# Inventions, Industry Standards, and Intellectual Property

by

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## INTRODUCTION

The challenge for patent law in the standard-setting context is to distinguish several different market effects. A patentee is generally entitled to revenues due to the technical advance made by its invention. It is not, however, entitled to revenues due to the incorporation of its invention in an industry standard. Although it may be difficult to distinguish the market effects of the invention and the standard, it is an effort to draw that distinction — rather than, say, a focus on "inequity" or some other concept — that best upholds the incentive-creating goals of patent law while minimizing negative effects on competition.<sup>1</sup>

This point can best be illustrated in a specific context. In recent litigation,<sup>2</sup> Rambus Corp. has alleged infringement of certain of its patented inventions that it alleges are required to comply with

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<sup>&</sup>lt;sup>1</sup> That is not to say that inequitable conduct on the part of a patentee is irrelevant. Such conduct might also justify placing limits on the patentee's entitlement to returns from its invention. Indeed, most of the commentary on the issue of patents and standard-setting addresses the issue in that context. See Janice M. Mueller, Patenting Industry Standards, 34 J. MARSHALL L. REV. 897 (2001); Daniel I. Prywes, Patent Ambushes and Licensing in Computer Standard-Setting Groups, ANTITRUST REPORT, March 2001. However, this essay argues that even where the patentee has engaged in no bad conduct, it should be limited to returns that are attibutable to its invention.

<sup>&</sup>lt;sup>2</sup> See Memorandum Opinion, Rambus, Inc. v. Infineon Technologies AG, No. 3:00CV524 (E.D. Va. Aug. 9, 2001), <http://www.rambusite.com/RambusVsInfineon/Docket\_400.htm>.

standards for memory technology developed by the Joint Electron Device Engineering Council (JEDEC), an industry standard-setting organization.<sup>3</sup> The claims of Rambus's patents are directed at particular implementations of memory devices.<sup>4</sup> The JEDEC standards, however, are intended to provide compatibility or interoperability among the products of different manufacturers.<sup>5</sup> Although some of the demand for the Rambus invention may be due to the technical benefits that it provides, much of the demand is no doubt due to the benefits of interoperability, which are made possible by the standardization and would not be possible with the invention alone. Therefore, although Rambus is entitled to returns from its technical contribution, it is not entitled to returns from the interoperability provided by the standards.<sup>6</sup> This is so even if Rambus did not mislead JEDEC regarding the existence of its patents, though deception or other inequitable conduct might be an independent reason to deny a patentee the right to enforce its invention.<sup>7</sup>

<sup>6</sup> This oversimplifies somewhat. In a case where an invention contributes directly to the purpose of a standard, the invention may be entitled to returns from the standardization. *See infra* part II.C.

<sup>&</sup>lt;sup>3</sup> See JEDEC, <www.jedec.org>.

<sup>&</sup>lt;sup>4</sup> One of those claims is presented in the text accompanying note 75 *infra*.

<sup>&</sup>lt;sup>5</sup> In one of the standards at issue in the *Rambus* case, JEDEC describes its goals as including "eliminating misunderstandings between manufacturers and purchasers" and "facilitating interchangeability and improvement of products." JEDEC Solid State Technology Association, JEDEC Standard JESD79, Double Data Rate (DDR) SDRAM Specification, "NOTICE" page (June 2000), <http://www.jedec.org/download/search/JESD79R1.pdf>. *See also* Amicus Curiae Brief of JEDEC Solid State Technology Association in Support of Appellees 4, Rambus Inc. v. Infineon Technologies AG, Nos. 01-1449, 01-1583, 01-1604 (Fed. Cir. Feb. 8, 2002) ("JEDEC develops technical standards that will permit DRAM products made by different manufacturers to be interchangeable with each other, and to be inter-operable on a standardized basis with other computer-system components).

<sup>&</sup>lt;sup>7</sup> See supra note 1. Although the F.T.C., in its enforcement efforts in this area, has distinguished the effects of the invention and the standard, it has also relied on whether the existence of the patent was disclosed: "If a company misrepresents its patent rights to a standard-setting-organization, thereby leading the organization to adopt a particular standard that may infringe on the company's patent rights, the company's later efforts to take advantage of market power resulting from the standard, rather than from some inherent value of the patent," Analysis of Proposed Consent Order To Aid Public Comment, In re Dell Computer Corp., File No. 931-0097 (F.T.C. 1996). See also Ted Bridis, *FTC to Probe Sun, Rambus On Disclosure*, Wall St. J., Sept. 11, 2001, at A16.

This problem bears some similarity to the leveraging problem, as reflected in tying law and in the law of patent misuse. In a typical patent-leveraging context, the problem is one of distinguishing a patentee's legitimate return on its invention in a leveraging market from illegitimate efforts to extend its power to a related, leveraged market.<sup>8</sup> I have argued elsewhere that this problem is clarified by recognizing that the invention itself is generally distinct from the products sold in both the leveraging and the leveraged markets, and that the legitimacy of the patentee's leveraging depends whether the invention is of value in only one of those markets, or in both.<sup>9</sup>

In the standard-setting context, the market relationships are analogous. Again there are three "products": the invention, the standard, and the standardized product.<sup>10</sup> But the market effects are more difficult to distinguish, for two reasons. First, whereas in the leveraging context two of the products — the leveraging and leveraged products — are typically sold in active markets, in the standard-setting context it may be that only the standardized product — which both incorporates the invention and complies with the standard — is actually sold. Second, whereas in the leveraging context the invention typically *is* used in the ultimate product market, though it is not the only source of demand in that market.<sup>11</sup>

<sup>&</sup>lt;sup>8</sup> As the Supreme Court said recently, it "has held many times that power gained through some natural and legal advantage such as a patent, copyright, or business acumen can give rise to liability if 'a seller exploits his dominant position in one market to expand his empire into the next.'" Eastman Kodak Co. v. Image Technical Servs., Inc., 504 U.S. 451, 479 n.29 (1992) (citations omitted).

<sup>&</sup>lt;sup>9</sup> Mark R. Patterson, *When Is Property Intellectual? The Leveraging Problem*, 73 S. CAL. L. REV. 1133 (2000); *see also* Julie E. Cohen & Mark Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CAL. L. REV. 1, 25-26 (2001) (relying on same distinction).

<sup>&</sup>lt;sup>10</sup> For a recent discussion distinguishing these three in the context of expert testimony regarding infringement, see *Lucent Technologies, Inc. v. Newbridge Networks Corp.*, 168 F. Supp. 2d 181, 223-25 (D. Del. 2001).

<sup>&</sup>lt;sup>11</sup> See Patterson, supra note 9, at 1156-58.

Although these differences may make the analysis more difficult, this essay outlines the types of evidence from which one might reasonably conclude that a patentee is, or is not, extending power beyond the scope of its patent claims.

Fundamentally, this essay reflects a view that industry standards themselves should be treated in some respects as a form of intellectual property. Standards possess the two main economic characteristics of intellectual property, in that they are expensive to create but easy to copy. Although standards possess other characteristics that may make it undesirable to give them all the legal protections of intellectual property (particularly the right to exclude),<sup>12</sup> a recognition that they share much of the distinctive character of intellectual property can do much to clarify the issues at stake. Indeed, because standards resemble intellectual property in an economic sense but are denied its legal protections, this essay argues that the "owners" of standards — standard-setting organizations — should have greater freedom in other respects.<sup>13</sup>

The essay begins by contending in the next two sections that standards, like inventions, provide independent contributions to the demand for the products in which they are incorporated. Part I below presents this argument in the doctrinal framework of patent law, and Part II seeks to describe how the factual implications of the argument can be addressed. Part III then argues that the right to negotiate on behalf of a standard should be given to its "owner," which in most cases will be the standard-setting organization. That is, the organization should be permitted to negotiate on behalf of its members'

<sup>&</sup>lt;sup>12</sup> Because the standard-setting process is generally a collective one, involving competitors working together, the risk of anticompetitive activity is significant, as the Supreme Court has recognized. *See, e.g.*, Allied Tube & Conduit Corp. v. Indian Head, Inc., 486 U.S. 492 (1988); American Soc'y of Mechanical Eng'rs, Inc. v. Hydrolevel Corp., 456 U.S. 556 (1982). This risk generally arises, however, not from excluding market participants from compliance with the standard, but from anticompetitive choices in the standard-setting process.

<sup>&</sup>lt;sup>13</sup> See infra part III.

collective interests, just as a patentee can negotiate on behalf of its licensees' collective interests. Finally, Part IV discusses the effect that adoption of these proposals would have on the incentives of patentees and standard-setting organizations.

## I. THE CURRENT FRAMEWORK

The background rules for the incorporation of patented inventions in industry standards are established by two sources. First, patent law establishes the rules that determine damages in the case of infringement. Those rules not only govern in the infringement context, but also influence the incentives of patentees and potential licensees in the standard-setting process. Second, the rules of standard-setting bodies can affect, through contract or perhaps a fraud-based theory,<sup>14</sup> the success of patentees' efforts to demand license fees for their inventions.<sup>15</sup> The federal government also requires that when federal agencies use private standards, the standard-setting process should comply with certain procedures, including a requirement that licenses be made royalty-free or at a "reasonable" royalty.<sup>16</sup>

<sup>&</sup>lt;sup>14</sup> One contract-based approach is that participation in the standard-setting process resulted in a contract between the patentee and the standard-setting body, and that those who use the standard are third-party beneficiaries of that contract. *See* Memorandum Opinion at \*5, Rambus, Inc. v. Infineon Technologies AG, No. 3:00CV524 (E.D. Va. Aug. 9, 2001), <a href="http://www.rambusite.com/RambusVsInfineon/Docket\_400.htm">http://www.rambusVsInfineon/Docket\_400.htm</a>>.

<sup>&</sup>lt;sup>15</sup> For example, in a recent case the defendant argued that to the extent that the patents at issue were adopted as industry standards, the patentee "had an obligation to license its standards patents on reasonable, nondiscriminatory terms." Lucent Techs., Inc. v. Newbridge Networks Corp., 168 F. Supp. 2d 181, 264 (D. Del. 2001).

<sup>&</sup>lt;sup>16</sup> The federal policy is set forth in Office of Management and Budget Circular No. A-119, 63 Fed. Reg. 8545, 8553-58 (Feb. 19, 1998). It requires that the agencies "must use voluntary consensus standards in lieu of government-unique standards . . . except where inconsistent with law or otherwise impractical." *Id.* § 6, 63 Fed. Reg. at 8554. "Voluntary consensus standards" are defined by several characteristics, among which the most relevant here is that they include "provisions requiring that owners of relevant intellectual property have agreed to make that intellectual property available on a non-discriminatory, royalty-free or reasonable royalty basis to all interested parties." *Id.* § 4a, 63 Fed. Reg. at 8554.

## A. *Patent Law*

Patent law has not addressed the precise problem posed by the incorporation of inventions in standards. This problem can be characterized as the difficulty of allocating entitlements to the benefits of an invention, when some of those benefits derive not from the contribution of the inventor but from actions of others. That is, even where the fact of infringement is clear, it may not be accurate to characterize all of the infringers' profits as due to the infringement, or to use the demand for the invention as a determinant of the patentee's entitlement to a royalty.

Patent law has, however, addressed a somewhat similar problem. Specifically, the law applicable to the calculation of damages for infringement requires that the source of the demand for the patentee's product be considered. In the Federal Circuit, "lost profit awards have been dependent, *inter alia*, on proof that consumer demand for the patentee's goods is created by the advantages of the patented invention."<sup>17</sup> This rule is usually applied where the allegedly infringing product includes not only the invention but some other desirable feature. The standard-setting context is different, and more difficult, in that if the invention is incorporated in the standard, the two are not distinct, as an invention and some other feature of a product can be. Hence, in the standard-setting context, there is in fact demand *for* the invention, even if the demand does not exist *because of* the invention.

Nevertheless, the same principle is applicable in both contexts. For the source of demand to be the "invention" for patent law purposes, it should be for the technical advance made by the invention, as reflected in the patent claims. This seems the fairest reading of the statement quoted above, in that "the advantages of the patented invention" are presumably those that are inherent in the invention, and would

<sup>&</sup>lt;sup>17</sup> Rite-Hite. Corp. v. Kelley Co., Inc., 56 F.3d 1538, 1569 (Fed. Cir. 1995) (Nies, dissenting in part).

not include the fact that it happened to be incorporated into an industry standard.<sup>18</sup> This interpretation is equally applicable in the context of the calculation of a reasonable royalty (as distinguished from lost profits), where among the factors to be considered are the invention's "usefulness and commercial value as shown by its advantages over other things."<sup>19</sup> Although it is not logically impossible that in these statements the "advantages" of an invention could include not just its inherent technical advantages but also its advantages in appropriating value from the efforts of others,<sup>20</sup> that interpretation would be inconsistent with other principles.

Most basically, "[t]o recover lost profits damages for patent infringement, the patent owner must show that it would have received the additional profits 'but for' the infringement.<sup>21</sup> Suppose that the case is one involving sales by a number of infringing sellers of products that comply with an industry standard and incorporate the patentee's invention. Suppose also that some portion of the demand for the infringers' products is created by the interoperability made possible by the products' compliance with the standard, and that compliance with the standard requires incorporation of the invention. In that case, the patentee would not be able to show that it would have made the sales but for the infringement. The advantages of interoperability would not exist unless there were multiple sellers,<sup>22</sup> so that but for the

<sup>&</sup>lt;sup>18</sup> That is so unless the invention contributes to the performance of the standard. See infra part II.C.

<sup>&</sup>lt;sup>19</sup> Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1159 (6th Cir. 1978) (quoting United States Frumentum Co. v. Lauhoff, 216 F. 610, 617 (6th Cir. 1914)).

<sup>&</sup>lt;sup>20</sup> See Georgia-Pacific Corp. v. United States Plywood Corp., 318 F. Supp. 1116 (S.D.N.Y. 1970) (listing among the factors to be used in calculating a reasonable royalty "[t]he portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer").

<sup>&</sup>lt;sup>21</sup> King Instruments Corp. v. Perego, 65 F.3d 941, 952 (Fed. Cir. 1995).

<sup>&</sup>lt;sup>22</sup> Some standards are directed not at interoperability, but at establishing minimum performance levels. Although this essay focuses primarily on interoperability standards, I discuss below the different problems presented by performance standards. *See infra* text accompanying notes 70-73.

infringement, sales would have been significantly lower. Therefore, the patentee of an invention incorporated in a standard often will not be able to show that it is entitled to the profits of infringers complying with the standard.<sup>23</sup>

A somewhat similar inquiry into the source of demand is applied in the law of obviousness. One of the factors that can be considered in the obviousness inquiry is the commercial success of the invention. The rationale for the use of the commercial success test is that an invention that meets with such success was presumably nonobvious, else the commercial need would previously have been met. The law recognizes, though, that for this test to serve its intended purpose, the success of the product in which the invention at issue is embodied must be due to the invention, not to some other factor. Thus, the Federal Circuit has said that commercial success "must be shown to have in some way been due to the nature of the claimed invention, as opposed to other economic and commercial factors unrelated to the technical quality of the patented subject matter."<sup>24</sup> This reference to the invention's "technical quality" appears to exclude advantages that arise from some other source.

Returning to the damages context, other Federal Circuit statements, though not always very clear, also support a focus on the technical aspects of the invention. For example, in *Slimfold Mfg. Co. v. Kinkead Industries, Inc.*,<sup>25</sup> the Federal Circuit affirmed the district court's conclusion that there were acceptable non-infringing alternatives<sup>26</sup> because, the court said, the patentee "failed to show that

<sup>&</sup>lt;sup>23</sup> In theory, if the patentee had licensed some sellers, it could perhaps recover damages for lost profits based on the sales of others, in that the (limited) licensing might be sufficient to create the additional interoperability-based demand. *But see infra* part III.

<sup>&</sup>lt;sup>24</sup> Cable Electric Products, Inc. v. Genmark, Inc., 770 F.2d 1015, 1027 (Fed. Cir. 1985).

<sup>&</sup>lt;sup>25</sup> 932 F.2d 1453 (Fed. Cir. 1991).

<sup>&</sup>lt;sup>26</sup> The existence of non-infringing alternatives is part of the damages inquiry because the absence of such alternatives "tends to prove that the patentee would not have lost the sales to a non-infringing third party rather than to the infringer." Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1548 (Fed. Cir. 1995).

buyers of bi-fold metal doors specifically want a door having the advantages of the Ford patent.<sup>27</sup> The reference to the "patent," rather than the invention, suggests that the advantages that are relevant are those made possible by the claims of the patent and would not include the benefits of standardization.

The district courts, too, have made statements that appear to distinguish between the patentee's contribution and other technical factors. For example, in *Polaroid Corp. v. Eastman Kodak Co.*,<sup>28</sup> the court addressed the proof required of the plaintiff:

The patent holder must show that it had the marketing capability to make the sales. Typically this requires proof of factors such as an adequate distribution system and sales personnel. This factual inquiry is consistent with the role of marketing in markets where demand is relatively inelastic or dependent on variables *outside the seller's control*, such as a rate of new construction or population growth.<sup>29</sup>

The reference to factors "outside the seller's control" suggests that the patentee is not entitled to returns from such factors, which would include industry standardization efforts.

One might take the position that even if some of the demand for the patented invention derives from its standardization, rather than from its technical merits, the two are functionally related, so that the patentee is entitled to returns from both. After all, the Federal Circuit has said that the "entire market rule" applies when "the patented and unpatented components together are 'analogous to components of a single assembly,' 'parts of a complete machine,' or 'constitute a functional unit,' but not where the unpatented components 'have essentially no functional relationship to the patented invention and . . . may have been sold with an infringing device only as a matter of convenience or business advantage."<sup>30</sup>

<sup>&</sup>lt;sup>27</sup> 932 F.2d at 1458.

<sup>&</sup>lt;sup>28</sup> 1990 U.S. Dist. LEXIS 17968, 16 U.S.P.Q.2d 1481 (D. Mass. 1990).

<sup>&</sup>lt;sup>29</sup> *Id.* at \*43-\*44 (emphasis added; citations omitted).

<sup>&</sup>lt;sup>30</sup> Tec Air, Inc. v. Denso Mfg. Michigan Inc., 192 F.3d 1353, 1362 (Fed. Cir. 1999).

This principle should only apply, though, when the demand for the product derives from the larger "functional relationship." In the standardization context, even where there is a functional relationship between the invention and the standard, the demand for the standard is in many cases not related to the functional factors at all, but derives from the basic fact of standardization.<sup>31</sup>

Another way to approach this issue is to consider it simply as a question of patent scope.<sup>32</sup> More specifically, one might consider whether the reverse doctrine of equivalents should bar extension of a patent covering a technical innovation to the use of that innovation in an industry standard. As Merges and Nelson have argued, the reverse doctrine of equivalents can be viewed as a means of avoiding holdups that could deter innovation.<sup>33</sup> The application of the reverse doctrine of equivalents in this context would not be a traditional one, in that it would not eliminate infringement liability entirely, but would only limit that liability to the returns on the patent's technical contribution.

In that respect, it would, as Merges and Nelson suggest, resemble a compulsory licensing scheme.<sup>34</sup> Although, as they say, the U.S. patent law does not explicitly provide for compulsory licensing, the approach to damages discussed above can result in something similar. Such a result does not seem unfair, in that in most of the cases in which patentees have sought to enforce patents that have been incorporated in standards, the patentees have been members of the standard-setting organizations. As a result, they would in most cases have agreed to license on reasonable and non-discriminatory

<sup>&</sup>lt;sup>31</sup> This issue is taken up in more detail in part II.C. *infra*.

<sup>&</sup>lt;sup>32</sup> See generally Robert P. Merges & Richard R. Nelson, On the Complex Economics of Patent Scope, 90 COLUM. L. REV. 839 (1990).

<sup>&</sup>lt;sup>33</sup> *Id.* at 860-68.

<sup>&</sup>lt;sup>34</sup> *Id*. at 866 n.118.

terms,<sup>35</sup> and a wholesale refusal to license would not be at issue. Even where there were no such agreements, though, a refusal to license would be outside the scope of a patent that was directed at a technical contribution, rather than at interoperability.<sup>36</sup>

## B. Standard-Setting Organization Rules

Some standard-setting bodies are moving away from policies requiring their members to agree to royalty-free licensing and are instead adopting policies requiring "reasonable and non-discriminatory" (RAND) licensing.<sup>37</sup> Although the "non-discriminatory" element of these policies is straightforward, requiring that patentees license to all on the same terms, the definition of "reasonable" is not so clear. Moreover, the standard-setting bodies themselves make little effort to define the term.<sup>38</sup> Indeed, the American National Standards Institute (ANSI) says that determination of reasonableness is not a

<sup>38</sup> See, e.g., IETF - Section 10 of RFC 2026 (Internet Standards Process), § 10.3.3 <http://www.ietf.org/IESG/Section10.txt> ("The IESG will not make any explicit determination that the assurance of reasonable and non-discriminatory terms for the use of a technology has been fulfilled in practice. It will instead use the normal requirements for the advancement of Internet Standards to verify that the terms for use are reasonable."); ITU Statement on TSB Patent Policy, Patent Declaration Forms and Guidelines for the implementation of the TSB patent policy, § 2.2 <http://www.itu.int/itudoc/itu-t/circ/circ5/245\_ww9.doc> ("The patent holder is not prepared to waive his rights but would be willing to negotiate licenses with other parties on a non-discriminatory basis on reasonable terms and conditions. Such negotiations are left to the parties concerned and are performed outside the ITU-T."); American National Standards Institute, Procedures for the Development and Coordination of American National Standards § 1.2.11.1, <http://www.ansi.org/public/library/std\_proc/anspro/due\_proc1.html>. The same is true of some commentary on this issue. *See* Mueller, *supra* note 1, at 933 (stating that "some competent authority must set a licensing fee structure that will determine the patentee's remuneration," but not proposing any criteria for that determination).

<sup>&</sup>lt;sup>35</sup> See infra part I.B.

<sup>&</sup>lt;sup>36</sup> See Patterson, supra note 9, at 1148-52. For a discussion of the possibility that an invention might indeed provide benefits to interoperability, see part II.C *infra*.

<sup>&</sup>lt;sup>37</sup> This shift is not universal, however. The World Wide Web consortium recently abandoned a proposal for a RAND policy, in favor of a royalty-free one. *See* Margaret Kane, W3C retreats from royalty policy, <http://news.com.com/2100-1023-845023.html>; W3C, Patent Policy Working Group Royalty-Free Patent Policy, <http://www.w3.org/TR/2002/WD-patent-policy-20020226/>.

proper subject for the standard-setting process.<sup>39</sup> As a result, it is unclear whether the standard-setting bodies would approve (or mandate) an approach like that described in the previous section.

Where an attempt is made to define "reasonable," however, the focus is on factors that contribute to the patentee's technical contribution, not to those related to standardization.<sup>40</sup> For example, the International Telecommunication Union, which has a RAND policy, states that "in order to define what is fair and 'reasonable' in a given case, one needs to know development and manufacturing costs, profits, etc."<sup>41</sup> The "development and manufacturing costs" of an invention would presumably be unrelated to its incorporation in an industry standard. Furthermore, although the "profits" from an invention could be greater if the patentee were viewed as entitled to returns from standardization, the

<sup>40</sup> A recent article made a somewhat similar point. *See* Prywes, *supra* note 1, at 17 ("The determination of a reasonable royalty must take into account he benefits of standardization to the patent-holder at the time a standard is being developed.") The focus of Prywes, however, is on supply, rather than demand: "A patent-holder . . . usually stands to benefit from the adoption of its design as an industry standard, because that status will promote greater production and, in turn, lower costs for items needed for the patent-holder's own products." *Id.* (A footnote that Prywes adds to this statement refers to network effects, which are a demand-side phenomenon, but Prywes discusses only costs.)

<sup>&</sup>lt;sup>39</sup> ANSI apparently believes that reasonableness is a subject only for the parties to a license:

It should be reiterated, however, that the determination of specific license terms and conditions, and the evaluation of whether such license terms and conditions are reasonable and demonstrably free of unfair discrimination, are not matters that are properly the subject of discussion or debate at a development meeting. Such matters should be determined only by the prospective parties to each license or, if necessary, by an appeal challenging whether compliance with the Patent Policy has been achieved.

Guidelines for Implementation of the ANSI Patent Policy: An Aid to More Efficient and Effective Standards Development In Fields That May Involve Patented Technology, part III.B,

<sup>&</sup>lt;http://www.ansi.org/public/library/guides/ppguide.html> (hereinafter, ANSI Guidelines).

Although the ANSI Guidelines do not explain further the rationale for this approach, the organization may be concerned about antitrust issues. *Cf. infra* part III; Sony Electronics, Inc. v. Soundview Technologies, Inc., 157 F. Supp. 2d 190 (D. Conn. 2001) (noting patentee's allegations that a standards organization and its members conspired "to 'avoid unreasonable royalty demands" on the members). On the other hand, ANSI will apparently consider the reasonableness of standards outside the initial standard-setting process, stating that a decision on reasonableness "is the exclusive province of the Board of Standards Review (or, on appeal, the ANSI Appeals Board)." ANSI Guidelines, *supra*, part II.

<sup>&</sup>lt;sup>41</sup> International Telecommunication Union, Telecommunication Standardization Bureau, Statement on TSB Patent Policy, Patent Declaration Forms[,] and Guidelines for the implementation of the TSB patent policy, <a href="http://www.itu.int/itudoc/itu-t/circ5/245\_ww9.doc">http://www.itu.int/itudoc/itu-t/circ5/245\_ww9.doc</a>>.

mention of profits in the context of costs may be intended to refer to previous — i.e., prestandardization — profits, which would reduce the post-standardization royalty that would be required to provide the patentee with a reasonable rate of return.

## II. INVENTIONS AND STANDARDS

The purpose of the analysis presented in this section is to provide an approach to determining if it is the technical advance of the patentee's invention that creates the demand for a license, or if that demand is instead the product of the adoption of a standard that happened to incorporate the invention.<sup>42</sup> In some markets, there might be direct evidence from which this determination can be made. For example, consider the following table, the cells of which represent products that might be sold, in the several possible combinations of incorporation of the invention and compliance with the standard:

<sup>&</sup>lt;sup>42</sup> In *Rambus*, the standard-setting organization, JEDEC, said in an *amicus* brief that a previous court had stated that "JEDEC's adoption of an item as an industry standard can vastly increase demand for that item, in some cases into a 'multi-billion dollar market.'" Amicus Curiae Brief of JEDEC Solid State Technology Association in Support of Appellees 11, Rambus Inc. v. Infineon Technologies AG, Nos. 01-1449, 01-1583, 01-1604 (Fed. Cir. Feb. 8, 2002) (citing and quoting Wang Laboratories, Inc. v. Mitsubishi Electronics America, Inc., 103 F.3d 1571, 1579) (Fed. Cir. 1997). In fact, *Wang* did not say that the size of the market in that case was a result of the adoption of a standard, but the basic point is no doubt a valid one.

|  | does not<br>incorporate a<br>patented invention | incorporates<br>patented invention I | incorporates<br>alternative<br>patented invention I <sub>a</sub> |
|--|---|--------------------------------------|--|
| does not comply<br>with standard                                     | A: demand: \$6<br>cost: \$5                     | B: demand: \$7<br>cost: \$5          | C: demand: \$9<br>cost: \$6                                      |
| complies<br>with chosen<br>standard S                                | D: demand: \$9<br>cost: \$8                     | E: demand: \$10<br>cost: \$6         | F: demand: \$9<br>cost: \$6                                      |
| complies with<br>alternative,<br>unchosen<br>standard S <sub>a</sub> | G: demand: \$8<br>cost: \$7                     |                                      |  |

For each cell's hypothetical product, the table provides a hypothetical cost of manufacture and a hypothetical value for buyer demand (or willingness to pay).<sup>43</sup> Although the numbers chosen are hypothetical, the relationships among them are intended to be plausible.

If the information in the cells of this table were available and known for a market, one could draw conclusions about the value of patented invention I. For example, if the market characteristics were as shown, the cost advantage provided by invention I in complying with the standard (*i.e.*, E's cost, without license, of \$6, as compared to D's cost of \$7) would show that the invention provided value in itself. And the greater demand for a standardized product that incorporates invention I, as distinguished from a product that does not incorporate any invention or incorporates alternative invention I has independent value.

<sup>&</sup>lt;sup>43</sup> In a real market, of course, one could rarely characterize demand as a single value, because demand often differs for different consumers. This approach is a helpful simplification, though, and it may even be plausible for some markets. If, for example, the product at issue is incorporated as part of a larger product, and if it is a small part of that larger product, the value of the incorporated product may be consistent across buyers. This might be the case, for example, of a product like the VL Bus, which was at issue in the *Dell* case, in that the bus was a small part of a larger computer product.

Unfortunately, it will be the rare case in which such information is available. For example, in a case in which the invention and the standard are coextensive, the possibility of complying with the standard without incorporating the invention does not exist. (Even in some such cases, though, a variation on this analysis can be helpful, as discussed below.) Nevertheless, consideration of these (perhaps hypothetical) products is necessary to distinguish desirable licensing of technical advances from opportunistic exploitation of standardization. In many instances, it may be possible to infer approximations of the values in the table. Even more importantly, the principles of the analysis could provide an appropriate background for licensing negotiations, even where the data for precise application of the principles is unavailable.<sup>44</sup>

As the discussion above indicates, if an invention is considered independently of the standard in which it is incorporated, the invention can provide value either by reducing the cost of compliance with the standard or by increasing the attractiveness of the standardized product. Either possibility creates demand for the invention by sellers of the standardized product. In the former case, though, there is no independent demand for the invention by downstream buyers of the standardized product, who are indifferent regarding the means of complying with the standard. Only when the invention has independent technical value will there be buyers who provide a demand for the invention above and beyond the demand for the standard.

These two possibilities present different problems in inferring the importance of the invention. In many, and perhaps most, of the cases in which the demand for the invention can be said to be due purely to cost savings in complying with the invention, the invention and the standard are coextensive.

<sup>&</sup>lt;sup>44</sup> See infra parts III & IV.

Therefore, the importance of the invention is indistinguishable from the importance of the standard, which one can assess by considering alternative standards. Where the invention provides technical benefits beyond those provided by the standard, on the other hand, it can be more fruitful to consider alternative means of complying with the standard. Each of these possibilities is discussed below, as is a third problem, that of assessing an invention that provides benefits that are directed specifically at the improved performance or the interoperability that is the goal of its related standard.

## A. Demand from Cost Savings

The amount by which a patented invention reduces the cost of complying with a standard is in principle subject to objective measurement. One could use comparative cost measures to determine the value of the patentee's contribution and thus the license fees to which it is entitled. One might question whether the statements from the courts in patent damages cases, which, as discussed above, have generally focused on the source of demand for an invention, are relevant where the invention's advantage lies in cost reduction. However, an invention's capacity for reducing costs for buyers will in fact create demand for the invention. The demand is defined, though, by the cost reduction that the invention makes possible. This point was acknowledged by the Federal Circuit in *Slimfold*, where it said that "the advantage of the Ford invention was primarily a manufacturing advantage . . . and did not greatly increase the value of the entire door."<sup>45</sup>

The most straightforward circumstances in which cost savings can be measured are those in which there are alternative means of attaining compliance. For example, in the table above, where it is possible to comply with the standard without using any patented invention, at a cost of \$7 (cell D), but

<sup>&</sup>lt;sup>45</sup> *Id.* at 1459.

use of invention I allows compliance at a cost of \$6 (cell E), the invention provides a cost savings of \$1. The patentee is certainly entitled to a license fee of \$1 for the use of its invention in these circumstances, at least if the existence of the patent was known when the standard was adopted, or if the invention was unknown (in which case there would have been no reliance in selecting the standard on the existence of that invention).

If the existence of the patent was not known to the standard-setting organization, but the organization relied on the ability to comply with the standard by using the invention, the situation is more complicated. In this case, the problem is that the invention is unexpectedly expensive,<sup>46</sup> and therefore compliance with the standard may also be unexpectedly expensive. In some cases, this may occur because the cost difference between compliance with the invention and without it is great; in others—perhaps the majority—it will occur because the invention *is* the standard. In either case, the problem becomes one of evaluating the possibility of alternative standards (not of evaluating the possibility of alternative means of compliance with the standard).

For example, suppose that the standard-setting organization relied on the ability to comply with standard S at a cost of \$6 in selecting that standard (cell E in the table). That is, suppose that the organization knew of and could have selected an alternative standard  $S_a$  that cost \$7 (in cell G).<sup>47</sup> So long as compliance with S at a cost of \$6 is possible, there may be no reason to consider  $S_a$ , but

<sup>&</sup>lt;sup>46</sup> The ongoing Rambus litigation apparently presents an example of this situation. *See* Tony Smith, *Rambus' 'very high' DDR royalty revealed*, <a href="http://www.theregister.co.uk/content/3/18706.html">http://www.theregister.co.uk/content/3/18706.html</a> (reporting that Rambus was charging a royalty of 3.5% of sales for rights to patents that had been incorporated in a standard, as compared with a 0.75% rate for some of its other patents).

<sup>&</sup>lt;sup>47</sup> At least in some cases evidence of such non-infringing alternatives may be available. *See* Federal Trade Commission, Statement, June 17, 1996, <<u>http://www.ftc.gov/opa/1996/9606/dell2.htm</u>> (describing the *Dell* case as one in which "there is evidence that the association would have implemented a different non-proprietary design had it been informed of the patent conflict during the certification process").

knowledge that compliance with S would cost \$8 (cell D, or cell E with a license) could provide such a reason. (If the \$1 cost difference seems insufficient, one can imagine a much higher difference. When S is identical to I, and the patentee refuses to license, the cost is infinite.) If an alternative standard was actually considered by the organization, and was rejected on the basis of cost only, limiting the patentee to a license fee of only \$1 (the cost difference between D, the chosen standard, and G, the alternative) seems straightforward.

The circumstances are more difficult when such an alternative was not actually considered. The question then is one of *hypothetical* non-infringing alternatives: if there had been disclosure of the patent, and therefore of the higher-than-expected cost, would the standard-setting organization have chosen a different standard that would have served as such an non-infringing alternative? At least if the patentee was not part of the standard-setting organization, the purpose of asking this question is not to determine whether the patentee behaved unethically — it had no obligation to disclose — but to determine just how much its invention contributed to the demand for the invention. If, with knowledge of the patent, the standard-setting organization would have found a non-infringing alternative, it is fair to infer that the demand for the standard is not due to the incorporation in it of the patentee's invention.

The patentee should be free to contest such an inference, though. For example, the patentee might argue that the circumstances are as shown in the table above. As described above, the selection of  $S_a$  would have provided a noninfringing alternative that would have achieved one-half of the cost savings provided by invention I in standard S; as a result, the patentee of I would be entitled only to the \$1 in cost savings that its invention provides. But the demand for the standard  $S_a$  in cell G is less than the demand for the standard S (incorporating invention I) in cell E. If the greater demand for standard S

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is due to the technical contribution of invention I, the patentee would be entitled to the revenue from that greater demand; this issue is taken up in more detail in the next section.

Although the principles described above are applicable regardless of whether the patentee is a member of the standard-setting organization, organization membership is not irrelevant. The principles above depend on arguments regarding the existence of a possible alternative standard ( $S_a$ ). Those arguments will always be somewhat difficult for the parties to make, given their hypothetical nature, so the allocation of burdens of proof will be important. If the patentee is not part of the standard-setting organization, it seems appropriate to allocate the initial burden of showing that an alternative standard could have been chosen to the defendant infringer (or to the standard-setting organization itself). But if the patentee is a member of the standard-setting organization, it is reasonable to charge it with acting so as to facilitate the organization's process. Consequently, if by its nondisclosure it fails to do that, it is reasonable to require, if it later brings an infringement suit, that it bear the burden of showing that no alternative standard would have been chosen had it disclosed.<sup>48</sup>

<sup>&</sup>lt;sup>48</sup> These allocations of the burden of proof are generally consistent, or at least not inconsistent, with current law. As the Federal Circuit has said, the patentee generally has the burden of showing that the four *Panduit* factors (one of which is the absence of a noninfringing alternative) are met. Rite-Hite. Corp. v. Kelley Co., Inc., 56 F.3d 1538, 1545 (Fed. Cir. 1995). "The burden then shifts to the infringer to show that the inference is unreasonable for some or all of the lost sales." *Id.* (citation omitted).

Here, where the noninfringing alternative is a hypothetical one, the patentee would generally meet its burden by showing the absence of any *actual* noninfringing alternative. Therefore, the burden would be on the infringer to show that the inference of damages was an unreasonable one, as by showing that the standard-setting organization would have chosen a noninfringing alternative if it had had information about the patent. But if the patentee was a member of the organization, the approach proposed here would provide for a re-shifting of the burden to the infringer. One could view this approach as conforming to the *Rite-Hite* analysis simply by treating a showing of the patentee-member's nondisclosure as a showing that the inference of damages was unreasonable. The patentee could then show once again that the inference was reasonable by showing that no noninfringing alternative would have been chosen.

This burden is nevertheless less severe than some would impose. For example, JEDEC, the relevant standard-setting organization in the *Rambus* case, filed an *amicus* brief<sup>49</sup> in that case implying (though not quite saying) that nondisclosure should make a patent unenforceable.<sup>50</sup> JEDEC argues, as suggested above, that with knowledge of the existence of patent protection for technology it is considering, it might "seek to use alternative technology that is not saddled with actual or potential patent rights."<sup>51</sup> It also acknowledges, though, that "[i]n some cases . . ., the technology that is the subject of a patent or patent application may be technically superior to alternatives."<sup>52</sup> This presents the standard-setting organization's dilemma: the organization would prefer to avoid patented inventions, but to do so might result in a standard with significantly less technical merit.

JEDEC says, however, that its policy requires that it will use such technology only if the patentee agrees to a royalty-free or reasonable-and-nondiscriminatory licensing policy.<sup>53</sup> At the outset, it is difficult to assess this policy, given the lack of specificity for what "reasonable" means. But to the extent that the requirement contemplates any meaningful content for the term "reasonable,"<sup>54</sup> it seems an undesirably strict policy. Even if the patentee demands licensing revenues that are greater than those to which its contributions in cost reductions (and technical advantages, as discussed in the next section)

 $^{51}$  *Id*. at 6.

<sup>53</sup> Id.

 <sup>&</sup>lt;sup>49</sup> Amicus Curiae Brief of JEDEC Solid State Technology Association in Support of Appellees, Rambus Inc.
v. Infineon Technologies AG, Nos. 01-1449, 01-1583, 01-1604 (Fed. Cir. Feb. 8, 2002).

 $<sup>^{50}</sup>$  The brief says only that a court should impose "suitable remedies," *id.* at 14, but it cites with approval a number of cases in which courts have not enforced patents in such circumstances, *id.* at 11-13.

<sup>&</sup>lt;sup>52</sup> Id.

<sup>&</sup>lt;sup>54</sup> If the policy merely requires that the patentee will license its patent on some terms, rather than refuse to license it entirely, the term "reasonable" should be said to have no meaningful content. But the policy might in fact not contemplate any such meaning, if its focus is on ensuring that patentees act nondiscriminatorily.

entitle it, the adoption of the standard may be beneficial. That is, referring to the table, cell E may be an improvement over cell A (or B), even if the patentee demands more than the \$1 in licensing revenue to which it is entitled by the cost reduction that its invention provides. If so, an organization that refused to use the invention would be shooting itself in the foot if there were no acceptable alternative standard G. The approach proposed here — to require the patentee to prove that in fact there was no alternative standard — avoids that danger, while still ensuring that the standard-setting organization does not unnecessarily suffer from exploitation by patentees.

Moreover, this analysis throws some light on the approach of those standard-setting

organizations that require disclosure of patented inventions that are relevant to particular standardsetting activities, regardless of whether the patentee is itself a part of those particular activities. Some organization members oppose these policies,<sup>55</sup> presumably on the ground that if they do not participate in particular standard-setting efforts, they cannot deceptively promote standards that would incorporate

2.Working Group participants: individuals, whether or not they are in good standing, who have joined a Working Group, and their alternates

<sup>&</sup>lt;sup>55</sup> For example, the W3C Patent Policy Framework requires disclosure from all W3C members:

W3C Members agree to use good faith efforts to disclose all patents known to them which may contain Essential Claims. Disclosure obligations stated here cover:

<sup>1.</sup>W3C Members: whether or not they are part of a given Working Group

<sup>3.</sup>Working Group contributors: Working Group members who make formal contributions to a Working Group

W3C Patent Policy Framework § 7 (W3C Working Draft, Aug. 16, 2001), <a href="http://www.w3.org/TR/2001/WD-patent-policy-20010816/">http://www.w3.org/TR/2001/WD-patent-policy-20010816/></a>.

A W3C member has formally objected to this approach:

The draft Patent Policy Framework includes an onerous membership-wide RAND (reasonable and non-discriminatory) licensing commitment that unreasonably burdens a significant portion of the W3C Membership that participate in only a subset of the W3C's working groups. Under the current draft, a member is required to offer a license on all W3C Recommendations whether or not the member had any involvement in the development of those Recommendations. We propose an alternative arrangement in which working group participants would be required to offer a RAND license only for those Recommendations produced by a working group in which the member participated. The disclosure requirements under Section 3.2 would still pertain to the W3C Membership as a whole.

Formal Objection, <http://www.w3.org/2001/08/ppwg-fo2-16July2001.html>.

their patents. But the approach described above places the burden on the patentee not so much as a penalty for any particular act of deception as because of a more general facilitation of the standard-setting process. By joining a standard-setting organization, an organization member presumptively commits itself to that goal, and presumably benefits in its industry relations from that commitment. It therefore should not be permitted to disavow its commitment later, when it sees an opportunity for profit. The adoption by standard-setting organizations of general — *i.e.*, non-standard-specific — disclosure policies is consistent with this understanding.

## B. Demand from Technical Advantages

In many instances, the demand for a patented invention will arise not from any cost savings that it provides in complying with a standard, but from its particular contributions to the desirability of the standardized product. Generally speaking, it is more difficult to derive objective measures of the demand for an invention than it is to derive such measures of the cost savings it provides. Nevertheless, it is possible in some circumstances to distinguish demand for an invention and demand for a standard, even where the invention and the standard coincide.

Suppose, referring to the table above, that three approaches, A, C, and E, are known to accomplish a particular goal, and that C and E are patented, but that the existence of the patent protection for E is not known.<sup>56</sup> Suppose further that A and C are the approaches that have generally been adopted by those in the industry, but that an industry standardization effort selects a standard based on E (perhaps to avoid giving an advantage to the users of either A or C). Consumers demand the standardized product, and the industry switches to E. Under these circumstances, the fact that users

<sup>&</sup>lt;sup>56</sup> The significance of this latter assumption is explained in the text following note 57 *infra*.

had not selected E before it was chosen as a standard, but did so after it became the standard, suggests that their later choice of E was not due to its intrinsic value but to the standardization.<sup>57</sup> Moreover, the initial secrecy of the patent supports this conclusion, because it indicates that E was not avoided by the industry merely to avoid the payment of licensing fees for E.

If E *had* been widely used even before its adoption as a standard, the situation would be more complicated. In such circumstances, one might be able to conclude that E was adopted for its intrinsic value, but if the patent on E were secret, one could *not* conclude that the demand for E was sufficient to give the patentee power to impose any particular licensing terms. That is, one cannot conclude from users' adoption of an invention when the use of it is free, that they would also be willing to pay for it. For that reason, the use of a patented invention prior to its standardization does not justify the patentee's post-standardization imposition of more onerous licensing terms.

The patentee would, however, be justified in continuing to impose whatever licensing terms it imposed before standardization.<sup>58</sup> That is, suppose that I had been adopted by some, but not all, users before being adopted into a standard. Suppose also that after I's adoption as a standard, the other users sought also to license it. If those users had previously used some technology other than I, and in fact had declined to license I on its pre-standardization terms, they might contend that, for them, it was I's value as a standard, not as technology, that they sought. But even if they did not prefer the technology of I over other alternatives, given their relative pre-standardization prices, the pre-

 $<sup>^{57}</sup>$  The possibility that the standard might have been made possible only by the existence of E, so that E should be entitled even to the returns from standardization., is discussed below *See infra* part II.C.

<sup>&</sup>lt;sup>58</sup> IBM, for example, takes this approach, at least in some instances. Its statement regarding licensing of a patent that it believes is relevant to the standard-setting activities of the Internet Engineering Task Force states that "IBM is willing upon written request to grant a nonexclusive license under such patents on a nondiscriminatory basis and on reasonable terms and conditions, including its then-current terms and royalty rates." *See* <a href="http://www.ietf.org/ietf/IPR/IBM-SNMP">http://www.ietf.org/ietf/IPR/IBM-SNMP</a>>.

standardization license terms of I are still the best estimate of its value. That is particularly so in that I might have technological benefits in a standardized context that it did not have when there was no standard. This is reflected in the table in the greater demand for E over F (or D), though the demand for B was less than that for C.

It must be clear, though, that the pre-standardization terms represent an objective estimate of value. For example, the court in *Townshend v. Rockwell International Corp.*<sup>59</sup> might too readily have accepted an argument along this line, where the alleged infringer argued that the patentee had sought unfair licensing terms after adoption of a standard:

Even if the [c]ourt were to consider the unfair terms alleged by [the alleged infringer], the [c]ourt finds that these terms do not state an injury to competition. First, with respect to the proposed royalty rates, the [c]ourt notes the initial licensing proposal dated September 1997 sought a maximum \$1.25 per-unit royalty for client-end products and a maximum \$9.00 perport royalty for server-end products. In September 1998, after the V.90 standard had been adopted, [the patentee] submitted a revised licensing proposal which sought a maximum \$1.25 per-unit royalty for client-end products and a maximum \$1.25 per-unit royalty for server-end products. Set a maximum \$2.50 per-port royalty for server-end products and a maximum \$2.50 per-port royalty for server-end products.

If the court meant to suggest here that the absence of any royalty increase after adoption of the standard was evidence of the reasonableness of the terms, that was incorrect. The initial licensing proposal was submitted to the standard-setting organization,<sup>61</sup> and thus was made against the (anticipated) background of the standardization. For pre-standardization licensing terms to be significant, they must have been determined prior to any effect, actual or anticipated, of standardization.

<sup>&</sup>lt;sup>59</sup> 2000 U.S. Dist. LEXIS 5070, 55 U.S.P.Q.2d 1011 (N.D. Cal. 2000).

<sup>&</sup>lt;sup>60</sup> *Id.* at \*23-\*24.

<sup>&</sup>lt;sup>61</sup> *Id.* at \*21.

That is not to say, however, that if the patentee did not seek license fees prior to

standardization, it would never be justified in demanding such fees after standardization. In such circumstances, the analysis could rely on inferences from the post-standardization market. But this is only possible in certain circumstances. When cost savings are the issue, as discussed in the previous section, one can hypothesize alternative standards, because one can objectively evaluate the cost of compliance with hypothetical standards.<sup>62</sup> In contrast, it is more difficult to estimate the demand for hypothetical inventions or standards. Therefore, only where the post-standardization market presents actual alternatives can one reliably estimate the relative significance of the invention and the standard.

As an example of an instance where such an alternative *is* available, suppose, referring again to the table, that it is possible to comply with the standard either by using invention I or without using any invention. Suppose also, as shown in the table, that the alternatives for compliance with the standard are D and E, that the cost of compliance with D is \$7, and that the cost of compliance with E is \$6. Under these circumstances, the patentee would presumably demand, and users would pay, a license fee of at least \$1 for E. If the license fee paid exceeded \$1, one could assume that I was licensed for its technical contribution, as well as (or rather than) for the cost savings that it provided. Therefore, the patentee's entitlement to the \$1 from cost savings would be determined under the principles described in the previous section, but the patentee would be entitled to any license fees beyond the \$1, because those fees would be due to demand for the invention's technical contribution.

Similar inferences can be drawn from alternatives that appear subsequent to standardization, though the process is somewhat more complicated. For example, suppose that there is no alternative D,

<sup>&</sup>lt;sup>62</sup> It is also possible to infer, with at least some confidence, whether a standard-setting organization would have adopted an alternative standard.

but that after standardization, an alternative invention  $I_a$  is created that allows compliance with the standard, as in cell F in the table. Suppose that F is licensed for \$2, and that E had been licensed for \$3. If consumers chose F over E under these conditions, one could infer that the combination of E's cost savings and technical advantages was no more than \$1 greater than the same combination for F. Therefore, one could use the relative costs of practicing E and F to determine how much buyers would be willing to pay for E's technical advantages. For example, suppose that the cost to comply with the standard were the same for E and F (absent license fees). One could then infer that E's technical contributions were valued by buyers at no more than \$1 more than F's. More significantly, if the cost to comply with the standard were \$2 less for E than for F (as if the cost in cell F of the table were \$8), one could infer that E's technical contributions were valued by buyers at (no more than) \$1 less than F's, and therefore at no more than \$1.<sup>63</sup>

Of course, the extent to which real-world facts will provide this sort of information is unclear. For example, the scenario in the preceding paragraphs somewhat resembles the GIF controversy.<sup>64</sup> When Unisys asserted its patent on the algorithm for generating compressed GIF files, an effort was initiated to develop a method of creating the files while not infringing the patent.<sup>65</sup> Had this effort been entirely successful, one could perhaps have made the calculations described above. But the alternative method that avoided the patent was not entirely successful,<sup>66</sup> so that no such clear conclusions can be

 $<sup>^{63}</sup>$  That is, E's total contribution, relative to F, is \$1, and its relative cost savings contribution is \$2. Therefore, its relative technical contribution is -\$1. Because F's (absolute) total contribution is \$2, its technical contribution can be no more than \$2, and E's therefore can be no more than \$1.

<sup>&</sup>lt;sup>64</sup> See Michael C. Battilana, *The GIF Controversy: A Software Developer's Perspective*, <http://cloanto.com/users/mcb/19950127giflzw.html> (visited Nov. 13, 2001).

<sup>&</sup>lt;sup>65</sup> Id.

<sup>&</sup>lt;sup>66</sup> Id.

drawn. Nevertheless, because the alternative method apparently worked in some applications but not in others,<sup>67</sup> it might have been possible to derive useful information from its implementation.

The value of this information would come in determining the total entitlement of the patentee of I to reasonable royalties (or to damages based on reasonable royalties). Its entitlement potentially comes, as described above, from two sources: cost savings and technical advantages. As described in the previous section, a patentee's entitlement to returns on cost savings that its invention makes possible may be limited depending on whether it disclosed the existence of its invention during the standard-setting process. However, the patentee's entitlement to returns on the independent technical contribution made by its invention is not so limited; it is therefore important to allocate the returns sought by the patentee to their correct sources.

It is important to note that the principles discussed above apply even in cases in which the patentee, during patent prosecution, amends its claims to conform to a standard under consideration, as has happened in some cases.<sup>68</sup> Because the key issue under the approach proposed here is whether the demand for the invention arises from its technical contribution or from its adoption as a standard, whether the claims are identical to the standard is irrelevant. So is the question that some have

Id.

 $<sup>^{67}</sup>$  Specifically, in applications where compression of the data was not critical, alternatives might have worked:

Some of the most active developers decided to collaborate on the design of a patent-free evolution of GIF (and TIFF's LZW compression mode). A method was quickly found to create uncompressed GIF files without using LZW code, while remaining compatible with existing GIF loaders. Also, a variety of different procedures and data structures (such as Shannon-Fano and AVL trees) have been used to compress data in ways similar, if not always equivalent, to LZW. But a diversity in procedures and data structures alone apparently does not escape the patent. As one expert said, "If the output data is [compressed] GIF, the compressor infringes the Unisys patent regardless of the algorithm."

<sup>&</sup>lt;sup>68</sup> See, e.g., Janice M. Mueller, *Patenting Industry Standards*, 34 J. MARSHALL L. REV. 897, 913-14 (2001) ("After the CARB issued its regulations, the refiners contended, Unocal cancelled its original patent claims and intentionally substituted amended claims to 'resemble' the CARB regulations.") (footnote omitted).

suggested for dealing with such cases: should the resulting patent be said to have been "invented" by the standard-setting organization, rather than by the patentee?<sup>69</sup> Under the approach proposed here, the question is the more fundamental one of whether the standard-setting organization or the patentee created the demand for the invention.

## C. Inventions That Enable Standards

The most conceptually difficult cases under the test proposed here are those in which the invention that is incorporated in the standard provides some advantages over alternative approaches in achieving the goal of the standard. Here the distinction between standards that are directed at interoperability and those that are directed at improved performance becomes an important one. Most inventions embody technical advances that are not directed specifically at interoperability. For those inventions, it is not difficult, at least conceptually, to distinguish the technical benefits of the invention and the interoperability of the standard. Where both the invention and the standard are directed at improved performance, that distinction is more difficult to maintain.

The *Unocal* case<sup>70</sup> presented an example of an invention that was arguably essential to a performance-directed standard. Unocal received a patent on gasoline formulations that produced less emissions than previous formulations. When the California Air Resources Board (CARB)<sup>71</sup> enacted a

<sup>&</sup>lt;sup>69</sup>See Janice M. Mueller, *Patenting Industry Standards*, 34 J. MARSHALL L. REV. 897, 913-14 (2001). This argument was made in the *Unocal* case, but did not prevail. *See* Union Oil Co. of Cal. v. Chevron U.S.A., Inc., 34 F. Supp. 2d 1222, 1224 (C.D. Cal. 1998) (stating that the defendants made a "derivation' argument, the gist of which was that Unocal had copied the invention from [the California state agency that established the relevant regulations]," but that "[n]o competent evidence was introduced in support of that argument and the jury did not find the patent invalid on that basis").

<sup>&</sup>lt;sup>70</sup> Union Oil Co. of Cal. v. Atlantic Richfield Co., 208 F.3d 989 (Fed. Cir. 2000).

<sup>&</sup>lt;sup>71</sup> Because the CARB was a state agency, *Unocal* presents some issues that are not present in cases that involve an industry standard-setting body. For example, the CARB standard was coercive in a more direct way than are "voluntary" industry standards. These differences are not important in the present context, however.

new, more demanding emissions standard, Unocal notified its competitors that they would be required to license its invention.<sup>72</sup> In such a case, where the standard is directed at improved performance, the patentee is entitled to whatever returns it can achieve. If there is more than one way of complying with the performance standard, the patentee will face competition, which will constrain its licensing terms. And if the patentee's invention is the only means of complying with the standard, or if alternatives are significantly less desirable, the invention can be said to make the standard possible, and thus the patentee is entitled to the returns derived from demand for the standardized product.<sup>73</sup>

Where a standard is directed at interoperability, rather than performance, this is generally not the case. In most such instances, interoperability could be achieved in any of a variety of ways, just as a particular level of performance can (in principle) be achieved in many ways. The difference in the interoperability context is that the standard achieves its goal by specifying a particular approach, thus eliminating some alternatives that might otherwise have provided competition. As a result, even if the particular standard chosen is technically better than alternatives, and is better because it incorporates a patented invention, the patentee may also benefit from the standard-setting organization's exclusion of possible competition. It may therefore be possible to distinguish two distinct sources of demand: technical performance and interoperability. When that is the case, one can apply the principles from the previous section to determine the patentee's contribution to demand, and thus its entitlement to licensing revenue.

<sup>&</sup>lt;sup>72</sup> Union Oil Co. of Cal. v. Atlantic Richfield Co., 208 F.3d 989 (Fed. Cir. 2000). Some of Unocal's competitors contended that it had behaved inequitably in keeping the existence of its patent application secret while CARB deliberated on its standard. Such conduct, if proven, might be an independent reason for denying a patentee license revenue, but it is not directly relevant to the approach to these issues that is proposed here.

<sup>&</sup>lt;sup>73</sup> But see supra note 72.

For example, the claims on which Rambus bases its ongoing action patent infringement action<sup>74</sup>

are generally directed to memory devices, as in the following example:

14. A synchronous semiconductor memory device having at least one memory section which includes a plurality of memory cells, the memory device comprising:

a programmable register to store a value which is representative of a number of clock cycles of an external clock to transpire before data is output onto an external bus in response to a read request; and

a plurality of output drivers, coupled to the bus, to output data in response to the read request, wherein the output drivers output data on the bus after the number of clock cycles of the external clock transpire.<sup>75</sup>

These claims are alleged by Rambus to be infringed by products that comply with a JEDEC<sup>76</sup> standard for dynamic random access memory devices. Although JEDEC's standards are directed at ensuring compatibility among different manufacturers' devices,<sup>77</sup> the Rambus claims are directed at particular implementations that do not obviously further the goal of compatibility.

There is, however, the possibility that an invention could be directed specifically at, or at least could contribute to, improvements in interoperability. For example, if the contribution of an invention were, say, to provide a form of computer bus connection that worked with a wide variety of circuit board configurations, that invention might contribute significantly to interoperability. If so, it could be entitled to the profits made possible by the demand created by adoption of that invention as an interoperability standard.

<sup>&</sup>lt;sup>74</sup> Rambus, Inc. v. Infineon Technologies AG, No. 3:00CV524 (E.D. Va. filed Aug. 8, 2000).

<sup>&</sup>lt;sup>75</sup> U.S. Patent No. 5,953,263, at col. 25, lines 32-42 (claim 14).

<sup>&</sup>lt;sup>76</sup> See Joint Electronic Device Council, <www.jedec.org>.

<sup>&</sup>lt;sup>77</sup> Memorandum Opinion 8, Rambus, Inc. v. Infineon Technologies AG, No. 3:00CV524 (E.D. Va. Aug. 9, 2001), <a href="http://www.rambusite.com/RambusVsInfineon/Docket\_400.htm">http://www.rambusite.com/RambusVsInfineon/Docket\_400.htm</a>.

This might in fact be true of the invention in the *Dell* case.<sup>78</sup> The patent at issue in that case,

U.S. Patent No. 5,036,481, includes the following independent claim:

1. A personal computer system having an I/O channel and a memory channel, and having a dual purpose expansion slot, comprising:

(a) a chassis;

(b) a main logic board mounted on the chassis and incorporating the I/O channel and the memory channel;

(c) a fixed number of expansion slots, including the dual purpose expansion slot, each occupying a fixed volume, positioned over the main logic board for providing space for selective connections of I/O devices, implemented on full length and short logic cards, to the I/O channel;

(d) a high speed memory system mounted on the main logic board and connected to the memory channel, occupying a fixed amount of space; and

(e) expansion high speed memory, mounted on the main logic board within the fixed amount of space, connected to the memory channel, and occupying a portion of the dual purpose expansion slot, the remaining portion being occupied by a short logic card, thereby enabling increased high speed memory capacity without eliminating I/O capability.<sup>79</sup>

The flexibility provided by the "dual purpose" expansion slot might well make standardization more attractive. As the patent notes, the invention "may be practiced in other personal computers with more or less memory, [and with] more or less [sic] expansion slots with different implementations of memory and connectors."<sup>80</sup> It is not implausible that it was exactly this flexibility that made the invention a desirable standard.

This point applies only when the patented invention is incorporated in the standard, of course.

For that reason, the principles discussed above for analyzing whether an alternative standard might have

<sup>&</sup>lt;sup>78</sup> In re Dell Computer Corp., File No. 931-0097 (F.T.C. 1996).

<sup>&</sup>lt;sup>79</sup> U.S. Patent No. 5,036,481, at col. 3, lines 41-65.

<sup>&</sup>lt;sup>80</sup> *Id.* at col. 3, lines 34-37.

been chosen apply in this context also, as do whatever other principles are applicable to a patentee's nondisclosure to a standard-setting organization. The F.T.C.'s enforcement proceeding against Dell was therefore appropriate, particularly under its view that if Dell's patent had been disclosed, the standard-setting organization might have adopted a non-proprietary standard.<sup>81</sup> Indeed, where the invention at issue contributes directly to the goal of the standard-setting organization, it seems particularly appropriate to impose on the patentee a duty to disclose.

## D. De Facto *Standards*

Patented *de facto* standards present a special case in the broader range of patented inventions that enable standardization. A *de facto* standard is one that achieves industry acceptance without the imprimatur of any official or quasi-official standard-setting body. Initially, it might seem that the incorporation of an invention in a *de facto* standard would generally indicate that the invention contributes to making the standard possible, in the sense discussed in the previous section. That is, it might seem that when the market chooses a standard that incorporates an invention, it will do so because the invention best serves the purposes of standardization.

In fact, though, the market is likely to choose a standard just as does a standard-setting body, in order to maximize the combination of inherent technical benefits and suitability to the goals of the standard (such as, for example, interoperability), and in order to minimize the costs of searching for a standard. Consequently, that an invention is chosen for a standard may not reflect that it makes any contribution to the goals of the standard, but only that it provides greater, or at least no less, technical benefits than alternative possibilities, or that its availability avoids the need to search for another method

<sup>&</sup>lt;sup>81</sup> See supra note 17.

of achieving standardization. Thus, a patentee's entitlement to revenues from the adoption of its invention in a *de facto* standard can generally be determined in the same way as described in the preceding sections for *de jure* standards.

There is one important difference, though. Because a *de facto* standard comes into existence without a formal standard-setting process, it is more difficult to define a point at which a duty of disclosure would arise for the patentee. If no such duty exists, the burden of showing that if information about the patent had been available, an alternative standard would have been adopted will fall, as described above, on the infringer. Nevertheless, in some cases it may be reasonable to impose upon the patentee of an invention incorporated in a *de facto* standard a duty to disclose.

For example, market participants sometimes promote the adoption of their approach to a particular problem, and this promotion can contribute to the development of a *de facto* standard. Where such promotion occurs, the patentee should be charged with a duty to disclose the existence of any relevant patents. The rationale would be that the patentee, by promoting its invention, is participating in the standard-setting process, even if the process is an informal one. Moreover, the disclosure required, in this context as with formal standard-setting processes, should be sufficient to put potential adopters on notice as to the specific claims at issue. For example, Microsoft has promoted its "HailStorm" product (now called, "Microsoft .NET My Services"), which it describes as "a

user-centric architecture and set of XML Web services," as an industry standard.<sup>82</sup> In its literature promoting HailStorm, Microsoft does mention that it may have intellectual property rights:

Microsoft may have patents, patent applications, trademarks, copyrights, or other intellectual property rights covering subject matter in this document. Except as expressly provided in any written license agreement from Microsoft, the furnishing of this document does not give you any license to these patents, trademarks, copyrights, or other intellectual property.<sup>83</sup>

Although Microsoft is certainly correct that its marketing of HailStorm should not be construed as granting a license to its intellectual property, the promotion of HailStorm as a standard should be sufficient to impose on Microsoft the burden of disclosing any intellectual property that would influence adoption of its products as a *de facto* standard. A general disclosure of the existence of *some* intellectual property rights, as in the passage quoted above, is not sufficient. In the absence of more specific disclosure, describing the nature of the intellectual property and its applicability, Microsoft should be required, if it seeks returns from the adoption of its products as standards, to show that even with disclosure, its products would have been chosen as standards.

Microsoft, Building User-Centric Experiences: An Introduction to Microsoft Hailstorm 4-5 (Mar. 2001).

<sup>&</sup>lt;sup>82</sup> Microsoft's marketing literature is fairly explicit:

HailStorm is the user-centric architecture and set of services for .NET that deliver personally relevant information through the Internet to a user, to software running on the user's behalf, or to devices working for the user. HailStorm services are accessed through SOAP (Simple Object Access Protocol) and XML (eXtensible Markup Language), which are open access technologies: they can be called from any network-connected device that supports SOAP, regardless of operating system or service provider. SOAP and XML are the open Internet standards Microsoft has helped champion throughout the first phase of the .NET rollout. HailStorm is the next logical step: Microsoft began by encouraging the general standards and introducing the first Web services tools and infrastructure. Now we're leading the way to the first set of compelling Web services.

<sup>&</sup>lt;sup>83</sup> *Id.* at 13. Interestingly, the latest version of this paper, though in similar in many ways to the older one, omits this notice regarding intellectual property. *See* Building User-Centric Experiences, <a href="http://www.microsoft.com/myservices/services/userexperiences.asp"></a> (visited Apr. 2, 2002).

#### III. PATENT-STANDARD BLOCKING

The combination of a patented invention and a standard incorporating the invention is fundamentally similar to the combination of two "blocking" patents.<sup>84</sup> Two patents "block" each other when each is necessary to produce a particular product. The typical blocking situation arises when there is a first patent on a broad invention and a second patent on a narrower improvement on that broad invention. In that situation, licenses under both patents are needed to produce a product that incorporates the improvement. Thus, the owner of either patent can block the production of the product. Usually, however, the patentees will arrange a cross-licensing or pooling arrangement, since it is in both their interests to profit from their innovative contributions.<sup>85</sup>

The patent-standard combination has much the same effect. To produce a product that embodies both a patented invention and standardization, a seller must both obtain a license under the patent and comply with an agreed-upon standard. And just as with the blocking patents, this reflects the fact that there are two independent contributions to the value of the ultimate product (assuming that there are independent benefits from the invention and from standardization). The patentee, of course, provides the innovative contribution for the invention, but the standard-setting organization and its members also invest considerable effort to create the standard.

In contrast to the situation of blocking patents, though, the negotiation of an agreement between the contributors in the patent-standard situation presents a problem. Specifically, if the members of the standard-setting organization negotiate collectively with the patentee, or if the organization itself

<sup>&</sup>lt;sup>84</sup> This point recalls the brief discussion of patent scope above. *See supra* text accompanying notes 32-36.

<sup>&</sup>lt;sup>85</sup> See generally U.S. Department of Justice and Federal Trade Commission, Antitrust Guidelines for the Licensing of Intellectual Property § 5.5 (1995).

negotiates for them, they will put themselves at risk for antitrust liability. Generally, it is an antitrust violation for individual competitors to combine their negotiating power. In the patent-standard context, though, the underlying rationale for that general rule is not applicable.

The members of a standard-setting organization, or at least the organization itself, should be treated as a single entity when involved in negotiations related to the standard. More specifically, when a goal of the negotiation is to procure a patent license that will enable the practice of the standard, and when the license will only be valid when it is used with the standard, the members can be thought of as negotiating for the standard itself. In such circumstances, the individual members are not pooling their market shares to gain greater power, but are using the power of the standard. In that respect, they are acting just as would the owner of an improvement patent in a situation in which its use of the patent was blocked by another patent.

As described above, the standard, though not technically an intellectual property right, functions much like one, in that it requires a considerable investment to develop and provides easily duplicatable benefits to those with access to it. Although it may not meet the technical requirements of patentability,<sup>86</sup> it is nevertheless a source of market power that is distinct from the sellers that produce products in compliance with it. For that reason, it should be treated as a unitary interest, and members of a standard-setting organization negotiating for it should not be treated as parties to an impermissible agreement. In that context, they are more akin to the licensees of a patent than to competitors.<sup>87</sup>

<sup>&</sup>lt;sup>86</sup> Although it might be possible to patent, for example, the use of a particular technical approach to achieve interoperability, it seems likely that in most circumstances such a use would be obvious (given the availability of the technical approach itself).

<sup>&</sup>lt;sup>87</sup> In that respect, they could be treated as having the sort of "unity of interest" that can prevent formally separate entities from forming an illegal conspiracy for the purposes of Sherman Act § 1. *See* Copperweld Corp. v. Independence Tube Corp., 467 U.S. 752 (1984).

This view calls into question the allegation in Sony Electronics, Inc. v. Soundview

*Technologies, Inc.*,<sup>88</sup> that the members of a standard-setting organization had conspired to refuse to license a patent that was needed to comply with a standard. The challenged actions in that case were coordinated through the standard-setting organization, and they appeared to be directed solely to enabling compliance with the standard.<sup>89</sup> Hence, although the court refused to dismiss the antitrust claims, holding that the patentee had properly alleged a conspiracy to drive down license fees, the members of the organization might better be viewed as vindicating the interests of the standard itself, rather than their own interests independent of the standard.

It is true, though, that if this sort of freedom from normal antitrust standards were provided,<sup>90</sup> it could perhaps be used anticompetitively. For example, the members of a standard-setting organization, if unsatisfied with the terms offered by a patentee, might develop a sham standard in order to be permitted to negotiate collectively.<sup>91</sup> However, this possibility could be addressed by the same method used for determining whether a patent provides an independent technical contribution to a standardized product. That is, if the purported standard provided no independent contribution to demand, it would provide no benefit to which its creators would be entitled, and thus would not justify any antitrust accommodations in the negotiating process.

<sup>90</sup> This assumes that a deviation from normal antitrust standards would be required. *See supra* note 87.

<sup>&</sup>lt;sup>88</sup> 157 F. Supp. 2d 180 (D. Conn. 2001).

<sup>&</sup>lt;sup>89</sup> See id. at 181-82.

<sup>&</sup>lt;sup>91</sup> Or they might use licensing negotiations for a standard as an opportunity to exchange information for anticompetitive purposes. For example, some of the information gathered by the standard-setting organization in the *Soundview* litigation seems at least as useful for anticompetitive collusion as it would be for negotiating a license. *See* Sony Electronics, Inc. v. Soundview Technologies, Inc., 157 F. Supp. 2d 190, 193 (D. Conn. 2001) (noting that the organization's "meeting minutes also make statements concerning the 'revenue streams' of member companies"). However, because this sort of information exchange would not necessarily harm the patentee, it might have no standing to challenge it.

One might also be concerned that this approach would provide standard-setting organizations with so much power that they would negotiate patent licensing fees that would be too low to provide sufficient incentive for innovation. It is true that it is theoretically possible that a standard-setting organization could have the power to force a patent licensing fee not just down to the value of the invention's technical contribution — which would be desirable<sup>92</sup> — but below. It is equally possible, though, that the patentee, which is after all in a similar monopoly position, could demand fees higher than those justified by its contribution. In fact, Merges and Nelson argue that a likely outcome in the similar context of original and improvement patents (analogous, as described above,<sup>93</sup> to a patent and a standard) is that the original patentee will extract half the value of the improvement (standard).<sup>94</sup> Ultimately, the result is indeterminate, as would be expected with a bilateral monopoly. It is clear, though, that current rules allow patentees to threaten discriminatorily large fees from some standards users.<sup>95</sup> By at least eliminating that market failure, the approach proposed here seems likely to provide better correspondence between financial returns and innovative contributions.

## **IV.** INCENTIVE EFFECTS

The approach proposed above would deny patentees some of the returns to which they might otherwise be entitled. This could be viewed as undesirable: one might argue that when an inventor considers whether to engage in a particular research project, it includes in its decision-making calculus the possibility that any invention it creates might be adopted as an industry standard, in which case it

<sup>&</sup>lt;sup>92</sup> See supra part I.A.

<sup>&</sup>lt;sup>93</sup> See supra text accompanying notes 84-85.

<sup>&</sup>lt;sup>94</sup> See Merges & Nelson, *supra* note 32, at 866 n.117.

<sup>&</sup>lt;sup>95</sup> See Smith, supra note 46.

would reap the return from that adoption. Therefore, the argument would go, to deny the inventor that return would lessen its incentive to invent. There are several responses to this argument.

First, under the approach proposed here the inventor would not be denied returns derived from its technological contribution, even if its invention *was* incorporated in a standard. It would only be denied those returns that are derived from the standardization. Consequently, to the extent that the inventor relied on the latter returns, there is no reason to think that those returns would be correlated in any way with the desired incentive for technical innovation. The law provides patent protection for inventions in the expectation that the costs imposed by the elimination of competition in the sale of those inventions are balanced by the benefits of increased innovation. This balance is struck, at least implicitly, by granting the patentee the right to exclude others from its *invention*. If the patentee is permitted to exclude others not just from its invention but also from the standardization efforts of others, this balance is disturbed.<sup>96</sup> Overinvestment, always a concern in patent law,<sup>97</sup> becomes a very real possibility, in that patent law would then create an incentive not just for beneficial innovation but also for inefficient rent-seeking.

Second, to the extent that the cases provide guidance in this area, they suggest that it is exactly this sort of rent-seeking that is encouraged when patentees seek returns from the standardization of their inventions. Inventors seeking adoption of their inventions as industry standards have distorted the

<sup>&</sup>lt;sup>96</sup> See Patterson, supra note 9.

<sup>&</sup>lt;sup>97</sup> See, e.g., Jennifer F. Reinganum, *The Timing of Innovation: Research, Development, and Diffusion* 850, in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 849 (Richard Schmalensee & Robert D. Willig, eds., 1989) ("The typical outcome of these comparisons [between models that compare noncooperative investment in research and development with cooperative investment or the surplus-maximizing result] is that aggregate expenditure on R& D is too high relative to the cooperative optimum; there are too many firms and each invests too much.").

standard-setting process in a variety of ways.<sup>98</sup> The effect, then, is not just one of higher prices for the standard that is ultimately selected, which is the distortion contemplated by patent law, but distortion of the standard-setting process itself. This effect must be added to the cost side of the balance, and it strengthens the conclusion that patent protection should not be extended to the effects of standardization.

One might object that, regardless of the theoretical merits of the approach proposed here, it would be difficult to apply in practice. One response is that if this approach is the right one in principle, we should not let practical difficulties dissuade us from adopting it, at least if it is not shown to be significantly more difficult than other inquiries. On that point, it is not clear that this approach presents problems that are more difficult than those that arise in other contexts where the source of demand for an infringing product must be determined. Whenever damages must be calculated in a patent case, the calculation requires consideration of such factors as the existence and significance of non-infringing alternatives,<sup>99</sup> and consideration of these factors presents difficulties that are similar both qualitatively and quantitatively to the approach proposed here.

Moreover, the adoption of the approach proposed here might itself reduce the need for its application. That is, to the extent that patentees are unable to rely on the ability to extract licensing

<sup>&</sup>lt;sup>98</sup> As discussed in note 7 *supra*, the F.T.C. brought an enforcement action against Dell Computer Corp., alleging that Dell had kept the existence of a patent secret while a standard based on the invention claimed in that patent was considered. Other companies that may also have engaged in such behavior are Rambus, Inc. and Sun Microsystems Inc. *See* Bridis, *supra* note 7 (reporting that the F.T.C. has commenced an investigation into whether Rambus and Sun encouraged standards organizations to adopt standards covered by patents that they did not disclose). Another example of questionable behavior in this context is the use of insiders at standard-setting meetings to gather information about the progress of the standard-setting process. *See* Tony Smith, *Rambus received leaked JEDEC SDRAM data*, <a href="http://www.theregister.co.uk/content/archive/18148.html">http://www.theregister.co.uk/content/archive/18148.html</a>.

<sup>&</sup>lt;sup>99</sup> See, e.g., Polaroid Corp. v. Eastman Kodak Co., 1990 U.S. Dist. LEXIS 17968, 16 U.S.P.Q.2d 1481 (D. Mass. 1990).

revenue for the effects of standardization, not only would they have less incentive to engage in the sorts of rent-seeking conduct referred to above, but they might also be more amenable to negotiated licensing arrangements. Currently, because the allocation of entitlements to the profits made possible by standards that incorporate patents are not well established, even in principle, there is a broad range of possible disagreement among the negotiating parties. By establishing the principle that a patentee is entitled only to revenues due to its technical contribution, the range of disagreement is narrowed, and a negotiated settlement made more likely.

## CONCLUSION

This essay has proposed an approach to determining a patentee's entitlement to licensing revenue when its invention has been incorporated into an industry standard. The proposed approach emphasizes an effort to distinguish between demand for the invention and demand for the standard. A patentee is entitled only to revenues from its own innovative contribution, and in some cases there may be evidence from which one can determine what portion of the demand for a standardized product is due to that contribution. In other cases, there may be no such direct evidence, but it may still be possible to use indirect evidence to draw inferences regarding the contributions of the patentee. Although in some instances this form of analysis will be inconclusive, even in those instances it adds needed clarity to the issues.