does not intend to enforce its patent against the alleged infringer. Conduct may include specific statements, action, inaction, or silence where there was an obligation to speak."\(^3\) To use equitable estoppel as a defense in a patent infringement suit, the alleged infringer must show (1) misleading conduct, either by words or silence; (2) reliance on the misleading conduct; and (3) that it will be materially prejudiced if the patent is enforced.\(^4\)

Courts have applied equitable estoppel in a number of standard-setting cases.\(^5\) For example, in *Stambler v. Diebold, Inc.*, the court found estoppel on the basis of conduct before an SSO, even in the absence of an SSO rule requiring disclosure.\(^6\) In *Stambler*, the plaintiff sat on the standards

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\(^4\) Id. There are a few things worth noting about the equitable estoppel doctrine. First, equitable estoppel does not require affirmatively misleading statements. In the standard-setting context, an SSO member’s failure to disclose a patent or patent application when required to do so by the SSO’s patent disclosure policy may give rise to estoppel. Cowie & Lavelle, supra note 3, at 105; Lemley, supra note 1, at 1918. Second, it is unnecessary to prove specific intent to mislead or deceive. Aukerman, 960 F.2d at 1028. Generally, all that is required is that the patent owner’s conduct reasonably gave rise to an inference that it would not enforce the patent. Id. Yet the Federal Circuit has indicated that the conduct must rise to the level of bad faith. Hemstreet, 972 F.2d at 1295; see also Hottel Corp. v. Seaman Corp., 833 F.2d 1570, 1574 (Fed. Cir. 1987) ("[S]ome evidence must exist to show that the silence was sufficiently misleading to amount to bad faith."). Therefore, it appears that estoppel would not apply in those situations in which a patent owner’s failure to disclose was inadvertent or merely negligent.

In addition, to establish estoppel the defendant must show reliance on the misleading conduct. In general, a defendant ought not to be required to show direct communication with the patent owner. Alleged infringers should be able to rely on representations made to the SSO where the representations are publicly available. However, in most cases the accused infringer will probably be required to show that the SSO would have adopted a different standard had they known about the patent. See Cowie & Lavelle, supra note 3, at 109; Lemley, supra note 1, at 1920.


\(^6\) *Stambler*, 1988 WL 95479, at *5-6.
committee after concluding that the proposed standard infringed his patent, and subsequently left the committee without notifying it of the alleged infringement. The court found that the plaintiff had a duty to inform the committee about his patent and “could not remain silent while an entire industry implemented the proposed standard and then when the standards were adopted assert that his patent covered what manufacturers believed to be an open and available standard.” Therefore, plaintiff was estopped from bringing the infringement suit.

b) Patent Misuse

Like equitable estoppel, patent misuse is an affirmative defense to patent infringement. Patent misuse is generally understood to apply when the patent owner uses the patent to secure rights beyond the scope of the patent, in violation of public policy. In practice, the courts have modified the patent misuse doctrine to apply only in situations where the patent owner has “impermissibly broadened the ... scope of the patent grant with anticompetitive effects.” It therefore appears possible that the courts could apply the patent misuse doctrine to enforce an SSO’s disclosure policy.

No court, however, has used the patent misuse doctrine to invalidate a patent due to behavior in front of an SSO. This is probably due, in part, to the requirement that the plaintiff demonstrate anticompetitive effects. For example, in Townshend v. Rockwell, the court refused to apply the patent misuse doctrine, based in part on a failure to allege anticompetitive practices. In Townshend, the counter-plaintiff alleged that the counter-defendant lobbied an SSO to adopt an industry standard that embodied the counter-defendant’s technology. After the standard was adopted, the

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47. Id. at *6.
48. Id. at *5-6.
49. Some commentators have criticized Stambler as going too far in applying estoppel based on silence even in the absence of an express duty to speak. See, e.g., Lemley, supra note 1, at 1920. While a ruling of estoppel may seem harsh in the absence of an IP policy requiring disclosure, it is important to note that the plaintiff in Stambler waited ten years before bringing the infringement suit. Stambler, 1988 WL 95479, at *6.
53. Id. at *2.
counter-defendant asserted that the standard incorporated proprietary technology. The counter-plaintiff argued that this assertion, combined with the counter-defendants' lobbying activities before the SSO and their proposed licensing terms, constituted anticompetitive conduct. The court found that the counter-plaintiff had not stated allegations of anticompetitive conduct because the counter-defendant notified the SSO of the pending patent applications and submitted proposed licensing terms prior to the adoption of the standard. In addition, the counter-plaintiff's allegations did not state that the conduct threatened an incipient violation of the antitrust laws or otherwise significantly threaten or harm competition.

In dismissing the patent misuse counterclaim, the court distinguished the case from Dell on three grounds. First, the counter-defendant's patents issued after the SSO had adopted the standard, whereas in Dell, the patent owner had an issued patent at the time the standard-setting proceeding took place. Second, the counter-defendant informed the SSO that it had pending patent applications, while the patent owner in Dell did not disclose the existence of the patent to the standard-setting organization. Finally, the counter-plaintiff had not asserted that the SSO could have adopted a standard that did not encompass counter-defendant's technology, whereas in Dell, the standard-setting body was choosing among options, and there was a possibility that they could have adopted a standard which did not incorporate Dell's patent.

3. Common-law Fraud

Another potential defense for an alleged infringer is common law fraud, caused by an IP owner's violation of a duty to disclose. In general,

54. Id. at *11.
55. Id.
56. Id.
57. Id. at *12. The court also held that the counter-plaintiff had not demonstrated any injury to competition resulting from the counter-defendant's conduct, or that the counter-defendant's "deception" in front of the SSO rose to the level of anticompetitive behavior.
58. Id. at *11 (referring to In re Dell, No. 931-0097, 60 Fed. Reg. 57870 (Fed. Trade Comm'n Nov. 22, 1995)).
59. Id.
60. Id.
61. Id. The court's order centered around the counter-plaintiff's allegation that counter-defendant voluntarily proposed licensing terms for the patents at issue to the SSO prior to the SSO's adoption of the standard. The court stated that "where [counter-defendant] notified the [SSO] of the ... pending patent applications and submitted proposed licensing terms prior to the adoption of the standard," the counter-plaintiff had not stated allegations of anticompetitive conduct. Id. at *15.
fraud requires (1) a specific intent to mislead, (2) a false statement or omission in the face of a duty to disclose, and (3) detrimental reliance. This cause of action will be discussed further in the context of the Rambus v. Infineon suit, infra.

II. RAMBUS V. INFINEON

A. Factual Background

Rambus develops and licenses memory technology for high-speed chip manufacturers, such as defendant Infineon. In April 1990, Rambus filed U.S. Patent Application Serial No. 07/510,898 ("the '898 Application") with claims directed towards dynamic random access memory ("DRAM"). While prosecuting the '898 application, the United States Patent and Trademark Office (PTO) issued an eleven-way restriction requirement. In response, Rambus filed numerous divisional and continuation applications based on the original '898 application. In addition, Rambus filed a patent application under the Patent Cooperation Treaty ("PCT") claiming priority to the '898 application.

From December 1991 through June 1996, Rambus was either a member of, or "participating guest" in, the Joint Electron Device Engineering Council ("JEDEC"). In early 1993, during Rambus's membership on committee JC-42.3, the JEDEC adopted and published a standard for synchronous dynamic random access memory ("SDRAM"). In December 1996, after Rambus officially withdrew from the JEDEC, the JEDEC voted on a standard for double data rate-SDRAM ("DDR-SDRAM"). The JEDEC DDR-SDRAM standard, adopted and published in 2000, incorporated four technologies that had been discussed in general before Rambus's withdrawal in June 1996.

63. Id. at 1084.
64. Id.
65. Id.
66. Id.
67. Id. at 1084-85.
68. Id. at 1085.
69. The JEDEC is an SSO, and committee JC-42.3 drafts standards for random access memory (RAM). Id.
70. Id.
71. Id.
72. Id.
In September 1993, Rambus disclosed to the JEDEC committee its first issued Rambus DRAM ("RDRAM") patent, U.S. Patent No. 5,243,703 ("the '703 patent"), a divisional of the '898 application. At that time, the JEDEC’s patent policy required members to disclose patents and patent applications “related to” the standardization work of the committees. At that same meeting, another JEDEC member also disclosed Rambus’s PCT application to the committee. Rambus did not disclose any patent applications to JEDEC. After leaving JEDEC, Rambus filed more divisional and continuation applications based on the '898 application. At least four of the patents issued from these applications are directed towards SDRAM and DDR-SDRAM. Like the '703 patent, the written description of each of these applications is substantially identical to the written description in the '898 application.

B. District Court Litigation

In late 2000, Rambus sued Infineon for patent infringement and alleged infringement of fifty-seven claims in the four SDRAM and DDR-DRAM patents. Infineon counterclaimed, alleging that Rambus committed fraud under Virginia state law by not disclosing its patents and patent applications “related to” the SDRAM and DDR-SDRAM standards. After construing the claims, the district court granted judgment as a matter of law (JMOL) of non-infringement in favor of Infineon. Infineon’s fraud counterclaims were tried before a jury, which ruled against Rambus. Rambus moved for JMOL of no fraud on both the SDRAM and DDR-SDRAM verdicts. The district court denied JMOL on the SDRAM fraud verdict on the ground that the jury reasonably could have believed that the public PCT application was not sufficient to satisfy the duty to disclose because its written description gave no indication that Rambus intended to expand its patent applications to cover SDRAMs. The court granted the
JMOL on the DDR-SDRAM fraud verdict, however, as there was insufficient evidence to support the jury's verdict because Rambus left JEDEC before work officially began on the DDR-SDRAM standard.\(^8\) Both parties appealed to the United States Court of Appeals for the Federal Circuit.\(^8\)

C. Federal Circuit's Majority Opinion

The majority held that the district court erred in denying JMOL of no fraud on the SDRAM verdict because the policy only required Rambus to disclose patent applications that read on the final proposed standard, not those applications that disclosed the proposed standard.\(^8\) Furthermore, the majority upheld JMOL of no fraud on the DDR-SDRAM verdict because Rambus had no duty to disclose before the JEDEC began formal balloting on the DDR-SDRAM standard.\(^9\) In reaching its decision, the majority first defined the bounds of the JEDEC's duty of disclosure and the point at which the duty arose in the standardization process.\(^9\) The majority then reviewed the record for substantial evidence to support the jury's verdict that Rambus breached the JEDEC duty during both SDRAM and DDR-SDRAM standardization.\(^9\)

1. JEDEC Members' Duty to Disclose

The majority found that Appendix E of the JEDEC policy manual imposed and defined the scope of the duty of disclosure.\(^9\) The majority de-
termed that Appendix E identified a duty to disclose claimed inventions that would cover any discussed potential standard and cause those who used the standard to infringe. 93 In so finding, the majority focused on the part of the Appendix that prohibited standards calling for “use of a patented item or process” and encouraged disclosure of information “covered by the patent or pending patent.” 94

The majority noted that the JEDEC policy required disclosure of patents and patent applications “related to” the standardization work of the committee. 95 This concerned situations in which a license under the claims of the patent reasonably might be required to practice the standard. 96 A JEDEC member’s duty to disclose, therefore, did not encompass patents and patent applications that merely described technologies under discussion by the JEDEC. 97 Rather, the inquiry was claim specific and standard specific. 98 The duty included disclosure of any patent or patent application with claims that a competitor or other JEDEC member reasonably would construe as covering the standardized technology. 99

The majority concluded that the duty to disclose did not arise until the beginning of the formal standard-setting process. 100 As the JEDEC policy itself did not state when a committee member’s duty arose, the majority relied on trial testimony from, among others, the committee’s chairman, who testified that the duty arose at formal balloting of a proposed standard. 101 The court held that the most a reasonable jury could have concluded was that the disclosure duty was triggered when work formally began on a proposed standard, or, in other words, at formal balloting. 102

contained in the EIA Legal Guides, and call attention to the obligation of all participants to inform the meeting of any knowledge they may have of any patents, or pending patents, that might be involved in the work they are undertaking.

93. Id. at 1098.
94. Id.
95. Id.
96. Id. at 1100.
97. Id.
98. Id.
99. Id. The majority found that this test did not require a formal infringement analysis. Members were not required to perform a limitation-by-limitation comparison or conduct an equivalents analysis.
100. Id. at 1102.
101. Id. at 1101.
102. Id. at 1102. The majority also held that the JEDEC’s patent policy did not imply a duty to disclose a member’s plans or intentions to file patent applications. Instead, the majority emphasized that the JEDEC discouraged members from revealing their future plans.
2. Breach of Duty to Disclose

The majority continued by reviewing the record for substantial evidence to support the jury's verdict that Rambus breached the JEDEC duty during both SDRAM and DDR-SDRAM standardization. The question for the court was whether the claims in the applications pending before Rambus's 1996 withdrawal from the JEDEC reasonably read on or covered the particular standard under consideration by JEDEC. In other words, the question was whether there was clear and convincing evidence of a reasonable expectation that the standard could not be practiced without a license under the undisclosed claims.

a) SDRAM Standard

The majority concluded that because the undisclosed claims did not cover the SDRAM standard, they did not "relate to" it. No manufacturer following the SDRAM standard would need a license under any of Rambus's undisclosed patents or applications. In so finding, the majority rejected the argument that Rambus's duty encompassed these patents and applications because at the time Rambus was a JEDEC member, Rambus believed that the patents and applications covered the SDRAM standard. A member's subjective beliefs are irrelevant, as JEDEC's disclosure duty creates an objective standard. The court's sole inquiry here was whether sufficient evidence existed to show a reasonable expectation that the identified patents and applications covered the SDRAM standard. Since the majority found no such evidence, the majority granted JMOL of no fraud on the SDRAM verdict.

b) DDR-SDRAM Standard

The majority upheld the district court's grant of JMOL of no fraud on the DDR-SDRAM verdict. Despite the "building-block" nature of standard-setting activities, Rambus's duty did not arise before legitimate proposals were directed to and formal consideration began on the DDR-
SDRAM standard. As formal work on the DDR-SDRAM standard did not begin until December 1996, and Rambus formally withdrew from the JEDEC in June 1996, Rambus did not breach its duty to disclose.

D. Dissent

The dissent held that the evidence supported a broader duty than that applied by the majority. The JEDEC Manual of Organization and Procedure instructed the chairperson to “call attention to the obligation of all participants to inform the meeting of any knowledge they may have of any patents, or pending patents, that might be involved in the work they are undertaking.” The dissent found the manual created a duty that differed in two ways from the one applied by the majority. First, the dissent interpreted the language “might be involved in” as creating a duty much broader than mere disclosure of claims reading on the standard. Second, the dissent found that the manual required disclosure based on the “work they are undertaking,” which the dissent interpreted more expansively than simply referring to the final, completed standard.

The dissent argued that the JEDEC’s policy required disclosure of patent applications that disclosed the subject matter being discussed by the SSO, as the work undertaken by the SSO involved the subject matter of the patent applications. Responding to the majority’s objection that the JEDEC’s manual gave rise to an unbounded and amorphous duty, the dissent argued that it was up to the JEDEC to formulate its desired duty and it was not the court’s job to rewrite or reinterpret the duty. The dissent argued that the evidence supported a finding that JEDEC chose to define its duty of disclosure as open, avoiding bright line rules, such as the one set forth by the majority.

The dissent further criticized the majority for not recognizing that during the course of its work, the committee considers, debates, rejects, and amends various proposals as the standard evolves. The dissent presented evidence from the record that supported a broader duty to disclose, and admonished the majority for reweighing evidence and determining de

113. Id.
114. Id.
115. Id. at 1110 (Prost, J., dissenting in part).
116. Id. (Prost, J., dissenting in part).
117. Id. (Prost, J., dissenting in part).
118. Id. (Prost, J., dissenting in part).
119. Id. at 1110-11 (Prost, J., dissenting in part).
120. Id. at 1115 (Prost, J., dissenting in part).
121. Id. (Prost, J., dissenting in part).
122. Id. at 1111 (Prost, J., dissenting in part).
novo how the duty should be defined when evidence supported a sufficiently broad duty of disclosure to support the jury’s verdict.\textsuperscript{123}

The dissent continued by pointing to an abundance of evidence that supported a finding that Rambus knew its pending and issued patents might be involved in the development of the SDRAM standard.\textsuperscript{124} For example, Rambus’s business plan stated that SDRAMs “infringe claims in Rambus’\textsuperscript{[s]} filed patents and other claims that Rambus will file in updates later in 1992.”\textsuperscript{125} The dissent criticized the majority for ignoring such clear admissions by Rambus and characterized the majority’s opinion as requiring a formal infringement analysis to determine if the claims of the undislosed patents cover the standard.\textsuperscript{126}

### III. IMPLICATIONS OF THE RAMBUS DECISION

#### A. A Broad Duty to Disclose is Consistent with Precedent

SSOs’ IP policies vary widely and can be seen to exist on a spectrum from most proprietary, or closed, to most open.\textsuperscript{127} The most proprietary policies do not require SSO members to disclose their IP, nor do they require that members license the technology at a reasonable and nondiscriminatory rate.\textsuperscript{128} The most open policies mandate that members give up their IP rights in the technology covered by the standard.\textsuperscript{129} The JEDEC’s policy is somewhere in the middle. This section seeks to place the JEDEC’s policy on this spectrum and to determine whether the court’s treatment of this policy is consistent with other courts’ treatment of similar policies.

In *In re Dell*, Dell certified that it had no IP rights that covered the standard in violation of a policy requiring members to disclose such IP. Seeking to prevent harm to the competitive process, the FTC prohibited Dell from enforcing its patent against those using the adopted standard.\textsuperscript{130} The FTC found this holding consistent with the equitable estoppel cases.\textsuperscript{131} One such equitable estoppel case is *Stambler*, in which the court found estoppel on the basis of conduct before an SSO even in the absence

\textsuperscript{123}. *Id.* at 1112 (Prost, J., dissenting in part).

\textsuperscript{124}. *Id.* (Prost, J., dissenting in part).

\textsuperscript{125}. *Id.* at 1115 (Prost, J., dissenting in part).

\textsuperscript{126}. *Id.* at 1117 (Prost, J., dissenting in part).

\textsuperscript{127}. See Lemley, supra note 1, at 1904-09.

\textsuperscript{128}. See *id.*

\textsuperscript{129}. See *id.*


\textsuperscript{131}. *Id.* at 624-25.
of an SSO rule requiring disclosure.\textsuperscript{132} By stating that the plaintiff could not remain silent while an entire industry implemented the proposed standard, the court indicated unwillingness to allow an SSO member to expand the value of its patent absent a showing that the technology disclosed is worth the risk.

Similar to the policy set forth in \textit{In re Dell}, the JEDEC’s policy was designed to discourage standards covered by patented items or processes unless the committee knew the technical information was covered by the patent and the patentee agreed to license the patented technology under reasonable terms.\textsuperscript{133} Clearly, the JEDEC did not want to adopt a standard covered by a proprietary patent owned by one of its members unless other members had a chance to review the patent-holder’s protected technology. So why then did the court in \textit{Rambus v. Infineon} find that members had to disclose only if the members’ protected technology actually read on the final standard? Perhaps the Federal Circuit erroneously concluded that this case was more like \textit{Townshend} than \textit{Dell}, in that there was no evidence that the JEDEC would have enacted a different standard had Rambus disclosed its pending patent applications. Such a finding, however, is not necessary for making a case of fraud. Unlike patent misuse, which requires a finding of anticompetitive conduct, fraud merely requires an omission and reliance. In \textit{Rambus}, as in \textit{In re Dell}, the defendant failed to disclose a patent application that it believed covered the final standard. Rambus’s patent did not actually read on the proposed standard—unlike Dell’s patent—but JEDEC’s policy required disclosure of all pending patents that might be involved in the work of the committee, not merely patents that read on the proposed standard. It appears, therefore, that \textit{Rambus} was more like \textit{Dell}, in that Rambus “failed to act in good faith to identify and disclose patent conflicts.”\textsuperscript{134}

\textit{Rambus} may be seen as the Federal Circuit’s reaction to \textit{Dell}. \textit{Dell} was criticized for creating an impractical duty, due to the numerous and ran-


\textsuperscript{133} The JEDEC’s policy stated that “[t]he Chairperson . . . must . . . call attention to the obligation of all participants to inform the meeting of any knowledge they may have of any patent, or pending patent, that might be involved in the work they are undertaking.” \textit{Rambus v. Infineon Techs. AG}, 318 F.3d 1081, 1097 (Fed. Cir. 2003). The policy further stated that the Chairperson should use Appendix E for the purpose of calling attention to this obligation. Appendix E stated that “[s]tandards that call for the 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.” \textit{Id.}

\textsuperscript{134} \textit{Dell}, 121 F.T.C. at 624.
dom participation in SSOs by company employees and companies’ potentially large, diverse IP portfolios. Participants in standard-setting are often not aware of their companies’ full patent portfolios, nor are they often aware of the repercussions for failure to disclose. Commentators reacting to Dell argued that the broad duty it created would scare companies away from participating in SSOs.135 Rambus may be seen as the Federal Circuit’s attempt to limit the duty to disclose to only those situations in which a single IP owner could hold an entire industry hostage.

By creating such a narrow duty to disclose, however, the court has provided SSO participants various means to avoid disclosure and attempt to capture industry standards. The court interpreted JEDEC’s policy to only require disclosure of patent applications with claims reading on the final proposed standard. Such a narrow reading, combined with the court’s finding that the duty does not arise until the members sit down to vote on the final standard, creates a large loophole that allows companies to later add claims that read on the standard to patents that disclose the standard. For example, consider the following hypothetical: Company A, a member of a standard-setting body, has a pending patent application disclosing but not claiming two of the four proposed standards before the SSO. Company A does not disclose this patent application to the SSO. After the members vote to adopt one of the proposed standards disclosed by Company A’s pending patent application, Company A adds a claim which reads on the adopted standard. Under the Federal Circuit’s interpretation, Company A has done nothing wrong because at the time the members voted on the standard, Company A did not have a pending patent application that contained a claim which read on the proposed standard. This result is antithetical to the stated purpose of the JEDEC’s policy, namely to force companies to disclose pending applications that might be involved in the work of the committee. Even worse, allowing companies to capture a standard in this way undermines the effectiveness of SSOs’ IP policies as contractual safe harbor mechanisms.

In addition, Rambus has given SSOs little guidance as to how they might overcome this capture problem. This is due, in part, to the court’s holding that the SSO members do not have to disclose their IP until it comes time to vote on the final standard. Thus, SSO participants are free to join an SSO, lobby for the adoption of proprietary technology, and then drop out before the final vote. While SSOs can and should take great care in drafting clear IP policies, courts interpreting such policies should recognize the possibility of industry capture and act to avoid it.

135. Schallop, supra note 8, at 284.
B. A Broad Duty to Disclose Facilitates Technological Competition within the Standard-Setting Process

SSOs' IP policies only work as a means to contract around patent rights if the SSO participants have the proper information. Courts interpreting these contracts, and SSOs drafting these contracts, should encourage disclosure, ensuring that standards capture the benefits of the network effects. While a broader duty to disclose would require participants to conduct a costly search of their patent portfolios, the burden arguably is properly placed on participants that can absorb the transaction cost as part of the benefit of being able to influence and take advantage of the standard. Encouraging disclosure facilitates technological competition within the standard-setting process. Such competition should increase the chance that the SSO adopts the most beneficial technology.

Imposing a broad duty to disclose does not indicate a bias against proprietary standards. On the contrary, a broad duty to disclose just works to ensure that the SSO has the appropriate information on which to base its decision. SSOs are still free to impose whatever licensing requirements they see fit. The broad duty to disclose serves to protect consumers from IP owners seeking to capture the coordination value of a standard by, at a minimum, encouraging SSO members to weigh the risks of a proprietary standard with the benefits of the particular proprietary technology.

C. A Broad Duty to Disclose Has Little Effect on the Incentive to Invent

The court's narrow reading of the duty to disclose indicates a bias for strong IP rights. Strong IP rights in network markets may, however, suppress more technology than they encourage and prevent a better standard from being developed. It is therefore useful to place the court's decision in a larger context.

Two sets of considerations should guide the analysis of the proper scope of IP protection for network features. First, IP law should provide an

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136. Schallop, supra note 8, at 284.
137. In industries in which continual innovation is important to social welfare, IP can be pro-competitive on balance insofar as it encourages more innovation than it restrains. Interfering with IP rights can harm social welfare in the long run by reducing innovation. If IP is pro-competitive, SSOs might violate the antitrust laws by compelling licenses of patents, or worse, forcing a company to forgo enforcement altogether. On the other hand, as shown above, IP rights can sometimes impede innovation. This is especially true where innovation is cumulative, because granting strong IP rights to initial innovators restricts the options available to improvers. Thus, IP rights might hinder the optimal development of technology. See Lemley, supra note 1, at 1938-39.
incentive to innovate. Second, IP law should consider the effect it has on interoperability, as consumers benefit from interoperability in network markets. Although it is important for IP law to promote innovation, it should also promote the adoption of uniform standards to foster network externalities.\footnote{138}{See Menell, supra note 9, at 668-69.}

Practically all commentators who have addressed IP protection for network features have argued for weaker protection to promote interoperability.\footnote{139}{See sources cited supra note 11.} This does not mean that IP rights are necessarily antithetical to interoperability, but it does indicate that conflicting policy considerations underlie the correct scope of IP protection. SSOs’ policies balance these conflicting concerns by weakening IP rights, providing a form of private governance that protects and promotes interoperability.\footnote{140}{To understand why SSOs’ IP policies provide a contractual safe harbor, it is useful to look first at the competing concerns of the open and proprietary approaches to IP policy. The open or “commons” model reflects the notion that proprietary control is not necessary or desirable to encourage innovation. Philip J. Weiser, The Internet, Innovation, and IP Policy, 103 COLUM. L. REV. 534, 570 (2003). A large number of innovations would occur even in the absence of IP protection. The open or “commons” model advocates argue that network industries function best when the standards are open, as a standard’s openness not only enables firms to introduce innovations without worrying about gaining access to the basic platform, but also generates competition among firms supplying products. On the other side, advocates of a proprietary control model embrace the notion that without an appropriate incentive, inventors will not create new innovations. This view places a premium on ensuring that firms reap proprietary rewards for innovating. In network markets, however, a purely proprietary approach runs the risk of entrenching inferior technology and allowing monopolists to charge monopoly prices. In addition, some commentators have taken issue with the notion that forced sharing of a dominant industry standard would undermine the incentive to invent. Id. at 591. These commentators point out that a “talented kid can be quite motivated by rents in the low tens of millions, trifling as those might seem.” Id. (quoting Timothy F. Bresnahan, New Modes of Competition: Implications for the Future Structure of the Computer Industry, in Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace 155, 192 (Jeffrey A. Eisenach & Thomas M. Lenard eds., 1999)).} 

Granting IP rights in standardized technology ensures that the IP owner is rewarded for his time, effort, and investment. Network effects, however, tend to drive the market to adopt a single standard. This may encourage firms to leverage their existing IP into a standard to extract maximum revenue, thereby hindering interoperability. The SSOs’ IP policies prevent such abuses and encourage interoperability. By narrowing the duty to disclose, the Federal Circuit has removed the teeth from such policies, and placed the future of interoperability at risk.
Strengthening IP rights also tends to further entrench existing standards. Existing IP rights may discourage potential innovators from devoting time and energy to improvements. The stronger the IP right in the existing technology, the more potential innovators may be deterred from developing alternative and superior technologies. While the IP owner may be willing to accept the new technology at a reasonable royalty rate, with a strong IP right and a dominant market position, the IP owner will have little incentive to do so. At a minimum, by including a broad duty to disclose, courts can ensure that SSOs include the best available technology in the standard, as a broad duty to disclose increases the competition among technologies within the standard. A broad disclosure provision will not, however, have a dramatic impact on the incentive to invent, as the SSO is free to dictate the parameters of the licensing provision.

IV. CONCLUSION

Courts should give broad deference to SSOs' IP policies as a means of private governance. These policies serve to prevent abuse of the standard-setting process and encourage interoperability. While interoperability standards in network markets provide significant consumer benefits, granting IP rights in the technology underlying an interoperability standard poses a risk to competition and may entrench inferior technology. As a result, standard-setting organizations have adopted a number of IP policies to weaken IP protection. These policies allow consumers to capture the benefits of network effects while providing technology producers with the sufficient incentive to invent.

The Federal Circuit's recent Rambus v. Infineon decision weakened the effectiveness of these policies by creating a very narrow disclosure duty. Such a narrow duty will allow standard-setting participants to capture industry standards. Sufficiently robust disclosure provisions are needed to ensure that SSOs' various technologies compete within the standard-setting process. Such competition increases the likelihood that an optimum technology will be adopted. While a broad disclosure duty will impose a burden on the SSO participants, the disclosure provisions have minimal effect on incentives to invent, and the burden of searching for proprietary technology is better placed upon the IP owner, as it is the IP owner who stands to benefit from the SSO's adoption of the technology.