

**MISCONDUCT IN STANDARD SETTING:
THE CASE FOR PATENT MISUSE**

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Equity is not past the age of child bearing.

Lord Denning[♦]

[♦] Eves v. Eves, [1975] 1 W.L.R. 1338, 1340.

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I. INTRODUCTION

Patent misuse is an equitable defense to patent infringement. Conventional wisdom holds that it can be invoked by alleged infringers if and when patentees seek to enforce their rights with an anticompetitive effect that illegally extends beyond the statutory patent grant.¹ If misuse is found, courts will withhold any remedy for infringement or breach of a license agreement, even against an infringer who is not harmed by the abusive practice. However, it does not invalidate the patents asserted. The rights of patentees will be restored if and when the misuse is purged.

Properly applied, the equitable doctrine of patent misuse can complement current methods and play a meaningful role in deterring opportunistic behavior. Part II discusses the harmful effects of patent hold-ups. It suggests that the patent regime and market conditions contribute to its continued presence in courts and the literature. Part III highlights key methods devised to address patent hold-ups, and suggests why they do not address the problem. Many SSOs have internal rules requiring the disclosure of relevant patents and require members to commit to licensing on reasonable and non-discriminatory (“RAND”) terms.

Internal rules, however, are often vague and fail to encourage disclosure. More robust rules raise search costs, deter participation and slow down the standards setting process. Marking out the parameters of a RAND license has proved elusive. More fundamentally, internal rules are not designed to make patentees and adopters of their technology accountable to wider public interests.

¹ See *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700, 704 (Fed. Cir. 1992) (“The concept of patent misuse arose to restrain practices that did not in themselves violate any law, but that draw anticompetitive strength from the patent right, and thus were deemed to be contrary to public policy.”).

Antitrust laws can do so, particularly if brought by the Federal Trade Commission. However, the thresholds antitrust plaintiffs need to meet are high. Federal law on this issue is uncertain and the Supreme Court has expressed a disinclination to resolve the uncertainty.² Part III also considers how courts have deployed the equitable doctrines of estoppel and implied waiver, and explains why these doctrines are inadequate. Part IV addresses the main objections to patent misuse and shows how it could work in practice to complement antitrust enforcement. Part V concludes.

II. THE INEVITABILITY OF OPPORTUNISM

Industry standards are pervasive,³ and the establishment of industry standards often takes years to complete.⁴ Before a standard is adopted, the industry may be able to adjust the standard so that it avoids relying on certain patents by using functional substitutes. By disclaiming or limiting enforcement of certain patents,⁵ patentees may be able to assuage industry fears that they will charge high rents after the industry is locked into the standard.⁶ This may facilitate widespread adoption of a standard that might otherwise receive only a lukewarm reception. Widespread adoption of its technology may allow a patentee to capitalize on implementing the standard, developing complementary products, or providing support for implementations of the

² See *FTC v. Rambus*, 129 S. Ct. 1318 (2009) (denying cert.).

³ See Janice M. Mueller, *Patent Misuse through the Capture of Industry Standards*, 17 *BERKELEY TECH. L.J.* 623, 631 (2002) (“For example, one or more hardware or software standards govern virtually every aspect of using a computer or connecting to the Internet. . . . Beyond computing, standards exist in all industries, including “safety and health, telecommunications, information processing, petroleum, [and] medical devices.”).

⁴ See PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 2230a–b, at 401–05 (2d ed. 2005); *id.* ¶ 2136a, at 232.

⁵ See Robert P. Merges & Jeffrey M. Kuhn, *An Estoppel Doctrine For Patented Standards*, 97 *CAL. L. REV.* 1, 11 (2009) (“For example, some patentees offer a general promise that the relevant patents are ‘dedicated to the public’ or will otherwise never be enforced. Other patentees grant royalty-free licenses to developers of free and non-commercial software. Still other patentees claim to own no patents that cover a standard. Finally, a patentee may guarantee a particular royalty scheme to assuage fears that it would hike the rates once the industry adopted a standard.”).

⁶ See *id.* at 10 (“A patent holdup can occur when a standard owner unexpectedly increases the cost, which we call bait-and-switch, or when some third party unexpectedly asserts a patent, which we call snake-in-the-grass.”).

standard.⁷ Standard setting may give rise to anticompetitive collusive behavior.⁸ However, discussion of this issue is outside the scope of this paper.

Once a specific standard has been adopted, switching costs may become prohibitive. Manufacturers and developers may become “locked-into” to the standard and become reliant on the patented technology.⁹ Patent holdups occur when the patentee attempts to extract more value for the technology from users of the standards than it would otherwise be able to absent the standardization.¹⁰ It can be extremely costly, or even impossible as a practical matter, to redesign a product standard to avoid infringing a patented technology once the industry has been locked in. If manufacturers have begun selling products that comply with the initial standard, switching to a non-infringing design can be extremely costly and commercially unfeasible. With very high redesign costs, the threat of an injunction can lead to large royalty overcharges, especially for weak patents.¹¹ If anticipated, the royalty burden may make it unprofitable for the affected firms to conduct the R&D and incur the other costs necessary to develop the product. Alternatively, firms may not find it worthwhile to develop some versions of the product if the royalty burden prevents it from selling enough units at a large enough margin to recoup the additional development costs associated with those versions.

⁷ A similar *quid pro quo* often occurs in the copyright context in the form of open source software. See *Jacobsen v. Katzer*, 535 F.3d 1373, 1379 (Fed. Cir. 2008) (“There are substantial benefits, including economic benefits, to the creation and distribution of copyrighted works under public licenses that range far beyond traditional license royalties.”).

⁸ See Robert Pitofsky, *Antitrust and Intellectual Property: Unresolved Issues at the Heart of the New Economy*, 16 BERKELEY TECH. L.J. 535, 550 (2001) (“Standard setting, often under the auspices of a trade association, can facilitate innovation. On the other hand, private standard setting, precisely because it is private, is subject to abuse.”).

⁹ See Deborah Platt Majoras, *Recognizing the Procompetitive Potential of Royalty Discussions in Standard Setting Prepared for Standardization and the Law: Developing the Golden Mean for Global Trade*, at 3 (Sept. 23, 2005), available at <http://www.ftc.gov/speeches/majoras/050923stanford.pdf> (“[B]efore lock in [of the new standard]—or ‘ex ante’—technologies compete to be the standard, and no patent-holder can demand more than a competitive royalty rate. After lock in—or ‘ex post’—the owner of the chosen technology may have the power to charge users supra-competitive royalty rates—rates that may ultimately be passed on to consumers in the form of higher prices.”).

¹⁰ See Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2010–17 (2007) (arguing that patent holders should be limited as to when they may take advantage of the statutory right of injunction against an infringing user of their patent because of the serious problems with royalty stacking and patent holdup).

¹¹ See *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 396 (2006) (Kennedy, J., concurring) (“[A]n injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent.”).

The existence and significance of patent holdups may be properly contested.¹² First, it may be argued that patent holdups are counterintuitive. Standard setting may have multiple iterations for standards issuing over time. Firms have attempted a holdup will face a prickly reception in setting future standards. Firms will be reluctant to accept their suggestions or invent around their technology to pre-empt any future holdups.¹³ However, this argument overlooks the Prisoner's Dilemma impetus toward opportunistic behavior to maximize payoffs.¹⁴ The fact that patentees may have power only in this generation, and may not be repeat players exacerbates the tendency toward opportunism.

Second, it may be argued that buyers can anticipate these rouge patentees' strategies and take the lock-in into account in *ex ante* bargaining with patentees by discounting the final royalty agreed upon. But this counter-strategy has its limits, particularly for buyers who worry that they will not be able to foresee all the creative techniques sellers may use later when the network is firmly in place.

Third, it has also been argued that in a post-*eBay* world, hold-ups are less of a concern, at least where damages reflect the *ex ante* rather than *ex post* value.¹⁵ However, a recent empirical study indicates that as least with respect to court ordered royalties, *ex post* royalty rates

¹² See J. Gregory Sidak, *Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 714, 718 (2008) ("Despite Lemley and Shapiro's insistence to the contrary, there is little evidence of the existence of the holdup and royalty stacking problems that concern them."); Damien Geradin et al., *The Complements Problem Within Standard Setting: Assessing The Evidence on Royalty Stacking*, 14 B.U. J. SCI. & TECH. L. 144, 145 (2008) ("We note that the relevant question is not whether royalty stacking is possible, as the theoretical arguments behind it have withstood the test of time, but whether it is common enough and costly enough in actuality to warrant policy changes. The available evidence suggests not, implying that any policy changes aimed at solving royalty stacking are likely to cause more (unintended) harm than they cure.").

¹³ See Richard A. Epstein & Bruce N. Kuhlik, *Is There a Biomedical Anticommons?*, REGULATION 54, 55 (Summer 2004), available at <http://www.cato.org/pubs/regulation/regv27n2/v27n2-7.pdf> ("Refusing to deal is a loss of opportunity. In addition, the patent is always a wasting asset; not only is it limited in time, but even during the period of its unquestioned validity its holder faces the possibility that new patents, old patents that have expired, and new techniques that come into the public domain will erode its dominance. Those who do not deal will not prosper . . .").

¹⁴ The "Prisoner's Dilemma," first formalized by mathematician Albert W. Tucker, is a fundamental problem in game theory, that is used to characterize situations where participants make mutually disadvantageous decisions based on self-interest. See WILLIAM J. BAUMOL, ECONOMIC THEORY AND OPERATIONS ANALYSIS 452 (Prentice Hall 4th ed. 1977).

¹⁵ See Geradin, *supra* note 12, at 175 ("*eBay*'s four-factor test substantially limits a patent holder's ability to use the threat of an injunction to achieve holdup.").

significantly exceeds ex ante royalty rates because they are set with the value of the total product in mind.¹⁶ The precise reasons for the continuing problem of patent opportunism in spite of these reasonable observations are a matter for further empirical study, and outside the scope of this paper. The fact is that patent holdups exist.¹⁷ This section examines two causal factors.

A. Industry Factors

Modern life subsists on an intricately interwoven web of technological networks bridged by uniform standards¹⁸ As high-technology markets proliferate, the importance of interoperability standards that permit products from different vendors to work together continues to grow. Formal standards can ensure that products and services with multiple inter-working components operate as planned, and interoperate as needed with other products and services. Standardization spurs economies of scale accruing to a standard whose effects are amplified and whose rate of adoption is accelerated by network effects.¹⁹ Properly structured, standard setting allows patent holders to combine their technologies to create a single solution that is greater than the sum of its parts. Such a standard may accelerate the adoption of new technologies, improve consumer welfare, and promote competition among manufacturers practicing the standard in the downstream product market.²⁰

¹⁶ See Lemley & Shapiro, *supra* note 10 (finding an average royalty rate across all of the cases of 13.13% of the price of the downstream firm's infringing product).

¹⁷ See, e.g., Bronwyn H. Hall & Rosemarie Ham Ziedonis, *An Empirical Analysis of Patent Litigation in the Semiconductor Industry* (Working Paper, prepared for the 2007 American Economic Association annual meeting, Chicago, IL, January 4–7, 2007), available at http://elsa.berkeley.edu/~bhhall/papers/HallZiedonis07_PatentLitigation_AEA.pdf.

¹⁸ See Jonathan L. Rubin, *Patents, Antitrust, and Rivalry in Standard-Setting*, 38 RUTGERS L.J. 509, 509 (2007) (“Digital networks are polymorphic, so the need for digital interfaces (and the compatibility standards that make them work) increases as network functionality, the installed base of digital devices, and the volume of stored data enlarges.”).

¹⁹ See Merges & Kuhn, *supra* note 5, at 4 (“Standardization spurs network effects because a program that interoperates with a variety of programs and files is more valuable than one that works only in isolation. Standardization also results from network effects because adopting a technology already widely used often makes more sense than opting for a relatively untried technology without an ‘installed base’ of adopters.”).

²⁰ See Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889, 1896–97 (2002) (“Further, in markets for complementary products, companies will often gear their production to work with a product that is an industry standard, rather than a product that has only a small market share. For example, software vendors are more likely to write application programs that are compatible with Microsoft’s operating system than with

Many standards are based on technologies that qualify for patent protection. There are at least two reasons for this. First, the upward spiral of sophistication in consumer demand spurs a corresponding growth in the demand for patented standards which comprise state of the art technology—technology which is patented.²¹ Second, without exclusive control to recoup patent-related investments, an optimal level of research and development may not occur.²² The nature of the process by which standards are selected tends to involve consensus and compromise. A standard today may consist of a myriad of patented inventions, and it is common for multiple companies to own patents covering essential aspects of product standards.²³ Each individual firm may place high value on having at least one patent that covers an essential feature of the standard, in part to strengthen its bargaining position vis-à-vis other companies who own essential patents leading to a product standard that reads on the patents of many firms.²⁴

B. *The Patent Regime*

First, U.S. patent law allows applicants to add and amend claims during the application process, so long as the originally filed application supports the new claim language and the

other operating systems, because there are more consumers for such a product. This in turn reinforces the desire of consumers to buy the product everyone else buys—a phenomenon known as ‘tipping.’ In network markets, then, standardization may well be inevitable, and certainly carries substantial consumer benefits.”).

²¹ See Letter of Dan Bart, Vice President, Elec. Indus. Ass’n (EIA)/Telecomm. Indus. Ass’n (TIA), to Federal Trade Commission, at 4 (Jan. 22, 1996); see also Janice M. Mueller, *Patenting Industry Standards*, 34 J. MARSHALL L. REV. 897, 946 (“Standards in . . . high-tech industries must be based on the leading-edge technologies. Consumers will not buy second-best products that are based only on publicly available information.”).

²² See David Friedman, *Standards as Intellectual Property: An Economic Approach*, 19 U. DAYTON L. REV. 1109, 1122 (1994) (“The availability and quality of the standard may very much depend on the reward provided, or not provided, by intellectual property law”).

²³ See Mark A. Lemley, *Ten Things to Do About Patent Holdup of Standards (and One Not To)*, 48 B.C. L. REV. 149, 150 (2007) (“A central fact about the information technology sector is the multiplicity of patents that innovators must deal with. Indeed, hundreds of thousands of patents cover semiconductor, software, telecommunications, and Internet inventions. Because of the nature of information technology, innovation often requires the combination of a number of different patents.”).

²⁴ See Timothy S. Simcoe, *Explaining the Increase in Intellectual Property Disclosure* (Joseph L. Rotman School of Management, University of Toronto, Working Paper, Dec. 8, 2005), available at http://www.rotman.utoronto.ca/timothy.simcoe/papers/SSO_IPR_Disclosures.pdf (documenting a dramatic increase over the past fifteen years in the number of “essential patents” disclosed to standard-setting organizations).

amendments introduce no “new matter” into the application.²⁵ Patentees amend pending patent claims to “resemble” technology under standard, and some do so blatantly.²⁶ Second, standards capture is facilitated by the U.S. first-to-invent regime because it requires anticipatory prior art to have an effective date that is prior to the patent applicant's invention date.²⁷ Because U.S. patent law evaluates novelty and nonobviousness as of the earlier invention date, rather than the later patent application filing date, the universe of potentially invalidating prior art is comparatively smaller than foreign patent rules. Further, some secrecy continues to exist. Thus, it is relatively more likely that the technology of industry standards will not be available as prior art to defeat patents on the technology involved in those standards. Standard setting activity such as oral communications or documentation that might have been available as prior art under foreign patent regimes is often not available to invalidate a U.S. patent.²⁸ In contrast, in many other countries disclosures of technology prior to a patent application's filing date, even those made through purely oral divulgation, count as anticipatory prior art.²⁹

²⁵ 35 U.S.C. § 132(a) (2000); Mueller, *supra* note 3, at 642–43 (providing that claims may be amended and specifying that “no amendment shall introduce new matter into the disclosure of the invention”); DONALD S. CHISUM, CHISUM ON PATENTS G1 (2001) (“[N]ew matter includes any alteration or addition to the matter originally disclosed. It does not include amendments that merely clarify or make definite matter originally disclosed.”); Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63, 79 (2003) (“Strategic claim changes may hold-up legitimate improvers or independent inventors, reducing their ability and incentive to innovate.”).

²⁶ *Rambus v. Infineon Techs. AG*, 318 F.3d 1081, 1083–84 (Fed. Cir. 2003) (describing how Rambus had filed patent applications that related to a proposed standard for DRAM devices, waited until the standard was adopted, and then modified its patent applications so that the claims covered the standards); *see* Lemley & Moore, *supra* note 25, at 80 (“There is no social benefit whatsoever to submarine patents. They extend the effective life of patents, permit patentees to hold-up competitors who have made investments in plant capacity, and upset the settled expectations of manufacturers in a variety of industries. They do nothing to encourage innovation and indeed, on balance, they probably discourage it. Abolishing continuations would make it far more difficult to engage in submarine patenting.”).

²⁷ 35 U.S.C. § 102(a), (e) & (g) (1994) (“Standards capture is accordingly facilitated by the U.S. first-to-invent regime, because standards-setting activity such as oral communications or documentation that might have been available as prior art under foreign patent regimes is often not available to invalidate a U.S. patent.”).

²⁸ Patentees may antedate such standards and remove them as prior art references, a strategy not available in foreign patent systems. 37 C.F.R. § 1.131 (2001).

²⁹ *See, e.g.*, Convention on the Grant of European Patents (European Patent Convention), Oct 5, 1973, art. 54, 13 I.L.M. 271, 286, *available at* <http://www.epo.org/patents/law/legal-texts/html/epc/1973/e/ar54.html> (“An invention shall be considered to be new if it does not form part of the state of the art,” where “state of the art” is defined as “everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application”).

III. THE ALTERNATIVES

Cases and commentators have collectively considered three main methods of addressing opportunism in SSOs. The first method is through rules generated and enforced by SSO members. This is the most obvious and immediate remedy, and has the advantage of being sector specific. Regardless of the success or lack thereof that SSO rules have had in dealing with opportunism, however, it is ultimately limited by the need for contractual privity and obligations are limited by the terms of the contract. More fundamentally, it works to further the interests of its members rather than society. Antitrust law explicitly protects public policy, particularly when it is undertaken through government enforcement. Antitrust law also has the advantage of explicitly incorporating economic analysis. However, attempts to use it to address standard opportunism in recent years have met with mixed success, and inherent difficulties prevent it from completely addressing the problem. Equity has offered equitable estoppel and implied waiver to remedy patent holdups. While these are arguably steps in the right direction, their ties to contract law again raise the spectre of reliance and proximity which prevent effect resolution of the problem.

A. Internal Regulation

SSOs employ two main safeguards to mitigate the risk of opportunism. First, contractual provisions require disclosure of patents “essential” element of a standard,³⁰ and set penalties for

³⁰ Anne Layne-Farrar, *Antitrust And Intellectual Property Rights: Assessing The Link Between Standards And Market Power*, 21 ANTITRUST 42, 42 (Summer 2007) (“Member firms often propose their own proprietary IP for cooperative standards, and patented inventions are frequently implicated. As a result, the vast majority of formal SSOs, like IEEE, request that their members report their patents and other IP that might be interpreted as “essential” for a standard.”) According to the IEEE’s definition of “essential patents” that would be required to be reported, a patent is “essential” if one must necessarily infringe in the course of implementing the entire standard, even if certain segments of the standard could be implemented without infringing. *See, e.g.*, ITU TELECOMM. STANDARDIZATION SECTOR, GUIDELINES FOR IMPLEMENTATION OF ITU-T PATENT POLICY 3, § 2 (2005), <http://www.itu.int/ITU-T/dbase/patent/files/glp20051102.pdf> (concerning patents or patent applications “whose use would be required to implement ITU-T Recommendation[s].”).

non-disclosure.³¹ Disclosure policies ensure that SSO members are informed of proprietary technologies when selecting among alternatives and enables parties to negotiate *ex ante* licenses.³² Second, firms with downstream operations need to be assured that licenses will be available on affordable terms. Hence once the technology is included in the standard, SSOs commit members to RAND licensing terms.³³ These rules reflect a commitment by members to adopt mutual restraint to preserve the efficiency of the standard and encourage the growth of competitive markets for standard-compliant products. There are, however, significant shortcomings to both safeguards.

1. *Disclosure Policies*

SSO policies may be ambiguous on the scope of knowledge required to trigger a disclosure obligation. They may also not state the nature of information disclosed, or the time when disclosures need to be made.³⁴ This ambiguity may be intentional, and reflects a number of concerns.

First, SSOs are careful to avoid onerous rules. Assessing patents to determine their relevance for a potential standard would be extremely burdensome, especially for firms with large

³¹ See Lemley, *supra* note 20, at 1896.

³² See Joseph Farrell et al., *Standard Setting, Patents, And Hold-Ups*, 74 ANTITRUST L.J. 603, 625 (2007) (“The scope of disclosure rules has several aspects. For example, rules increasingly specify that patent applications, as well as issued patents, must be disclosed. JEDEC requires that ballots used in voting during deliberations over standards be printed with a request for disclosure of ‘any patents (granted or pending),’ and the European Telecommunications Standards Institute (ETSI) defines intellectual property covered by its policy to include patent applications. The World Wide Web Consortium (W3C) requires disclosure of published patent applications, including any unpublished claims that are essential to a standard; W3C requires disclosure of unpublished patent applications only when the application’s claims are based on information obtained from a W3C working group or document. ITU requires disclosure of essential patents and patent applications.”).

³³ See Lemley, *supra* note 20, at 1905–06.

³⁴ See Layne-Farrar, *supra* note 30, at 42 (“For example, one SSO requests that members make ‘reasonable efforts’ to identify IP that ‘might’ read on a standard, and do so in a ‘timely fashion.’”).

patent portfolios.³⁵ Actual research observations back up this conclusion. Firms have difficulty knowing the portions of their patent portfolios that read on a standard because some firm's portfolios are too large and complex.³⁶ Over 150,000 U.S. patents are granted annually,³⁷ and patentees with extensive patent portfolio may not even know which ones they have.³⁸ Few SSOs actively promote or require *ex ante* negotiations. Further, patent holders may be discouraged from ever joining an SSO if the SSO's attempt to strengthen anti-hold-up policies. This fact would be especially true for patent holders who believe their patent will be adopted into the standard even if they do not join the SSO.³⁹

Second, detailed *ex ante* disclosure disregards the complex, dynamic nature of standard setting. SSOs typically comprise of firms with widely diverging interests. Some firms believe that disclosing specific patents reveals valuable information to rivals about future technology strategies.⁴⁰ Revealing new technologies provides competitors with information that can reduce profits from undertaking research and development efforts. This may chill the formation of patent pools, R&D efforts, or both.

³⁵ See LARRY M. GOLDSTEIN & BRIAN N. KEARSEY, TECHNOLOGY PATENT LICENSING: AN INTERNATIONAL REFERENCE ON 21ST CENTURY PATENT LICENSING, PATENT POOLS AND PATENT PLATFORMS 89 (Aspatore Books 2004) ("Today there is substantial confusion about which patents are essential for any technical implementation of a standard. If the standard explicitly incorporates a patent, then of course there is little problem, but that happens only rarely. More commonly, each patent must be evaluated by *someone*, according to *some methodology*, who will determine whether the patent is essential according to that methodology.").

³⁶ See Benjamin Chiao et al., *The Rules of Standard Setting Organizations: An Empirical Analysis*, at 5–6 (Harvard NOM Research Paper No. 05-05, 2005), available at <http://ssrn.com/abstract=664643> (noting that some respondents likened the task to the search for a needle in a haystack).

³⁷ See U.S. Patent & Trademark Office, *Performance And Accountability Fiscal Year Ann. Report* 18, 123, tbl. 6 (2005), available at <http://www.uspto.gov/web/offices/com/annual/2005/2005annualreport.pdf>; see Muller, *supra* note 21, at 3 ("[M]any of the larger member companies [that participate in the process of voluntary standards development] have literally tens of thousands of patents").

³⁸ A Texas Instruments representative testified: "TI has something like 8,000 patents in the United States that are active patents, and for us to know what's in that portfolio, we think, is just a mind-boggling, budget-busting exercise to try to figure that out with any degree of accuracy at all." *Hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy Before the Fed. Trade Comm'n*, tr. at 743 (Feb. 28, 2002), available at <http://www.ftc.gov/opp/intellect/020228ftc.pdf>.

³⁹ Rambus was advised by counsel to withdraw from JEDEC in late 1995, and did so. Opinion of the Commission at 44, *In re Rambus Inc.*, FTC Docket No. 9302 (Aug. 2, 2006), available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>. If Rambus had never joined JEDEC, its *ex post* royalties would not have been constrained by RAND requirements. On the other hand, its patent applications might not have been revised to cover JEDEC technologies.

⁴⁰ Chiao et al., *supra* note 36, at 6.

Third, because SSOs are often direct rivals in various downstream markets that meet to coordinate product offerings, the potential for cartel-like behavior remains despite its precompetitive benefits. SSOs are generally careful to avoid rules that suggest member coercion, and patents are disclosed to avoid accusations of hold out. However, excessive irrelevant disclosures weigh a standard down, and incorrectly signals patent thickets that need to be cleared before implementation of the standard can proceed.

Fourth, introducing licensing and commercial interests into standard development procedures may retard the innovation process.⁴¹ The negotiation of patent licenses may normally be a foreign activity to most SSOs, who typically have engineers used to only technical activities, not commercial ones.⁴² With more issues to resolve, and a more diverse group of people having to agree, standard setting would likely become protracted. Firms can no longer rely on engineers and technical experts as their primary representatives, but would instead need to include a team of lawyers and business strategists. This would be especially problematic in fast-paced industries. Further, if a firm operates an incentive system where employees are awarded bonuses based on the royalties the firm earns from its patents, they have an incentive to hide the existence of a patent from upper management and thereby the SSO.

Recognizing these business concerns is likely one reason that some SSOs simply request that members use “reasonable endeavours” to identify relevant intellectual property, rather than demand an exhaustive reporting.⁴³ However, no amount of disclosure would solve the hold-up problem with RAND commitments.

⁴¹ This was pointed out by the experts who testified before the DOJ and FTC for their preparation for the joint IP report as well. See U.S. Dep’t Justice & Fed. Trade Comm’n, *Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition*, 74–78 (2007).

⁴² See Brian DeLacey et al., *Strategic Behavior in Standard-Setting Organizations* (Harvard Univ., Working Paper No. 903214, 2006), available at <http://ssrn.com/abstract=903214>.

⁴³ EUROPEAN TELECOMM. STANDARDS INST., INTELLECTUAL PROPERTY RIGHTS POLICY ¶ 4.1 (2008), available at http://www.etsi.org/WebSite/document/Legal/ETSI_IPR-Policy.pdf.

2. RAND Policies

RAND obligations seek to calibrate licensing terms and royalties charged by essential patentees *ex post* in a manner commensurate with competitive terms that would have applied *ex ante*, when the technology faced competition from alternatives for incorporation into the standard.⁴⁴ This gives adopters of the patentees' technology contractual protection against capricious rent seeking by patentees. It also prohibits patentees from discriminating against competitors and seeks to ensure the technology at issue is disseminated on an even-handed basis so that the patent holder cannot unilaterally exclude others from the markets for downstream products.⁴⁵ Patentees also benefit from the elimination of the transaction costs of renegotiating license agreements. To the extent that RAND commitments fail to form a binding contract, SSOs may choose alternative technologies for the standard.⁴⁶ However, RAND commitments are not without their problems.

First, it is tolerably clear that SSOs are doing less than they should to delineate the scope of RAND licenses.⁴⁷ Actual licensing terms are left to bilateral negotiations outside of SSO

⁴⁴ See Lemley, *supra* note 20, at 1906 (noting that of 36 SSOs with patent policies studied, 29 required members to license their patents on reasonable and nondiscriminatory terms, and another 3 requested but did not require that members do so). A more recent empirical study of SSO patent policies observed a similar, albeit smaller, rate of RAND licensing: Of the 59 SSOs the authors studied, 36 had patent policies requiring, at a minimum, RAND licensing. Chiao et al., *supra* note 36, at 26 tbl.1.

⁴⁵ See Daniel G. Swanson & William J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L. J. 1, 10-11 (2005).

⁴⁶ See ETSI, *supra* note 43, at ¶¶ 8.1.1–8.1.2.

⁴⁷ See Lemley, *supra* note 20 at 1964–65 (“Virtually no SSO specifies the terms on which licenses must be granted beyond the vague requirement that they be ‘reasonable’ and ‘nondiscriminatory.’ Indeed, some SSOs expressly forbid discussion of such issues when a standard is under consideration, presumably for fear of antitrust liability. Further, private licenses are normally confidential. The result is uncertainty over the cost and scope of patent licenses that may not prove much better than having no policy at all.”); Michael G. Cowie & Joseph P. Lavelle, *Patents Covering Industry Standards: The Risks to Enforceability Due to Conduct Before Standard-Setting Organizations*, 30 AIPLA Q.J. 95, 100–01 (2002) (“[A]mong the questions that the SSO regulations frequently do not address [is] . . . What constitutes a ‘reasonable’ or ‘nondiscriminatory’ royalty?”); Joseph Scott Miller, *Standard Setting, Patents, and Access Lock-In: RAND Licensing and the Theory of the Firm*, 40 IND. L. REV. 351, 357 (2007) (“[T]here is a common refrain that the RAND promise’s meaning is unclear to a troubling degree . . .”); Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, in INNOVATION POLICY AND THE ECONOMY 119, 128 (Adam Jaffe, Josh Lerner & Scott Stern eds., 2001), available at <http://faculty.haas.berkeley.edu/shapiro/thicket.pdf> (“Perversely, by leaving the precise licensing terms vague, this caution [about avoiding the appearance of an unlawful buyers’ cartel]

oversight. The lack of clarity in RAND policies leaves participants in the uncomfortable position of attempting to guess what is required.⁴⁸ One solution is to apply simple numeric proportionality, dividing royalties by the number of patents. As commentators have noted, the problem with numeric proportionality is that patents are not created equal.

One patent might cover a crucial aspect of the standard, while another covers a relatively minor backward compatibility feature or some optional element of the standard. Compensating these two patents equally is neither reasonable nor nondiscriminatory. Numeric proportionality only works under very special circumstances, such as acknowledged symmetry in patent contributions to a standard across contributing firms.

...

To truly assess a patent's worth a detailed patent by patent review is necessary, entailing technical as well as legal analysis. Moreover, even this kind of in-depth review is subjective, at least in part. One group of reviewers might provide a different rank ordering of patent values than would another set of reviewers.⁴⁹

Another approach would be to evaluate patents using the same criteria as applied in reasonable royalty assessments for patent infringement cases—the *Georgia-Pacific* fifteen factors.⁵⁰ Despite the detail and the length of the *Georgia-Pacific* list, however, the factors are inherently vague, and clarity is not aided by the considerable judicial discretion given over the terms that will prevail in a judgment. Further, SSO members may not know the precise value a proposed standard will confer before it actually reaches the marketplace since “consumer preferences, the availability of competing products and services, even the full functionality of the

can in fact lead to ex post holdup by particular rights holders, contrary both to the goal of enabling innovation and to consumers' interests.”)

⁴⁸ See Complaint at ¶ 9, *Broadcom Corp. v. Qualcomm Inc.*, No. 05-3350 (D.N.J. July 1, 2005), 2005 WL 2099492. Indeed, it has been suggested that vague RAND terms are “tool for misuse”, and SSOs concerned should be accountable under antitrust laws when they fail “to require, or at least affirmatively encourage, *ex ante* disclosure of intended license terms prior to voting [to adopt a standard], with a related mechanism for collective negotiation of the license agreement.” See Robert A. Skitol, *Concerted Buying Power: Its Potential for Addressing the Patent Holdup Problem in Standard Setting*, 72 ANTITRUST L.J. 727, 728–29 (2005).

⁴⁹ Layne-Farrar, *supra* note 30, at 46.

⁵⁰ *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (these include such items as the conditions and prices in previous licensing agreements involving the IP at issue, the market power of the IP and the products reliant on it, and profits attributable to it).

standard may emerge only upon commercialization.”⁵¹

Problems similarly exist with respect to the non-discriminatory aspect of “RAND.” First, SSOs seldom clarify what licensing structures would be non-discriminatory. The typical definition of price discrimination is charging different prices to different customers for the same product or different markups for similar products. As commentators have noted:

There is no consensus, however, about whether two-part tariffs discriminate against smaller licensees or whether royalties assessed as a percentage of the licensee's revenues discriminate against licensees who sell more expensive products. Furthermore, determining whether different licensees are treated differently can be very difficult if cross-licenses are the norm.⁵²

A non-discrimination requirement might prohibit royalty-free cross-licenses. While under antitrust law, royalty-free cross-licenses may themselves be procompetitive, so a non-discrimination provision that limited their use might on balance be harmful.⁵³

Second, by implementing rules that mandate uniform royalties, the incentive for *ex ante* negotiations would be damaged thereby eliminating the former role of direct buyers in protecting against inflated payments by consumers downstream,⁵⁴ since “SSO members may lose little from hold-up, and may benefit as often as they suffer, so their private interests do not in general fully

⁵¹ Geradin, *supra* note 12, at 172. In this case, any *ex ante* licensing declarations will be based on imperfect information, resulting in what the economics literature refers to as an “incomplete” contract. See Oliver Hart & John Moore, *Foundations of Incomplete Contracts*, 66 REV. ECON. STUD. 115, 115 (1999).

⁵² Farrell et al., *supra* note 32, at 638.

⁵³ See *id.* at 640 (“As a policy matter, royalty-free cross- licenses may themselves be procompetitive, so a non-discrimination provision that limited their use might on balance be harmful.”).

⁵⁴ See Joseph Farrell & Robert P. Merges, *Incentives to Challenge and Defend Patents: Why Litigation Won't Reliably Fix Patent Office Errors and Why Administrative Patent Review Might Help*, 19 BERKELEY TECH. L.J. 943, 954–55 (2004) (“Because downstream customers bear much of the harm from an invalid patent, they should have standing to sue for invalidity. Incentives would often still be diffuse, but our point is that, contrary to intuition, there is no economic reason to expect direct infringers to have appropriate incentives to challenge a patent even if they act collectively.... Litigating and losing may be much worse for the infringer than paying the royalty. In some cases a permanent injunction would force it to shut down. Even short of that, a license at higher royalties than are offered to its less feisty rivals will substantially lower profits because the increment of royalties cannot be passed on in the same way.”).

reflect consumers' interests."⁵⁵ They may not have sufficient incentives to vindicate the public interest in preserving the benefits of competition, particularly when their own technology has also been incorporated in the standard. Industry players may be lulled into adopting a standard that reads on the patentees' technology because of expressed commitments or rational ignorance.⁵⁶ It harms downstream users because direct licensees often accept the patent as valid and pay the requested higher licensing fees, passing the costs down to consumers.⁵⁷

3. *Evaluation*

It may be argued that if SSO members knew they might be held up, and chose to participate anyway, public policy need not step in to protect them. However, the negative externalities are not confined to the private contracting parties in terms of anticompetitive harm or harm to innovation. Standard setting may harm *ex-ante* competition by foreclosing competitive alternatives because of the switching costs involved in adopting a new technology. Network industries are particularly dependent on standards to generate and maintain positive network externalities. As has been noted:

Firms unable to rely on the commitments of others in the standard setting process are less likely to participate in setting common standards, leading to less interoperability between rival platforms and reduce consumer welfare. In some cases this leads to higher prices, either because users must invest in multiple, non-compatible platforms or because they pay higher prices for products that work with the platform they do adopt.⁵⁸

Further, many customers who adopt patented standards may never enter into formal contractual relationships with the relevant patentees. Downstream consumers, who were not a

⁵⁵ Farrell et al., *supra* note 32, at 647.

⁵⁶ See Mark A. Lemley, *Ignoring Patents*, 2008 MICH. ST. L. REV. 19 (2008).

⁵⁷ See Farrell & Merges, *supra* note 54, at 954–55.

⁵⁸ Merges & Kuhn, *supra* note 5, at 3.

party to that bargain should have recourse under the antitrust laws or some other doctrine under patent law.⁵⁹ In light of these shortcomings, intuition tells the seeking mind to look further afield.

B. Antitrust

The right of patentees to refuse to license their technology under § 271d(4) of the Patent Act is central to antitrust analysis of patent hold-ups.⁶⁰ Federal case law points to a high threshold that antitrust plaintiffs must cross in order to prove actionable anticompetitive injury. Under Federal Circuit jurisprudence, patentees are effectively immune from antitrust liability except in cases involving tying patented and non-patented products, fraud on the PTO, or engaging in sham litigation.⁶¹ Absent these, patentees enforcing their statutory right enjoys presumptive immunity from antitrust liability, even if the suit would otherwise have an anticompetitive effect.⁶²

Under D.C. Circuit jurisprudence, no anticompetitive harm flows from a patentee's use of deception to obtain higher prices, as long as it does not exclude rivals and diminish competition.⁶³

⁵⁹ See Farrell et al., *supra* note 32, at 606.

⁶⁰ 35 U.S.C. § 271d(4); see U.S. Dep't of Justice & Fed. Trade Comm'n, *supra* note 41, at 6, 32 (“[The] unilateral right to refuse to license is a core part of the patent grant . . . antitrust liability for mere unilateral, unconditional refusals to license patents will not play a meaningful part in the interface between patent rights and antitrust protections.”).

⁶¹ See *In re Indep. Serv. Orgs. Antitrust Litig.*, 203 F.3d 1322, 1326 (Fed. Cir. 2000) (the antitrust doctrine preserves a patentee's immunity from antitrust liability for enforcing its patent rights unless the accused infringer establishes either that: (i) the patent was obtained through knowing and willful fraud; or (ii) the suit alleging infringement is a “mere sham” which serves to cover “an attempt to interfere directly with the business relationships of a competitor”).

⁶² See James R. Atwood, *Securing and Enforcing Patents: The Role of Noerr/Pennington*, 83 J. PAT. & TRADEMARK OFF. SOC'Y 651, 659 (2001) (noting that in view of the heightened requirements of Professional Real Estate Investors for claiming an exception to Noerr, “absent classic Walker Process facts—few [patent] infringement suits will fail to qualify for Noerr immunity”); Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. REV. 1095, 1117–18 (2003) (“This patent fervor has, in part, been fueled by the creation of the U.S. Court of Appeals for the Federal Circuit, a body invested by Congress with exclusive appellate jurisdiction over patent cases, and with a perceived mandate to produce a uniform body of U.S. patent law.”).

⁶³ The right to charge as high a price as the market can bear, provided that the patentees do not unlawfully acquire the monopoly or does not take improper actions to maintain or extend that monopoly is consistent with the tenor of the Supreme Court's opinion in *Trinko*. See *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004) (“The opportunity to charge monopoly prices—at least for a short period—is what attracts ‘business acumen’ in the first place; it induces risk taking that produces innovation and economic growth.” (quoting *United States v. Grinnell Corp.*, 384 U.S. 563, 570–71 (1966))); *Rambus Inc. v. Fed. Trade Comm'n*, 522 F.3d 456, 463–64 (D.C. Cir. 2008) (The court noted that the critical question was “whether Rambus engaged in exclusionary conduct, and thereby acquired its monopoly power in the relevant markets unlawfully . . . even if deception raises the price secured by a seller, but does so without harming competition, it is beyond antitrust laws' reach.”).

Plaintiffs must prove that but for the patentees' deception the SSO would have selected different technologies for inclusion in the standard.⁶⁴ This may be difficult to do when the patentees' deception itself has created uncertainty about what course the SSO would have taken if disclosure had occurred. The outcome of *de facto* standards battles is generally unpredictable.⁶⁵ Positive-feedback dynamics make market behavior unstable early, then later produces lock-in. As commentators have noted, "it will generally be hard to predict what would have happened if the SSO had chosen no standard, or to be confident whether the market would have adopted the technology subject to patents even if the SSO had chosen another technology for the standard."⁶⁶ Consequently, it does not violate antitrust law for patentees to refuse to license unless they receive their bounties in full.⁶⁷ The objectionable behavior is not the quantum of royalties demanded, but rather the manner through which patentees achieve the ability to extort the industry, and the anticompetitive consequences flowing from this ability that are of concern to antitrust authorities.

It has been argued that § 5 of the Federal Trade Commission Act may offer an alternative to deal with participant misrepresentation in the context of SSOs.⁶⁸ However, this approach involves significant uncertainty because it would be a new application of § 5, at least in a contested case, and the law in this area is not well-developed. The FTC's difficulty in reaching a unanimous opinion in *N-Data* under § 5, despite clearly anticompetitive behavior, underscores the

⁶⁴ See *id.* at 459.

⁶⁵ See Farrell et al., *supra* note 32, at 652. ("It is inherently difficult to determine how an SSO *would have* behaved in a but-for world, and *de facto* standards battles are notoriously unstable and 'tippy.' Therefore, a burden of proof regarding what would have happened in the absence of deceptive conduct by the patent holder may be hard for either party to meet. What does economics tell us about how it should be assigned?").

⁶⁶ *Id.* at 655.

⁶⁷ See *Hartford-Empire Co. v. United States*, 323 U.S. 386, 432 (1945) ("A patent owner is not in the position of a quasi-trustee for the public or under any obligation to see that the public acquires the free right to use the invention. He has no obligation either to use it or to grant its use to others.").

⁶⁸ 15 U.S.C. § 45; see Thomas Rosch, Comm'r, Fed. Trade Comm'n, Patent Trolls: Broad Brush Definitions and Law Enforcement Ideas, Speech Before the Newport Summit on Antitrust & Economics, Newport, R.I. (May 31, 2008), available at <http://www.ftc.gov/speeches/rosch/080531roschlecg.pdf> (suggesting that participant misrepresentation in an SSO enabling the participant to demand higher royalty fees and to avoid RAND licensing fee requirements is a violation of § 5 of the FTC Act even if arguably not a violation of § 2 of the Sherman Act).

difficulty of using it to sidestep the roadblocks set up by antitrust case law.⁶⁹ Further, the D.C. Circuit explicitly held that charging higher licensing fees did not have an anti-competitive effect and was therefore not in violation of antitrust law principles and therefore not in violation of § 5.⁷⁰ Cases such as *Rambus* evince that antitrust law may be an inappropriate tool to solve patent holdups because of the deference courts often show to patent law as well as the evidentiary difficulties in proving an antitrust violation.⁷¹ In any case, the perceived difficulty of quantifying a commercially reasonable royalty “has long been a leading argument against adoption of compulsory licensing in the U.S.”⁷² Permitting patentees to set the royalty at any desired level permits them to refuse to license, and would defeat the underlying purpose of the compulsory licensing—providing access to the patented invention for all users of the industry standard. In the realm of SSO misconduct, commentators have noted that antitrust is deficient.⁷³

⁶⁹ See Decision and Order, *In re Negotiated Data Solutions LLC (N-Data)*, FTC File No. 051-0094, available at <http://www.ftc.gov/os/caselist/0510094/080122do.pdf> (finding N-Data’s patent claim to be anticompetitive for several reasons: (1) N-Data was aware that National had committed before they purchased the patents; (2) N-Data’s demand for higher-than-market royalties after switching costs rose shows that they exploited industry lock-in; and (3) N-Data’s actions may result in higher prices for consumers).

⁷⁰ See *Rambus Inc. v. Fed. Trade Comm’n*, 522 F.3d 456, 462 (D.C. Cir. 2008) (finding that nondisclosure preventing an extraction of a RAND commitment from Rambus when standardizing its technology would not involve an antitrust violation is an insufficient basis for liability); see also *id.* at 464 (“Deceptive conduct—like any other kind—must have an anticompetitive effect in order to form the basis of a monopolization claim.”).

⁷¹ See *Merges & Kuhn*, *supra* note 5, at 21 n.108 (“However, strategic behavior like this should not require antitrust enforcement; patent law can deal with it more directly and judiciously.”).

However, antitrust is not always the appropriate instrument with which to analyze the behavior of patentees. Patent law sacrifices some amount of competition in exchange for innovation incentives. Rather than risk a clash between the somewhat antithetical bases of the two areas of law, antitrust authorities typically give broad deference when patents are involved. The substantially different results in different courts during the protracted *Rambus* litigation illustrate the difficulty in dealing with patentee behavior through antitrust law. Indeed, the United States Court of Appeals for the District of Columbia Circuit recently reversed the FTC’s ruling that *Rambus* acted anticompetitively by failing to disclose its patents, bolstering the conclusion that antitrust law is ill-equipped to handle even straightforward disputes involving patents and standards. Antitrust law should only be a backstop to other mechanisms for preventing strategic behavior; patent law must police many harmful patent abuses on its own.

Id. at 14.

⁷² EDITH TILTON PENROSE, *THE ECONOMICS OF THE INTERNATIONAL PATENT SYSTEM* 172 (Greenwood Press 1973) (listing difficulty of reasonable royalty determination as one of six primary arguments against compulsory licensing.)

⁷³ See *Mueller*, *supra* note 3, at 669.

In contrast, E.U. competition law has been more willing to intervene. Patentees can be brought to account for charging excessive prices,⁷⁴ or be made to grant compulsory access to technology covered by IP rights, particularly where it is essential for effective competition.⁷⁵ Antitrust plaintiffs in the U.S. embarking on a similar quest may find their efforts fruitless for at least two reasons.⁷⁶ First, the Supreme Court opined that requiring owners to grant access with rivals may lessen the incentive for either or both to invest efficiently. It also compels courts to act as central planners and compels negotiation between competitors that may facilitate collusion.⁷⁷ Second, courts are concerned that patentees may be held-up by a flood of suits brought by either private parties or the enforcement agencies.⁷⁸ The policy behind this is intuitive: an environment of mutual trust and cooperation is an important feature of private standard setting. Where firms “cannot participate in such organizations without constant fear of monopolization claims or heavy government intrusion, this delicate environment may disappear entirely.”⁷⁹ Given the potentially immense benefits that private standard setting offers, allowing unrestrained litigation to disrupt the SSO system would be detrimental to the public interest.⁸⁰

⁷⁴ See Case 27/76, *United Brands Co. v. Comm’n*, 1978 E.C.R. 207, 301, at ¶ 250 (stating that a price is excessive when it “has no reasonable relation to the economic value of the product supplied”); David S. Evans & A. Jorge Padilla, *Excessive Prices: Using Economics to Define Administrable Legal Rules*, 1 J. COMPETITION L. & ECON. 97, 98 (2005) (“[A] dominant firm violates Article 82(a) if it charges unfairly high prices to its customers.”). Article 82 provides, among other things, that firms with a dominant position are prohibited from “directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions.” EC Treaty art. 82(a).

⁷⁵ See e.g., Case T-201/04, *Microsoft v. Comm’n*, 2004 E.C.R. II-271.

⁷⁶ See Wendy Milanese, *The Tension Must Break: The Irreconcilable Interplay Between Antitrust, Defenses to Infringement and Protection of Standardized Software Development Tools*, 15 SANTA CLARA COMPUTER & HIGH TECH. L.J. 407, 438 n.4 (1999) (suggesting that “an owner of software technology [that has become a standard] could be liable under the essential facility doctrine”); E. Robert Yoches, *Licensing Patents For Software and Computer Technology*, INTELL. PROP. TODAY, Jan. 1995, at 8 (noting that essential facilities doctrine “has not been applied to standards, but an aggrieved litigant could argue that a patentee controls an essential facility if its patent covers an industry standard necessary to make, use or sell certain equipment”).

⁷⁷ See *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004).

⁷⁸ See Opinion of the Commission, *In re Rambus Inc.*, FTC Docket No. 9302 (Aug. 2, 2006), available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>.

⁷⁹ James E. Abell III, *Setting the Standard: A Fraud-Based Approach to Antitrust Pleading in Standard Development Organization Cases*, 75 U. CHI. L. REV. 1601, 1628 (2008).

⁸⁰ The FTC and DOJ are both aware of this risk and have indicated that they will take a flexible approach in matters involving standard setting due in part to the procompetitive benefits that such activity offers. See DOJ & FTC, ANTI-TRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 7, 9 (Apr. 2007), available at <http://www.usdoj.gov/atr/public/hearings/ip/222655.pdf> (“The Agencies will continue to evaluate the competitive effects of cross licenses and patent pools under the framework of the Antitrust-IP Guidelines. Given the cognizable benefits and potential anticompetitive effects associated with both of these licensing practices, the Agencies typically will analyze both types of agreements under the rule of reason.”).

C. Equitable Estoppel and Implied Waiver

The equitable doctrines of equitable estoppel and implied waiver have been raised to address the issue of patent holdups.⁸¹ Equitable estoppel requires an alleged infringer to prove three things by a preponderance of the evidence. First, through misleading conduct, the patentee led alleged infringers to reasonably infer that it did not intend to enforce its patent against them. Second, alleged infringers relied on this conduct. Third, due to the reliance, alleged infringers will be materially prejudiced if the patentee is allowed to proceed on its claims. The court will consider other evidence and facts respecting the equities of the parties in exercising its discretion and deciding whether to allow the defense of equitable estoppel.⁸² However, estoppel suffers from three main limitations.

First, estoppel deals with promises made in the context of a direct relationship. Its remedy is an implied license that benefits only to those to whom patentees made a representation. Estoppel does not cover instances where either the relationship or promise elements are tenuous. In the context of standards, all present and future adopters of a standard must be have predictable access to the technology, and estoppel has limited application because those who did not participate in the standard setting activity and had no contact with the patentee would be unable to establish the required detrimental reliance.

One response to this may be that SSOs could expressly provide in their agreements that the public be able to benefit as a third party. While intuitively appealing, it is unlikely to manifest itself as a workable solution. As alluded to earlier, members of SSOs are rational economic agents who are understandably driven more by the desire to maximize profits than further public

⁸¹ See *Qualcomm Inc. v. Broadcom Corp.*, 548 F.3d 1004 (Fed. Cir. 2008).

⁸² See *Wang Labs., Inc. v. Mitsubishi Elecs. Am., Inc.*, 103 F.3d 1571, 1581 (Fed. Cir. 1997).

interests.⁸³ Even assuming members were motivated to do so, the inclusion of such a broad and undefined class as “the public” into a contract could result in the term be unenforceable for uncertainty.⁸⁴

In order to provide meaningful protection to good-faith standards adopters, the remedy should be able to ride on the patent. Otherwise, patentees could entirely circumvent the defense by assigning the patent to a third party who could choose to enforce despite the reliance interest established by standards adopters, as was the case in *N-Data*.⁸⁵ Second, estoppel is based on the reasonable expectations of standards adopters. The sophistication of the parties and their access to relevant information are key considerations for determining whether reliance is reasonable. The majority of SSO participants are highly sophisticated parties, a factor that weakens claims of reasonable reliance. SSO members who actually own patents that would be covered by the proposed standard, however, have greater access to information about those patents than the SSO or the other participants.⁸⁶

Implied waiver in the Federal Circuit’s opinion in *Qualcomm* was based on the fact that Qualcomm knew that the asserted patents reasonably might be necessary to practice that standard, and that it intentionally did not disclose them to the JVT. The fact that the patents eventually were

⁸³ See discussion *supra* Part II.B.2.

⁸⁴ See *Tincher v. Arnold*, 147 F. 665, 675 (7th Cir. Ill. 1906) (“When a definite function or duty is to be performed, and it cannot be done in exact conformity to the scheme of the donor, it must be performed with as close an approximation to that scheme as reasonably practicable, and thus enforced. It is the doctrine of approximation. It is not confined to the administration of charities, but is equally applicable to all devises and contracts wherein the future is provided for; and it is an essential element of equity jurisprudence.”)

⁸⁵ Complaint, *In re Negotiated Data Solutions (N-Data)*, LLC, No. C-4234, (F.T.C. Jan. 23, 2008), available at <http://www.ftc.gov/os/caselist/0510094/080122complaint.-pdf>. In *N-Data*, National assigned the NWay patents to Vertical Networks, Inc. (Vertical), a corporate spin-off run by former National employees. After a successor standard for networking known as “Gigabit Ethernet” had taken root, Vertical sought licenses on every device operating within the affected network, but the amount of equipment already in place or scheduled to be installed indicated that the royalty demands would have serious repercussions. Vertical proceeded to assign the NWay patents to a company that was controlled by Vertical’s outside patent counsel. This company, called N-Data, refused to abide by National’s licensing agreement which had priced the NWay licenses at a flat fee of \$1,000, and instead demanded extremely high royalties from the network device manufacturers. See M. Sean Royall & Adam J. Di Vincenzo, *The FTC’s N-Data Consent Order: A Missed Opportunity to Clarify Antitrust in Standard Setting*, 22 ANTITRUST 83, 84 (Summer 2008).

⁸⁶ Intriguingly, the Third Circuit in a separate *Qualcomm* case found antitrust liability based on similar factors, suggesting the inadequacy of estoppel *per se*. See *Qualcomm*, 548 F.3d at 1027.

not necessary to practice the standard or that Qualcomm would be willing to license was irrelevant. The Federal Circuit held that forcing a party to accept a license and pay whatever fee the licensor demands, or to undergo the uncertainty and cost of litigation are significant burdens as well. Crucially however, the Federal Circuit found detrimental reliance based on Qualcomm's silence in the face of its disclosure duty which Broadcom relied upon. However, implied waiver faces similar constraints and is also an unsatisfactory response to standards opportunism.

IV. PATENT MISUSE

Patent misuse functions as a equitable defense to infringement. Its roots in equity means that the court may suspend the patentee's ability to enforce its patent. The key difference between misuse and the remedies above, with the exception of antitrust laws, is that misuse protects an entire class of infringers—all present and future adopters of a particular standard. This wider protection is vital to protecting the reliance interest established by use of the standard. Misuse thus does not require continuity or privity between patentees and alleged infringers. It applies even though the patent changes hands, and even though patentees have no direct communication or relationship with users. Misuse does not require the court to confront the difficult issue of what amounts to a RAND license, or what a reasonable royalty for a compulsory license under antitrust law should be.

Patent misuse has several other advantages compared to antitrust law. First, judges do not have to contend with the specter of punitive treble damages, a remedy open to private litigants. A recent empirical study suggests that the availability of treble damages has caused courts to actively narrow the scope antitrust laws.⁸⁷ However, because government agencies operate under

⁸⁷ See Daryl Lim, *Patent Misuse and Antitrust: An Empirical Study* 84 (on file with author) (“An interviewee noted that the private enforcement, coupled with treble damages, presented a danger of over-penalizing patentees. Because judges

the same standard, they face real challenges in securing favorable verdict even in arguably egregious circumstances, as the earlier discussion in Part II illustrates.⁸⁸ Misuse merely suspends enforceability until the misconduct has been purged. Such purging occurs upon abandonment of the abusive practice and dissipation of any harmful consequences.⁸⁹ In the context of standards opportunism, the harm is difference between the rate of *ex post* royalties demanded and the *ex ante* royalties patentees would have received but for the patentees' premeditated patent ambush.

Patentees caught with unclean hands may attempt to argue that misuse is inappropriate for several reasons. First, they are excessively penalized because they are subject to two claims on the same conduct, while overcompensating alleged infringers.⁹⁰ Second, relatively minor misconduct could eviscerate an entire portfolio of very valuable patent rights and its downstream network of licenses.⁹¹ Third, the lax standing requirements and vagaries of misuse disincentivizes puts the integrity of patent rights and commercial certainty at risk.⁹²

could not change the remedy, they focused on raising the doctrinal bar for finding an antitrust violation. He observed that precedents made during private litigation had the effect of making it more difficult for the Federal Trade Commission and Department of Justice to enforce antitrust law.”).

⁸⁸ *See id.*

⁸⁹ *See In re Yarn Processing Patent Validity Litig.*, 472 F. Supp. 180, 183 (S.D. Fla. 1979) (noting that the doctrine of misuse developed based on “the strong public policy against allowing one who wrongfully uses a patent to enforce it during the misuse, the remedy of purge has developed, requiring that there be a showing that a dissipation or purge of the misuse has occurred, before the patentee may enforce his patent.”). Courts have uniformly applied a two-prong test to determine whether purge has been effected. The patent holder must demonstrate a complete abandonment of the improper practices found to constitute the particular misuse and that the consequences of the misuse have been fully dissipated. The burden is on the patent holder to show purge. *B. B. Chemical Co. v. Ellis*, 314 U.S. 495 (1942).

⁹⁰ *See* Katherine E. White, *A Rule for Determining When Patent Misuse Should be Applied*, 11 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 671, 679 n.56 (“Patent misuse is a doctrine that could benefit from having a standing requirement that the misuse must directly effect the party raising the affirmative defense. Historically, there has been no standing requirement. This has caused substantial concern that the patent misuse doctrine is overbroad and overreaching.”).

⁹¹ *See* Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 CALIF. L. REV. 111, 152 n.188 (1999) (“I must here confess error in this debate. I now believe that there may be circumstances in which rules peculiar to patent law make it appropriate to apply the misuse doctrine but do not warrant invocation of antitrust law. So too with copyright law. The application of the patent (or copyright) misuse doctrines, however, should be coupled with a reasonable mechanism to link the harm charged with the remedy administered; on that point (the thesis of my earlier paper), I am resolute.”).

⁹² *See* *USM Corp. v. SPS Techs., Inc.*, 694 F.2d 505, 511–12 (7th Cir. 1982) (“If misuse claims are not tested by conventional antitrust principles, by what principles shall they be tested? Our law is not rich in alternative concepts of monopolistic abuse; and it is rather late in the day to try to develop one without in the process subjecting the rights of patent holders to debilitating uncertainty.”); Joseph P. Bauer, *Symposium: Intellectual Property Licensing by the Dominant Firm: Issues and Problems: Refusals to Deal With Competitors by Owners of Patents and Copyrights: Reflections on the Image Technical And Xerox Decisions*, 55 DEPAUL L. REV. 1211, 1235 (“The scope of the patent and copyright ‘misuse’ doctrine is imprecise and shifting. Neither the patent nor the copyright statutes have explicit provisions defining misuse, much less any that set forth the consequences of that behaviour.”).

To the first protest—that patentees are “hit” twice, misuse is a distinct remedy from antitrust laws. Antitrust laws provide treble damages if an antitrust violation is proven. In contrast, misuse is a defense to infringement. Unenforceability of patent rights is more akin to injunctions, which are routinely awarded together with damages.⁹³ It may also be suggested that the threat that patentees face from this combination of treble damages and injunctive relief equitably mirrors the remedies available to them against willful infringers. Recent scholarship shows that many infringers independently create allegedly infringing inventions.⁹⁴ By giving potential defendants a well-developed defense that properly takes into account the owner’s incentives to innovate, it reduces wasteful saber rattling by belligerent patent owners.

To the second protest—that misuse is a disproportionate remedy, once patentees purge their misuse, they regain all rights to enforce their patents. If the conduct or contractual provision were improper, its cancellation before suit qualifies the plaintiffs to maintain their suits.⁹⁵ It is acknowledged that in some cases, the boundaries of unenforceability need to be calibrated. One way is to distinguish between “transactional and litigation misuse,” with the patent being rendered unenforceable only in the latter case, while the former case results only in the unenforceability of the offending contractual provision.⁹⁶ Misuse may also be calibrated—so that, as *Qualcomm* suggests, the unenforceability is confined to products compliant with the standard, and thus more equitably align the underlying breach of the duty to the sanction.⁹⁷

⁹³ See 15 U.S.C. § 26 (2006).

⁹⁴ See Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. Rev. 1421, 1458 (2009), available at <http://ssrn.com/abstract=1270160> (arguing that “patent infringement can rarely, if ever, be equated with ‘theft’ of physical property or even ‘piracy’ of other types of IP” due to the rarity of copying in modern patent law).

⁹⁵ See *Morton Salt Co. v. G.S. Suppiger Co.*, 314 U.S. 488 (1942).

⁹⁶ Thomas F. Cotter, *Misuse*, 44 HOUS. L. REV. 901, 903 (2007) (“Only the latter should result in unenforceability of the patent or copyright for the duration of the misuse; the former should result only in unenforceability of the offending contractual provision—and whatever other sanctions, if any, are appropriate as a matter of antitrust or other law.”).

⁹⁷ See *Qualcomm Inc. v. Broadcom Corp.*, 548 F.3d 1004, 1026 (Fed. Cir. 2008).

To the third protest—that lax standing requirements unjustifiably disincentivizes innovation, misuse was intended to allow non-victims to bring patent abuses to judicial attention as a matter of public policy.⁹⁸ Under this principle, “[i]t is the adverse effect upon the public interest of a successful infringement suit, in conjunction with the patentee’s course of conduct, which disqualifies him or her from maintaining the suit, regardless of whether the particular defendant has suffered from the misuse of the patent,”⁹⁹ similar to inequitable conduct and fraud on the Patent and Trademark Office. For this reason, courts have dispensed with the requirement that the alleged infringer must have clean hands in order to invoke this equitable defense.¹⁰⁰ The flexibility of misuse was meant to cover situations not defined in advance and had no way but be vague. Commentators agree,¹⁰¹ noting that the antitrust rule of reason by no means clearer.¹⁰² It is an empirical question whether the vagueness has impaired the rights of patentees, and the burden was on those alleging the fact to provide it. Even commentators who viewed misuse as essentially being co-extensive with antitrust have advocated a discrete existence from antitrust with a refrain that almost characterizes it like an insurance policy against unanticipated roughish behavior from

⁹⁸ See *Touchett v. E Z Paintr Corp.*, 150 F. Supp. 384, 388 (E.D. Wis. 1957) (“The doctrine of misuse of patents involves public policy. It involves more than the contracting parties. It is for the protection of the public.”); Marcello F. DeFrenza, *Vertical Territorial Restrictions as Patent Misuse*, 61 S. CAL. L. REV. 215, 219 (1987) (“Since the patent misuse doctrine protects the public at large, an accused infringer need not prove individual harm from the plaintiff’s misuse.”); Mueller, *supra* note 3, at 674. (“In the Court’s view, the true victim of the misuse was the public at large.”).

⁹⁹ *Morton Salt*, 314 U.S. at 494.

¹⁰⁰ See *id.* at 493 (“Undoubtedly ‘equity does not demand that its suitors shall have led blameless lives,’ but additional considerations must be taken into account where maintenance of the suit concerns the public interest as well as the private interests of suitors.”); *Republic Molding Corp. v. B.W. Photo Utilities*, 319 F.2d 347, 349–50 (9th Cir. 1963) (“In the interests of right and justice the court should not automatically condone the defendant’s infractions because plaintiff is also blameworthy, thereby leaving two wrongs unremedied and increasing the injury to the public.”); *Alcatel USA, Inc. v. DGI Techs., Inc.*, 166 F.3d 772, 793–94 (5th Cir. 1999) (“[T]he deceptive practices used by [defendant] . . . left it with very dirty mitts. Nevertheless, this finding is irrelevant given the particular posture of this case.”); *Precision Instruments Mfg. Co. v. Auto. Maintenance Mach. Co.*, 324 U.S. 806, 815 (1945) (“For if an equity court properly uses the maxim to withhold its assistance . . . it not only prevents a wrongdoer from enjoying the fruits of his transgression but averts an injury to the public.”); see also *In re Napster, Inc. Copyright Litig.*, 191 F. Supp. 2d 1087, 1110–11 (N.D. Cal. 2002) (unclean hands is not a bar to the defense of copyright misuse).

¹⁰¹ See Robert P. Merges, *Reflections on Current Legislation Affecting Patent Misuse*, 70 J. PAT. & TRADEMARK OFF. SOC’Y 793, 796 (1988) (“The nature of equity is that it is somewhat ‘messy.’”).

¹⁰² See *id.* at 794 (“Not only is this a notoriously difficult standard for an antitrust plaintiff to meet, it is also a standard that is very difficult to apply. Thus it is ironic indeed that advocates of greater certainty in the law of patent misuse would propose a unified rule of reason approach when this is arguably one of the least certain legal rules ever propounded.”).

patentees. Its strength and utility may lie precisely in its ability to fluidly fill the gaps left by the common law and temper outcomes that are formalistically correct but nonetheless unjust.¹⁰³

Recent commentary reveals that “[v]ery few courts have applied the patent misuse doctrine to the problem of industry standards capture via patenting, and those that have reject the misuse defense.”¹⁰⁴ Commentators have suggested that this may be due to the statutory limitations imposed by the Patent Misuse Reform Act of 1988, including § 271(d)(4).¹⁰⁵ Under § 271(d)(4), patentees are immune from liability when the refusal is an unconditional unilateral refusal to license.¹⁰⁶ At one end of the spectrum lie patentees who wish to simply exploit their inventions themselves without licensing them. It is their prerogative and it is submitted that § 271(d)(4) covers these situations. Further down the spectrum are patentees who are willing to license, whether for RAND royalties, or taking another step along that spectrum—for exorbitant sums after a patent hold-up. The more egregious patentees’ conduct become, the less convincing their protestations that their refusals are “unconditional” become. Of course, patentees may nonetheless argue that the ability to extort the industry came about because they enticed the SSO into adopting the standard, and they were still acting within the scope of its rights by bringing the infringement suit.

¹⁰³ See *Solle v. Butcher*, [1950] 1 K.B. 671 (Eng. C.A.) (“[Equity’s] role is to prevent [a party] from insisting on his strict legal rights when, owing to his behaviour, it would be unconscionable or inequitable to allow him to do so”); *F. C. Russell Co. v. Consumers Insulation Co.*, 119 F. Supp. 119, 122 (D.N.J. 1954) (“Again this court reverts to the rule that ‘the particular form or method by which the monopoly is sought to be extended is immaterial.’”); Jere M. Webb & Lawrence A. Locke, *Intellectual Property Misuse: Developments in the Misuse Doctrine*, 4 HARV. J.L. & TECH. 257, 266–67 (1991) (“Antitrust law has changed so that most classical acts of misuse are no longer *per se* antitrust violations. This has raised controversy over whether the misuse doctrine retains any viability beyond its application to restrictions that continue to violate the antitrust laws. For the present at least, the misuse doctrine can be best characterized as discrete and viable.”).

¹⁰⁴ Mueller, *supra* note 3, at 669 (citing as an example *Townshend v. Rockwell Int’l Corp.*, 2000 U.S. Dist. LEXIS 5070, 55 U.S.P.Q.2d 1011 (N.D. Cal. 2000)); Lim, *supra* note 87 (showing that of 264 federal court opinions at all levels that substantively considered patent misuse between Jan 1., 1955 and Dec. 31, 2008, 8 were related to this issue, and none found misuse).

¹⁰⁵ See Mark A. Lemley, *Antitrust and the Internet Standardization Problem*, 28 CONN. L. REV. 1041, 1061 n.69 (1996) (“One might interpret the patent misuse doctrine as a rule compelling interoperability [of IP law and industry standards] in limited circumstances. The problem with this approach is that Congress appears to have foreclosed it in 1988, when it passed the Patent Misuse Reform Act. That Act added 35 U.S.C. § 271(d)(4), which provides that refusal to license a patent does not constitute patent misuse.”).

¹⁰⁶ The text of § 271(d)(4) does not state the the refusal must be unconditional. However, it has come to be regarded as such. See *e.g.*, R. Hewitt Pate, *Refusals to Deal and Intellectual Property Rights*, 10 GEO. MASON L. REV. 429 (2002).

At first blush, this argument has some appeal. Patent hold-ups are unlike post-expiration royalty demands or tying claims that have characterized patent misuse according to popular perception, where the physical or temporal scope of the patent was exceeded.¹⁰⁷ However, such patentees need to address the following two responses. First, the stranglehold patentees enjoy do not derive from the patent, but comes from the adoption of the standard because of the patentees' deceit in concealing their patents and ambushing later adopters who have been locked into the standard. This deceit brings the patentees' conduct outside the scope of the patent. Thus it has been suggested that:

Moreover, the prefatory "otherwise entitled to relief" qualifier of section 271(d) could indicate that Congress envisioned newly-arising factual scenarios where a patentee should be excluded from the section's protections for public policy reasons not envisioned at the time of passage of the 1952 Patent Act. The problem of standards capture by refusal to license a non-disclosed patent covering standards technology presents such a newly-arising scenario. Courts should carefully consider whether a patentee's refusal to license a patent on standards technology that the patentee intentionally did not disclose to the standards-setting body extends the anti-competitive effect of the refusal beyond the statutory patent grant and propels such acts into the realm of actionable patent misuse.¹⁰⁸

Second, a recent survey of patent misuse cases from 1953, the effective date of the current Patent Act, to December 31, 2008 reveals that when courts found that patentees had acted in bad faith, by initiating vexatious litigation, patent fraud or some other form of misconduct, they dispensed with whether the patentee's conduct had exceeded the scope of its claims under antitrust or patent policy, and instead, the patentee was found guilty of misuse *per se*.¹⁰⁹

How would patent misuse work in practice? In *Rambus*, despite being fully aware of the JEDEC bylaws requiring disclosure, Rambus did not inform the organization about these patents

¹⁰⁷ See, e.g., *Brulotte v. Thys Co.*, 379 U.S. 29 (1964).

¹⁰⁸ Mueller, *supra* note 21, at 945.

¹⁰⁹ See Lim, *supra* note 87, at 37 (on file with author).

or the planned amendments.¹¹⁰ The D.C. Circuit recognized the problem of lock-in that occurs in the standard-setting process and that may allow patent holders to gain monopoly power through the inclusion of their technologies in a standard.¹¹¹ However, absent Rambus' alleged deception, an alternative to Rambus' technology may not have been selected by the SSO. The D.C. Circuit held that Rambus' behavior was not anticompetitive, as any alleged deception would not have increased its market power more than normal, since the FTC could not prove Rambus's actions were exclusionary.¹¹²

It may be said that courts could simply apply the Third Circuit's opinion in *Broadcom*, which held that the competitive process is harmed the moment full and accurate information about the true costs of a given standard is withheld. The facts of *Broadcom* involve Qualcomm inducing various SSOs to adopt a standard on which Qualcomm claimed essential patents based on a RAND promise. It is acknowledged that where the alleged misconduct involves a question of what amounts to RAND rather than an instance of patent ambush as in *Rambus*, misuse may have a more circumscribed role to play because of the difficulties inherent in determining what "RAND" is. However, it may be added that antitrust enforcement stands on no less shaky ground.

Because of its roots in patent policy, patent misuse may be a more appropriate instrument to consider the societal implications of both the alleged misconduct and the effect on innovation. Because of its antitrust fixtures, patent misuse allows the court to apply a rule of reason analysis to also weigh the effect of both the alleged misconduct and the estoppel on the competitive

¹¹⁰See Complaint, *In re Rambus, Inc.*, FTC No. 9302, at *6 (June 18, 2002), available at <http://www.ftc.gov/os/adjpro/d9302/020618admincmp.pdf> ("Before an SSO adopts a standard, there is often vigorous competition among different technologies for incorporation into that standard. After standardization, however, the dynamic typically shifts, as industry members begin adhering to the standard and the standardized features start to dominate.").

¹¹¹See *id.*

¹¹²See *Rambus Inc. v. FTC*, 522 F.3d 456, 466–67 (D.C. Cir. 2008). Alleged infringers who are relying on misuse would not run into the same trouble as the FTC, for whom misuse is not available, if in fact a court found a bad faith effort by Rambus to hide its patents. See George S. Cary, Paul S. Hayes & Larry C. Work-Dembrowski, *Antitrust Implications of Abuse of Standard-Setting*, 15 GEO. MASON L. REV. 1241, 1250 (2008).

process. It allows, but does not require, complex economic analysis. It reacts to misconduct, but imposes no threat of litigation unless the patentees themselves choose to provoke its application. It imposes no fines or damages, but instead acts as a guardian of fair play in the patent arena by suspending the enforcement of the patent.

V. CONCLUSION

A combined dose of antitrust law and patent misuse may provide the necessary deterrence for arresting opportunistic behavior in standard setting organizations. Misuse allows adopters of the technology not privy to the standards setting process to insulate themselves from infringement, while availing themselves to judicial aid in seeking antitrust damages for any loss sustained from the patentee's misconduct. However, patent misuse and antitrust laws are only symptomatic remedies.

Any lasting solution must come from the industry and PTO. It has been proposed that members could possibly cap the total royalty charged for a standard between all members, impose penalty defaults for nondisclosure of essential patents, and innovative means of determining royalty rates.¹¹³ It has also been proposed that the PTO should limit abuse of continuation practice, while courts should limit findings of wilfulness,¹¹⁴ and calculate reasonable royalty rates and damages in a way that accounts for the fact that many patents may read on a single standard.¹¹⁵ At the same time, PTO reform should result in granting quality patents and providing for appropriate post-grant review mechanisms.¹¹⁶ Inadequate attention to both have aspects been recognized as a

¹¹³ See Lemley, *supra* note 23, at 161.

¹¹⁴ See *id.* at 164.

¹¹⁵ See *id.* at 166.

¹¹⁶ See Bronwyn H. Hall & Dietmar Harhoff, *Post-Grant Reviews In The U.S. Patent System—Design Choices And Expected Impact*, 19 BERKELEY TECH. L.J. 989, 993 (2004); Doug Lichtman & Mark A. Lemley, *Rethinking Patent Law's Presumption of Validity*, 60 STAN. L. REV. 45, 126 (2007).

reason for banal patents that facilitate hold-ups¹¹⁷ Such changes are affect interlocking components of a complex patent regime and understandably require time to properly effect these changes. In the meantime, litigants and courts operating in fast moving industries where standard setting activity occur may find the equitable doctrine of patent misuse a workable and fruitful recourse yet.

¹¹⁷ See Fed. Trade Comm'n, *supra* note 41, Ex. Sum. at 5.