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WHY ROYALTIES FOR STANDARD ESSENTIAL PATENTS SHOULD NOT BE SET BY THE COURTS

STANLEY M. BESEN*

ABSTRACT

Although Standard Setting Organizations (SSOs) generally require patent holders to agree to license their technologies on Reasonable and Non-Discriminatory (RAND), or Fair Reasonable and Non-Discriminatory (FRAND), terms as a condition of including their technologies in a standard, SSOs have generally declined to accept responsibility for clarifying the meaning of these commitments. Despite this, a consensus has emerged among most commentators as to how F/RAND royalties should be determined for Standard Essential Patents. According to the consensus view, a F/RAND royalty should be the cost of obtaining a license just before the patented invention is declared essential to compliance with an industry standard, which should, in turn, reflect the value of the invention over its best alternative. However, based upon the way in which F/RAND royalties were determined in a number of recent cases, this article argues that courts generally will not have the information needed to implement the consensus view and that, as a result, greater effort should be taken to have these royalties determined before standards are adopted.

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I. INTRODUCTION

[M]any standard setting organizations . . . have adopted rules relating to the disclosure and licensing of essential patents. The policies often require or encourage members of the standards setting organizations to identify patents that are essential to a proposed standard and to agree to license their essential patents on reasonable and non-discriminatory (“RAND”) terms to anyone who requests a license.¹ If the owner of a declared essential patent declines to make a RAND or royalty-free licensing commitment . . . the approved standard “shall not include provisions depending on the patent.”² . . . The IEEE and ITU have declined to provide a definition of what constitutes RAND terms and conditions. Further, the organizations do not attempt to determine what constitutes a reasonable royalty rate or what other terms and conditions are reasonable or nondiscriminatory for any license between interested parties³ [T]he ITU/ISO/IEC Common Patent Policy provides that “[t]he detailed arrangements arising from patents (licensing, royalties, etc.) are left to the parties concerned, as these arrangements might differ from case to case.”⁴

Standard Setting Organizations (SSOs) generally require patent holders to agree to license their technologies on Reasonable and Non-Discriminatory (RAND), or Fair Reasonable and Non-Discriminatory (FRAND), terms as a condition of including their technologies in a standard.⁵ However, as a general matter, SSOs have declined to clarify the meaning of these commitments, leaving the responsibility for setting royalties for Standard Essential Patents (SEPs) to others. For example, the Institute of Electrical and Electronics Engineers (IEEE) has stated that it is not responsible for “determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory.”⁶ Similarly, the European Telecommunications Standards Institute (ETSI) has indicated that “Specific licensing terms and conditions are commercial issues between the companies and shall not be addressed within ETSI.”⁷ Thus, although SSOs

1. Microsoft Corp. v. Motorola, Inc., C10-1823JLR, 2013 WL 2111217, at *6 (W.D. Wash. Apr. 25, 2013) (internal quotation marks omitted).

2. *Id.* at *7 (quoting Common Patent Policy for ITU-T/ITU-R/ISO/IEC, <http://www.itu.int/en/ITU-T/ipr/Pages/policy.aspx>).

3. *Id.* at *10.

4. *Id.* at *7 (quoting Common Patent Policy for ITU-T/ITU-R/ISO/IEC, <http://www.itu.int/en/ITU-T/ipr/Pages/policy.aspx>).

5. Throughout this article, the terms RAND, FRAND, and F/RAND are used interchangeably.

6. Apple, Inc. v. Motorola Mobility, Inc., 886 F. Supp. 2d 1061, 1069 (W.D. Wis. Aug. 10, 2012) (quoting IEEE-SA STANDARDS BOARD BYLAWS, § 6.2, <http://standards.ieee.org/develop/policies/bylaws/sect6-7.html>).

7. ETSI Guide on Intellectual Property Rights (IPRs) - Version Adopted By Board #94 on 19 September 2013, § 4.1, <http://www.etsi.org/images/files/IPR/etsi-guide-on-ipr.pdf>; see, R. Bekkers & A. Updegrave, *Supplement 3 – Analysis of the IPR Policy of ETSI in A Study of IPR Policies and Practices*

generally will not include a patented technology in a standard unless the patent holder makes a F/RAND commitment, SSOs generally do not give any specific meaning to that commitment.⁸

Bekkers and Updegrove note that

[d]espite the fact that the concept of RAND terms is central to many IPR policies, it is remarkable that none of the policies in the study set provides a definition, or any guidance on how abstract concepts as ‘reasonable’ or ‘non-discriminatory’ are to be understood. The same holds true with respect to the word ‘fair’ in policies that speak of FRAND, or even what, if anything, is intended by adding the word fair in addition to the word ‘reasonable’.⁹

Similarly, Layne-Farrar notes that “[n]o SSO to my knowledge explains precisely what it means by ‘reasonable and non-discriminatory’ licensing,”¹⁰ Morse further finds that “the commitment to license at a ‘reasonable’ royalty is a vague standard that leaves tremendous discretion to the patent holder after the standard has been adopted,”¹¹ and Renata Hesse, Deputy Assistant Attorney General of the U.S. Department of Justice’s Antitrust Division, observes that “standards bodies, and their members, have long-recognized the inherent ambiguity of a commitment to license patents essential to a

of a Representative Group of Standards Setting Organizations Worldwide 25, http://home.tn.tue.nl/rbekkers/nas/Bekkers_Updegrove_NAS2012---S03---ETSI.pdf (“An ETSI representative” who indicates that ETSI does “offer to [its] Members the possibility to make ex-ante disclosures of licensing terms” and to base their decisions within ETSI on, *inter alia*, such terms, but Members are “not allowed to start discussing these topics inside ETSI.”).

8. See, e.g., Brief for Intellectual Property Law Ass’n, as Amicus Curiae in Support of Neither Party, *Microsoft Corp. v. Motorola, Inc.* at *12, 795 F.3d 1024 (9th Cir. 2015) (No. 14-35393), 2014 WL 4802385 (noting that “[t]he [intellectual property rights] policies [of SSOs] intentionally do not define specific RAND rates for a particular license”); Letter from Renata B. Hesse to Michael A. Lindsay (Feb. 2, 2015) at 12 (noting that the new policy modifying the IEEE Standard Association’s Patent Policy “does not mandate any specific royalty calculation methodology or specific royalty rates”); K. Kuhn, F. Scott Morton, & H. Shelanski, *Standard Setting Organizations Can Help Solve the Standard Essential Patents Licensing Problem*, CPI ANTITRUST CHRONICLE, March 2013 (Special Issue), at 3 (noting that “SSOs typically specify very little as to the meaning of ‘fair’ or ‘reasonable’”); M. Lipman, *EU Court Backs Watchdog’s SEP Take But Questions Remain*, LAW 360, July 16, 2015, http://www.law360.com/ip/articles/680284?nl_pk=c4c1e7ac-d085-4675-aab3-2e56a9349f80&utm_source=newsletter&utm_medium=email&utm_campaign=ip (observing that “as long as it is unclear what FRAND is in practice, a lot of uncertainty will remain about what behavior constitutes abuse and which behavior does not”) (internal quotation marks omitted).

9. R. Bekkers & A. Updegrove, *Analysis of the IPR policy of ETSI in A study of IPR policies and practices of a representative group of Standards Setting Organizations worldwide*, http://www.nap.edu/html/18510/Bekkers-Updegrove%20Paper_092013.pdf, at 128-129.

10. A. Layne-Farrar, *How to Avoid Antitrust Trouble in Standard-Setting: A Practical Approach*, 23 ANTITRUST MAGAZINE (Summer 2009), at 42, 43 (Summer 2009).

11. M.H. Morse, *Standard Setting and Antitrust: The Intersection Between IP Rights and the Antitrust Laws*, IP LITIGATOR 17, 22 (May/June 2003).

standard on reasonable and nondiscriminatory terms—after all, what do “reasonable” and “non-discriminatory” actually mean?”¹²

Finally, in a recent European case in which a patent holder and a prospective licensee had failed to negotiate a license for a Standard Essential Patent and the patent holder had sought an injunction,¹³ Advocate General Wathelet began by noting “a lack of clarity as to what is meant by ‘FRAND terms’” and the fact that “a commitment to grant licences on FRAND terms . . . does [not] give any indication of the FRAND terms.”¹⁴ Although he went on to note that “the specific terms of a FRAND licence . . . lie at the discretion of the parties and, where appropriate, the civil courts and arbitration tribunals . . . ,”¹⁵ he also observed “the risk of the parties concerned being unwilling to negotiate or of the negotiations breaking down could, at least in part, be avoided or mitigated if standardisation bodies were to establish minimum conditions or a framework of ‘rules of good conduct’ for the negotiations of FRAND licensing terms.”¹⁶ He concluded by setting out conditions for the appropriate behavior of a patent holder and a prospective licensee during their negotiations. For example, the patent holder’s offer must contain “the precise amount of the royalty and the way in which that amount is calculated,” and the licensee must present a “reasonable” counter-offer.¹⁷ However, he did not provide any indication of how a court should adjudicate between competing claims.¹⁸

12. R. Hesse, *Six “Small” Proposals for SSOs Before Lunch*, Remarks as Prepared for the ITU-T Patent Roundtable, Geneva, Switzerland, October 10, 2012, at 6.

13. Case C-170/13 Huawei Technologies Co. Ltd v ZTE Corp., <http://curia.europa.eu/juris/celex.jsf?celex=62013CC0170&lang1=en&type=TEXT&ancre=> (Nov. 20, 2014).

14. *Id.* at ¶¶ 9–10.

15. *Id.* at ¶ 40.

16. *Id.* at ¶ 11.

17. *Id.* at ¶ 103.

18. An example in which an SSO apparently decided to *reduce* its role in the royalty-setting process is contained in American National Standards Institute’s (“ANSI”) Procedures for the Development and Coordination of American National Standards. In an update to its patent policy, ANSI deleted text from its previous policy that had called for royalty terms and conditions to be submitted to ANSI for review by counsel and for a statement of the basis for considering such terms and conditions free of any unfair discrimination. George T. Willingmyre, *Evolution of the ANSI Patent Policy*, GTW ASSOCIATES, <http://www.gtwassociates.com/answers/EvolutionANSIPolicy.html#1997> (updated Feb. 2015) (last visited Oct. 29, 2015); PROCEDURES FOR THE DEVELOPMENT AND COORDINATION OF AMERICAN NATIONAL STANDARDS § 1.2.11 (AM. NAT’L STANDARDS INST. Mar. 1997), <http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/American%20National%20Standards/Procedures.%20Guides.%20and%20Forms/ANS%20Procedures%20-%20Historical/ANSIPRO1997.pdf>; Mark Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL L. REV. 1889, 1905 (2002) (noting that of the SSOs whose rules he examined “two SSOs appeared to flatly prohibit ownership of IP rights by a private party” and “four SSOs . . . permitted a member to own patents, but only if they agreed to license the patents to other members on a royalty-free basis”).

II. THE CONSENSUS VIEW OF THE MEANING OF F/RAND

Despite the vagueness or lack of precision in the rules of SSOs, a consensus has emerged as to how F/RAND royalties should be determined. Judge Posner has held that “[t]he proper method of computing a FRAND royalty starts with what the cost to the licensee would have been of obtaining, just before the patented invention was declared essential to compliance with the industry standard, a license for the function performed by the patent”¹⁹ Similarly, Baumol and Swanson have stated that “the concept of a ‘reasonable’ royalty for purposes of RAND licensing must be defined and implemented by reference to ex ante competition, i.e., competition in advance of standard selection.”²⁰

To understand this conclusion, one must first consider a setting that does *not* involve a standard in which an implementer can choose between two alternative patented technologies. There, the “better” technology can set a license fee no greater than the value of its advantage over the alternative. Such a conclusion assumes that the development costs of the patentees are sunk, but this must be the case because the patentees have already obtained their patents.

19. *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 913 (N.D. Ill. June 22, 2012). Judge Posner also noted that “often a royalty is actually a form of restitution—a way of transferring to the patentee the infringer’s profit, or, what amounts to the same thing, *the infringer’s cost savings from practicing the patented invention without authorization.*” *Id.* at 910 (emphasis added).

20. D.G. Swanson & W.J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1, 10–11 (2005); see J. Farrell, J. Hayes, C. Shapiro, & T. Sullivan, *Standard Setting, Patents and Hold-Up*, 74 ANTITRUST L.J. 603, 637 (2007); U.S. DEPT. OF JUSTICE & U.S. PATENT & TRADEMARK OFFICE, POLICY STATEMENT ON REMEDIES FOR STANDARDS-ESSENTIAL PATENTS SUBJECT TO VOLUNTARY F/RAND COMMITMENTS, Jan. 8, 2013, at 8, <http://www.justice.gov/sites/default/files/atr/legacy/2014/09/18/290994.pdf> (stating that “a patent holder who makes . . . a F/RAND commitment should receive appropriate compensation that reflects the value of the technology contributed to the patent,” which could be interpreted as reflecting the advantage of a technology over its best alternative); *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1233, 1235 (Fed. Cir. 2014) (holding that “the patent holder should only be compensated for the approximate incremental benefit derived from his invention” and concluding that the district court had erred in: “(1) failing to instruct the jury adequately regarding [the patent holder’s] actual RAND commitment; (2) failing to instruct the jury that any royalty for the patented technology must be apportioned from the value of the standard as a whole; and (3) failing to instruct the jury that the RAND royalty rate must be based on the value of the invention, not any value added by the standardization of that invention—while instructing the jury to consider irrelevant *Georgia-Pacific* factors”). *Contra* D. Geradin, *The Meaning of “Fair and Reasonable” in the Context of Third-Party Determination of FRAND Terms*, 21 GEO. MASON L. REV. 919, 939 (2014) (arguing that the ex ante incremental value method “not only is flawed but also directly contradicts the intent of the parties”). Whereas Geradin favors ex post determination of royalty rates through private negotiations over ex post determination by third parties, I favor ex ante determination of royalty rates over both. See S.M. Besen & R. J. Levinson, *Economic Remedies for Anticompetitive Hold-up: The Rambus Cases*, 56 THE ANTITRUST BULLETIN 583 (2011) (providing analysis of the way in which the Federal Trade Commission and the European Commission set F/RAND rates).

Moreover, there is no inconsistency between this conclusion and the fact that developers *expect* to obtain a return at least as great as their development costs. Suppose, for example, that there are two developers, X and Y, who both expect that, with probability one-half, they will develop the “better” technology and, if they do so, will collect royalties of 100, which reflects the value of the advantage of their technology over that of their rival. If the development costs incurred by each firm are no greater than 50 (50% of 100), both will undertake development. If, for example, development costs are 40, the “winning” developer will earn a profit of 60 (royalties of 100 minus development costs of 40), and the losing developer will incur a loss of 40.²¹

Changing this example to the case in which the two technologies compete to be included in a standard does not change this conclusion. Having a standard may be very valuable, but, as basic economic theory teaches, competition results in economic agents being rewarded only for the marginal value of their contributions, not for the total value of the products in which their contributions play a role.²²

Despite the consensus view as to what a F/RAND commitment should mean, many contend that this is not what a F/RAND commitment actually means. Indeed, Motorola, which has made many such commitments, has argued “its contracts with the standards-setting organizations are not specific because they do not explain what constitutes a ‘fair, reasonable and nondiscriminatory’ license and they do not provide instructions on how to determine appropriate license terms.”²³ Motorola’s claim accurately reflects the fact that the precise license terms to which patent holders have committed is often less than clear, and the statements of ETSI, the IEEE, and the International Telecommunications Union (ITU) accurately reflect the fact that most, if not all, SSOs have declined providing greater clarity.²⁴

21. Suppose that development costs exceed 50 but the technology is very valuable. In that case, one of the developers may still invest, hoping that the other will not and that its own development effort will be successful. If that turns out to be the case, the marginal contribution of the patent of the successful developer will be great, reflecting the fact that there is not a competing alternative. Of course, if both invest, even the “winning” developer may be unable to cover its own development costs.

22. In order to encourage patent holders to disclose their patents during the period in which a standard is being chosen, it would be appropriate to reduce the royalty below that discussed in the text where a patent holder had failed to disclose its patent. *See Besen & Levinson, supra* note 20, at 595–598.

23. *Apple, Inc. v. Motorola Mobility, Inc.*, No. 11–cv–178–bbc, 2012 WL 5416941 at *3 (W.D. Wis. Oct. 29, 2012).

24. A. Updegrove, *Judge Robart’s Opinion in Motorola vs. Microsoft and the Future of FRAND*, CONSORTIUMINFO.ORG (July 2, 2013), <http://www.consortiuminfo.org/standardsblog/article.php?story=20130429084333251> (noting that “[f]or the last twenty-five years, I have tried to interest my consortium clients in addressing this issue head on, and have virtually never been successful in persuading them to even incrementally add to the definition of what FRAND should mean”); *See J. Tsai & J.D.*

III. WHY F/RAND ROYALTIES SHOULD BE SET BEFORE A TECHNOLOGY IS INCORPORATED IN A STANDARD

In determining the value of a technology embedded in a standard, later observers could possibly benefit from information that becomes available only after the standard has been adopted. However, SSOs and their members are generally in the best position to determine “what the cost to the licensee would have been of obtaining, just before the patented invention was declared essential to compliance with the industry standard a license for the function performed by the patent.” That is, they will generally know more about the technical capabilities and implementation costs of the alternatives to a patented technology at the time that the SSOs are setting a standard than later observers.²⁵ Thus, where possible, they should provide clarity as to the meaning of a F/RAND commitment before a technology is included in a standard.²⁶

There are a number of ways in which this clarity might be provided. For example, Layne-Farrar, Llobet, and Padilla identify several mechanisms

Wright, *Standard Setting, Intellectual Property Rights, and the Role of Antitrust in Regulating Incomplete Contracts*, 80 ANTITRUST L.J. (forthcoming 2015) (manuscript at 17–18), <http://dx.doi.org/10.2139/ssrn.2467939> (noting that “although we observe considerable changes to some IPR policy terms, ambiguity, especially with respect to F/RAND licensing terms, tends to persist across SSO and within an SSO over time”).

25. SSOs and their members are also likely to have better information than the arbitrators who would determine F/RAND rates under Lemley and Shapiro’s proposal. M.A. Lemley & C. Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard Essential Patents*, 28 BERKELEY TECH. L.J. 1135 (2013) (proposing a “baseball style” arbitration that should reduce the range between the royalty demands of patentees and the offers of licensees, thus simplifying the arbitrator’s task). For somewhat the same reason, I am not entirely sanguine about the proposal of Kuhn, Scott Morton, and Shelanski to have SSOs require patentees to commit to arbitration, although their proposal for “alternative dispute resolution within the SSO” may be more promising, especially if members of the SSO with detailed knowledge of the alternative technologies that were available to the SSO at the time the standard was adopted have a large role in the process. See K. Kuhn, F. Scott Morton, & H. Shelanski, *supra* note 8, at 4.

26. Even where the *actual* F/RAND rate is not specified before a standard is adopted, an SSO may be able to achieve some of the same benefits if patent holders must commit to the *maximum* royalty rates that they will demand. Letter from Thomas O. Barnett, Assistant Attorney General, United States Department of Justice, to Robert A. Skitol 4 (Oct. 30, 2006), <http://www.justice.gov/atr/public/busreview/219380.htm> (illustrating a rule adopted by VITA, a non-profit standards development organization accredited by ANSI, and its standards development subcommittee, VSO, under which “working group members must declare the maximum royalty rates and most restrictive non-royalty terms that the VITA member company he or she represents will request for any such patent claims that are essential to implement the eventual standard.”); Letter from Thomas O. Barnett, Assistant Attorney General, United States Department of Justice, to Michael A. Lindsay, Esq. 6 (Apr. 30, 2007), <http://www.justice.gov/atr/public/busreview/222978.pdf> (discussing a policy established by the IEEE, which provides that “if a patent holder commits to license its essential patent claims under RAND terms, it may voluntarily augment its [IEEE-SA Letter of Assurance] by including details about those terms for each essential claim” and “such details may include a not-to-exceed license fee or rate commitment, other material licensing terms, or a sample licensing agreement”).

through which *ex ante* royalty determination might be effected, including auctions, in which the bidders would be patent holders; compulsory disclosure of rates by prospective licensors; joint or multilateral negotiations between licensees and prospective licensors; and their preferred alternative, that “[SSOs] encourage bilateral licensing negotiations *ex ante*.”²⁷ In comparing *ex ante* joint negotiations and *ex ante* bilateral negotiations, the authors use “the value that a patented technology incrementally contributes over the next best technological alternative . . . [which] is the amount that the patent owner could expect to obtain in a hypothetical *ex ante* auction for a license to the technology,”²⁸ as a benchmark, which is the consensus view. Clearly, the use of any of these alternatives would avoid the need for courts to adjudicate disputes as to the meaning of RAND commitments after a technology has been incorporated into a standard and licensees have incurred significant sunk costs.²⁹

Carlton and Shampine identify two mechanisms, one in which “a patent holder announces non-discriminatory license terms for its patents *prior* to the adoption of a standard and . . . the SSO then includes those patents in the standard” and the other in which “there are actual negotiated rates with prominent and sophisticated firms *prior* to the standard being set.”³⁰ What these mechanisms have in common is that royalty rates would be known before licensees incur the sunk costs that limit their ability to switch to alternatives.³¹ Because these costs are often important, one should be

27. A. Layne-Farrar, G. Llobet, & A.J. Padilla, *Preventing Patent Hold Up: An Economic Assessment of Ex Ante Licensing Negotiations in Standard Setting*, 37 AIPLA Q.J. 445, 447 (2009).

28. *Id.* at 448 (citation omitted) (emphasis added).

29. In a later paper, Layne-Farrar and Llobet call into question the use of the incremental value rule on the grounds that patented technologies differ in multiple dimensions and users place different values on the various dimensions. Their principal conclusion is that “[u]nder the circumstances [that they study], there is little room for a competition agency to improve on outcomes.” However, the analysis in the paper can also be used to reinforce the conclusion that courts would find it exceedingly difficult to determine the royalties that would have been set before a technology was included in a standard. That is, if anything, the analysis supports the view it is not a good idea to leave the determination of royalty rates to a time after a standard has been adopted with disputes over those rates being resolved by the courts. A. Layne-Farrar & G. Llobet, *Moving Beyond Simple Examples: Assessing the Incremental Value Rule within Standards*, 36 INT’L JOURNAL IND. ORG. 57, 65 (2014), www.cemfi.es/~llobet/multidim2.pdf.

30. D.W. Carlton & A.L. Shampine, *Identifying Benchmarks for Applying Non-Discrimination in FRAND*, CPI ANTITRUST CHRONICLE, Aug. 2014, at 3, <https://www.competitionpolicyinternational.com/identifying-benchmarks-for-applying-non-discrimination-in-frand/> (discussing a third alternative, where “a licensee has a legally enforceable right to ‘reasonable’ terms . . . [and] has the option to challenge the offered terms in court rather than signing the offered license”) (emphasis added). The viability of that alternative depends not only on the costs of litigation, which Carlton and Shampine discuss, but also on the ability of the courts to determine whether the offered terms are “reasonable” and, as I discuss below, the courts face considerable difficulties in doing so.

31. See T. Lefton, “IBM, Unisys Reduce Fees for Modem Compression,” ELECTRONIC NEWS, January 1, 1990, at 1, 34 (providing an example in which an SSO was able to get patent holders to reduce

skeptical about the claim that “RAND licenses can be determined between parties through private bilateral negotiations *after* an SSO adopts a standard.”³²

IV. HOW COURTS HAVE SET F/RAND ROYALTIES

Despite the obvious benefits of specifying F/RAND license terms before a technology is incorporated into a standard, SSOs have been reluctant to give specific meaning to F/RAND commitments. Several reasons have been suggested for this. Kuhn, Scott Morton, and Shelanski argue that SSOs do not set F/RAND rates “perhaps partially because there is heterogeneity among the firms, technologies, and products within a given SSO.”³³ Lichtman holds that “[s]tandard-setting participants defer pricing negotiations because they want more information, or because they want to implement the relevant standard more quickly, or because they want to minimize upfront costs.”³⁴ Contreras argues that “negotiating patent licenses requires the expenditures of time, effort, and money . . . much of this . . . would be spent negotiating licenses for standards that were never adopted, or that failed in the marketplace.”³⁵ Still others ascribe this behavior to the fear of SSOs and their members that they would be subject to antitrust liability if they were to discuss royalties during the standard setting process.³⁶

Whatever the reason, the failure of SSOs to give specific meaning to F/RAND commitments means that someone else—generally a judge or a jury—will have to provide that meaning, often without the requisite

their royalty demands by threatening to substitute alternative technologies in a standard before it was widely adopted).

32. *Microsoft Corp. v. Motorola, Inc.*, C10-1823JLR, 2013 WL 2111217, at *14 (W.D. Wash. April 25, 2013) (emphasis added).

33. K. Kuhn, F. Scott Morton, and H. Shelanski, *supra* note 8, at 3.

34. D. Lichtman, *Understanding the RAND Commitment*, 47 HOUS. L. REV. 1023, 1033 (2010).

35. J.L. Contreras, *Fixing FRAND: A Pseudo-Pool Approach to Standards-Based Patent Licensing*, 79 ANTITRUST L.J. 47, 60 (2013).

36. See *e.g.*, T.S. Simcoe, *Public and Private Approaches to Patent Hold-up in Industry Standard Setting*, 57 ANTITRUST BULL. 59, 70 (2012); Mark Lemley, *supra* note 18, at 1965; Letter from Thomas O. Barnett, Assistant Attorney General, United States Department of Justice, to Michael A. Lindsay, Esq. 11 (Apr. 30, 2007), <http://www.justice.gov/atr/public/busreview/222978.pdf> (“The proposed patent information policy permits voluntary commitments to most restrictive licensing terms, but prohibits discussion of specific licensing terms within IEEE-SA standards development meetings [W]e understand that this prohibition extends to joint negotiations of licensing terms within standards development meetings.”); J.J. Kelly & D.J. Prywes, *A Safety Zone for the Ex Ante Communication of Licensing Terms at Standard-Setting Organizations*, THE ANTITRUST SOURCE, March 2006, (discussing a number of “Principles” which, if adopted by the antitrust agencies and followed by SSOs, would permit SSOs to take the royalty demands of patent holders into account in setting standards without incurring antitrust liability).

information.³⁷ Indeed, as Judge Crabb has noted, “[I]n situations . . . in which the parties cannot agree on the terms of a fair, reasonable and nondiscriminatory license, the court may be the only forum to determine license terms.”³⁸ However, as a practical matter, it will be extremely difficult for a court to implement the “hypothetical, bilateral negotiation under the RAND obligation” that Judge Robart indicates “logically will lead to a royalty rate that both parties would have found to be reasonable.”³⁹

This section reviews several recent cases in which courts established royalty rates for Standard Essential Patents and analyzes the extent to which the methods that they employed are consistent with the principle for determining such rates, as enunciated by Judge Posner.⁴⁰ This section also reviews a case in which Judge Posner found significant defects in the way in which the parties calculated reasonable royalties, and where, instead of attempting to remedy these defects, he dismissed the parties’ claims.⁴¹ These cases provide evidence about how well, or how poorly courts are able to

37. *Apple, Inc. v. Motorola Mobility, Inc.*, No. 11–cv–178–bbc, 2012 WL 5416941, at *5 (W.D. Wis. Oct. 29, 2012) (finding defendant also argued that “there is insufficient evidence from which the court could determine a fair, reasonable, and nondiscriminatory rate in this case”).

38. *Id.* at *4.

39. *Microsoft Corp. v. Motorola, Inc.*, C10-1823JLR, 2013 WL 2111217, at *16 (W.D. Wash. Apr. 25, 2013).

40. Lemley, *supra* note 18, at 1954 n.272 (“While there has not been much in the way of judicial explication of [the term ‘reasonable and nondiscriminatory licensing’] so far, its common usage may give courts more opportunity to clarify its meaning.”) These cases provide some evidence of how well the courts have availed themselves of this opportunity. A separate question, not addressed here, is whether a patent holder can obtain an injunction if it is unable to agree with a would-be licensee on the terms of a RAND license. The majority of the Federal Circuit in *Apple Inc. v. Motorola, Inc.* rejected a *per se* rule against such injunctions holding that “an injunction may be justified where an infringer unilaterally refuses a FRAND royalty or unreasonably delays negotiations to the same effect.” *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1332 (Fed. Cir. 2014), *overruled on other grounds by* *Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015). Note, however, that, in such cases, the court would still have to determine whether the royalty rate that the licensee had refused met the conditions for a FRAND rate. *See id.* (rejecting a *per se* rule against such injunctions but holding that “an injunction may be justified where an infringer unilaterally refuses a FRAND royalty or unreasonably delays negotiations to the same effect”).

41. *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901 (N.D. Ill. June 22, 2012); *see Apple Inc. v. Motorola Mobility, Inc.*, No. 3:11-cv-00178-bbc, 2012 WL 7989412, at *3, *5 (W.D. Wis. Nov. 8, 2012) (dismissing case with prejudice after initially indicating a willingness to establish a RAND royalty rate because the court reasoned that “[i]f [the plaintiff] succeeded in showing that a breach occurred but did not win the rate it wanted, it could walk away, leaving [the defendant] without a mechanism for obtaining compensation from [the plaintiff] for the use of its patents except by filing infringement suits” and in part because “it is not realistic to think that a court could construct a ‘method’ into which the parties could insert numbers to produce a fair valuation of a company’s patent portfolio in a given area of technology”); *Realtek Semiconductor Corp. v. LSI Corp.*, 946 F. Supp. 2d 998 (N.D. Cal. May 20, 2013), (deciding RAND rates for licenses to use two wireless networking patents); *see also* K. Greene, *Calif. Jury Sets RAND Rate for Licensing Wi-Fi Patents*, LAW360, Feb. 27, 2014, http://www.law360.com/ip/articles/514100?nl_pk=c4c1e7ac-d085-4675-aab3-2e56a9349f80&utm_source=newsletter&utm_medium=email&utm_campaign=ip (last visited Oct. 31, 2015).

overcome the ambiguities in SSO licensing terms, especially those with respect to the meaning of the terms FRAND and RAND. Therefore, these cases provide evidence about the appropriate balance between the costs and benefits of providing greater specificity in those terms.⁴² If the courts do a poor job of resolving F/RAND license fee disputes, a strong argument exists for greater specificity, or at least for greater effort, in determining F/RAND license fees prior to adopting a standard results.⁴³

A. *Microsoft Corp. v. Motorola, Inc.*

In *Microsoft Corp. v. Motorola, Inc.*, Microsoft claimed that Motorola breached its RAND obligations to the IEEE and the ITU by making unreasonable licensing offers.⁴⁴ The Court held that Motorola's RAND commitments created enforceable contracts and that these contracts required Motorola's initial offers to be in good faith. The Court then took on the task of "attempting to decipher the meaning of Motorola's RAND licensing obligation."⁴⁵ As Judge Robart noted at the outset of his opinion, "Without a clear understanding of what RAND means, it would be difficult or impossible to figure out if Motorola breached its obligation to license its patents on RAND terms."⁴⁶

Although Judge Robart noted that "ex ante examination of the incremental contribution of the patented technology to the standard can be helpful in determining a RAND rate in the context of a dispute over a RAND royalty rate,"⁴⁷ he described the "lack of real-world applicability"⁴⁸ of this approach. He also noted that "[n]either the IEEE or the ITU specifies that RAND terms must be determined using an incremental value approach" and that "[i]n practice, approaches linking the value of a patent to its incremental contribution to a standard are hard to implement."⁴⁹ Despite this, he concluded, "If alternatives available to the patented technology would have

42. See, e.g., Complaint, *Ericsson Inc. v. Apple, Inc.*, No. 2:15-cv-17 (E.D. Tex. Jan. 14, 2015) (citing a specific definition of "Standard Essential Patents" but not of "FRAND").

43. Swanson & Baumol, *supra* note 20. Note, in a similar vein, that "there is simply no excuse for a RAND commitment to amount to little more than an empty promise or a pious platitude." *Id.* at *24.

44. C10-1823JLR, 2013 WL 2111217 (W.D. Wash. Apr. 25, 2013).

45. The court sought to determine both a RAND royalty *range*, in order to determine whether Motorola's initial offers were reasonable, and a specific royalty *rate* for the technologies at issue. *Id.* at *1.

46. *Id.* Microsoft claimed that Motorola's breached its RAND obligations by making unreasonable licensing offers. The court held that Motorola's RAND commitment created an enforceable contract and the question then became whether Motorola's offers were reasonable.

47. *Id.* at *13.

48. *Id.*

49. *Id.*

provided the same or similar technical contribution to the standard, the actual value provided is its incremental contribution Thus, comparison of the patented technology to the alternatives that the SSO could have written into the standard is *a consideration* in determining a RAND royalty.”⁵⁰

There are two key steps in Judge Robart’s analysis. First, he analyzed the outcome of a “hypothetical negotiation” between Microsoft and Motorola “by looking at the importance of the [Standard Essential Patents] to the standard and the importance of the standards and the SEP to the products at issue.” Second, he employed that information, “along with comparables suggested by the parties” to determine RAND royalty rates.

Judge Robart observed that “[b]ecause bilateral negotiations occur in practice, there exists evidence of the results of such real-world negotiations that can be used in simulating the hypothetical negotiation.”⁵¹ However, he noted soon thereafter that “the hypothetical negotiation under a RAND obligation must be different than the typical *Georgia-Pacific* analysis historically conducted by courts in a patent infringement action.”⁵² He then focused on two differences: (1) the fact that “the owner of an SEP is under the obligation to license its patent on RAND terms, whereas the owner of a patent uncommitted to RAND has monopoly power over its patent and may choose to withhold licensing,” and (2) the fact “that the implementer of a standard will understand that it must take a license from many SEP owners . . . before it will be in compliance with its licensing obligations and able fully to implement the standard.”⁵³

Judge Robart specifically examined the various *Georgia-Pacific* factors, and, in many cases, noted either their total or limited applicability to the question at issue. For example,

the licensor’s established policy and marketing program to maintain his patent monopoly . . . *is inapplicable* in the RAND context because the licensor has made a commitment to license on RAND terms [T]he commercial relationship between the licensor and licensee . . . *does not apply* in the RAND context . . . [because] the patent owner is obligated to license all implementers on reasonable terms. . . . [A] reasonable royalty *would not take into account* the value to the licensee created by the existence of the standard itself, but would instead consider the contribution of the patent to the technical capabilities of the standard

50. *Id.* at *13–14 (quoting Motorola’s expert as acknowledging that “[i]f a component had multiple alternatives before the standard was settled, *its incremental contribution*, properly measured, may be close or equal to zero”) (emphasis added).

51. *Id.* at *14.

52. *Id.* at *16.

53. *Id.*

[L]icensing fees for non-RAND committed patents customary in a business industry *cannot form the basis* for a comparison.⁵⁴

In several parts of his opinion, Judge Robart identified other technologies that, at the time the standard was being adopted, were alternatives to the Motorola technologies incorporated in the standard. He then attempted to assess whether the Motorola technologies had advantages over these alternatives. For example, Judge Robart noted that

[Motorola’s expert], has provided sufficient evidence and explanation as to why the Krause Family of patents are *superior in functionality* to any of the alternatives set forth by Microsoft [T]he court concludes on the evidence before it that Motorola, though its expert[,] . . . has provided sufficient evidence and explanation as to why the Wu Family of patents are *superior in functionality* to any of the alternatives set forth by Microsoft [T]he court concludes that the ‘980 Patent provides *minimal technical advancements* compared to the technology in existence prior to the development of the H.264 Standard Moreover, as Microsoft correctly points out, Motorola provided no evidence that paired macroblock MBAFF[, its invention,] *performs any better* than single macroblock MBAFF Nevertheless, the court credits the inherent value to Motorola’s paired macroblock MBAFF invention [because (1)] simple logic suggest that Motorola’s paired macroblock MBAFF is superior to single macroblock MBAFF in that paired macroblock MBAFF provides *greater flexibility in terms of possible macroblock coding options* [and (2)] the JVT was well aware of single macroblock MBAFF due to its use in MPEG-2, but nevertheless chose to incorporate paired macroblock MBAFF into the H. 264 standard.⁵⁵

The advantages the court found for the Motorola technologies over its alternatives were *technical*, which can be seen from the court’s use of the phrases “superior in functionality,” “provides minimal technical advancements,” and “provides greater flexibility in terms of possible . . . coding options” in characterizing these advantages. Even if these assessments are correct, they provide only part of the information that is needed to determine the *economic* value of advantages of these technologies over their alternatives—the advantages that the consensus view claims are relevant in determining the RAND royalty rate.

This is not to say that a technology’s technical and economic advantages are necessarily unrelated, only that they are not the same thing. Indeed, small technical advantages may be highly valuable and large

54. *Id.* at *18–19 (emphasis added).

55. *Id.* at *28, *30, *32, *35–36 (emphasis added). Note that “JVT” refers to the Joint Video Team that developed the H.264 video compression standard at issue in this particular case. *Id.* at *6.

technical advantages may convey only limited economic benefits.⁵⁶ Moreover, if the costs of implementing a technically superior technology are greater than those of implementing its technically inferior alternative, they may more than offset its technical advantages. Therefore, when determining a RAND royalty rate, the relevant question is: Given the alternatives, how much would a licensee have been willing to pay to use a technology at the time that it was being considered for inclusion in a standard?

It is also important to note that a licensee might rationally choose to include an economically *inferior* technology in a standard if the owner of the superior alternative were to demand a license fee that exceeded its economic advantage. In *Rambus, Inc. v. Federal Trade Commission*, the central question involved the failure by Rambus to disclose its patent holding to an SSO.⁵⁷ The Court of Appeals for the D.C. Circuit found that there was no evidence that JEDEC, a standard-setting organization, would have included a different technology in a standard, even if Rambus had disclosed that it held a patent to the chosen technology.⁵⁸ However, that raised questions as to whether JEDEC would have chosen the Rambus technology if the patent had been disclosed given the license fee that Rambus would have demanded.⁵⁹ Thus, the fact that an SSO chose to incorporate a technology in a standard may provide little or no evidence of its actual RAND rate.

In *Microsoft Corp. v. Motorola, Inc.*, Judge Robart turned to royalty rates charged by a patent pool as “an indicator of a RAND royalty rate.”⁶⁰ He did so notwithstanding his conclusion that “on the evidence before it, the court concludes that a pool rate itself does not constitute a RAND royalty rate for an SEP holder who is not a member of the pool.”⁶¹ How did Judge Robart square this conclusion with his use of the pool royalty rate as an indicator of the RAND rate?

To square this conclusion with his use of the pool royalty rate as an indicator of the RAND rate, Judge Robart first observed that “Microsoft, Motorola, and other industry companies, in working to form the . . . patent pool, tried to strike a balance between setting a royalty rate high enough to

56. To provide an analogy, if the objective is to dunk a basketball (a basketball hoop is ten feet high), the ability to reach eight feet above the floor is no better than the ability to reach six feet above the floor, whereas the ability to reach ten and one-half feet above the floor is substantially better than the ability to reach nine and one-half feet above the floor.

57. 522 F.3d 456 (D.C. Cir. 2008).

58. *Id.* at 461; see S.M. Besen & R. J. Levinson, *Standards, Intellectual Property Disclosure, and Patent Royalties after Rambus*, 10 N.C. J.L. & TECH. 233 (2009).

59. *Rambus, Inc.*, 522 F.3d at 463–64.

60. C10-1823JLR, 2013 WL 2111217, at *83 (W.D. Wash. Apr. 25, 2013) (emphasis added).

61. *Id.* at *82.

motivate a significant number of patent holders to contribute to the patent pool and low enough to ensure that licensees would implement the . . . [s]tandard rather than use alternatives.”⁶² He then concluded that the scenario in which “Motorola received royalties equivalent to what it would have received if it and other holders of other readily identifiable . . . SEPs were all added to the pool with the current pool rate structure . . . most closely resembles the desired RAND licensing situation.”⁶³

Note that the balancing to which Judge Robart referred does *not* appear to involve the alternative technologies that the members of the patent pool could have considered for inclusion in the standard, as required by the consensus view. Moreover, it is not at all clear that the incentives of the members of a patent pool are the same as those of the members of an SSO. Whereas the members of a patent pool will have, as a major concern, obtaining significant licensing revenues from non-members, the members of an SSO that are not patent holders will wish to pay no more than is necessary to induce patent holders to license their technologies. In the extreme case in which all members of a patent pool license but do not use the technologies and all members of an SSO are users but not patent holders, the patent pool would attempt to maximize the revenues of its members, whereas an SSO would be concerned with minimizing the costs of its members.

A jury trial was subsequently held to determine whether Motorola breached its RAND commitments to the ITU and IEEE, and, basing its verdict in part on Judge Robart’s findings, the jury held that Motorola’s offer violated these commitments and awarded damages to Microsoft.⁶⁴ After the court entered a final judgment on Judge Robart’s RAND royalty rate decision,⁶⁵ Motorola appealed, and among its arguments was that “the RAND rate the court set at bench trial lacked any foundation under governing Federal Circuit patent damages law.”⁶⁶ In particular, it argued that

[(1)] The pool arrangements . . . are “radically different” from a bilateral negotiation between the two parties . . . [(2)] The pool rate used by the district court did not include the actual patents at issue. [(3)] There was no evidence . . . that Motorola’s patents were comparable technically to the patents in the MPEG-LA or Via Licensing pools. [(4)] The court’s

62. *Id.*

63. *Id.* at *83–84.

64. See Ryan Davis, *Jury Orders Motorola to Pay Microsoft \$14.5M in FRAND Row*, LAW360, Sept. 5, 2013, <http://www.law360.com/articles/470243/jury-orders-motorola-to-pay-microsoft-14-5m-in-frand-row> (last visited Oct. 31, 2015).

65. See *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 6000017, (W.D. Wash. Nov. 12, 2013).

66. Opening Brief of Defendants-Appellants at 2, *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir. 2015) (No. 14-35393).

equation relies upon “IP” (the value of having access to the IP rights of the pool) and “E” (the external value of adding patents to the pool and promoting adoption of the standard, e.g., by being able to sell additional products) and “OC” (a company’s opportunity cost of abstaining from being in the pool and using its patents in a different way) But the court stated that it did not have evidence for Motorola for these variables.⁶⁷

On appeal, Motorola contended that “RAND obligations . . . have long been successfully enforced through private bilateral negotiations and orderly adjudication with the patent system, and should not now be subject to piecemeal adjudication by courts applying state contract law,”⁶⁸ and its criticism of what it characterized as “the inscrutable algorithm the district court invented to calculate [the RAND] rate.”⁶⁹

Recently, a panel of the Court of Appeals for the Ninth Circuit affirmed the district court’s judgment.⁷⁰ Noting that “the district court sought to approximate the royalty rates upon which the parties would have agreed by setting up a hypothetical negotiation between the parties,” it found that “given the need for flexibility in determining a royalty rate for a RAND-encumbered patent . . . and given that Motorola has not shown that the court’s consideration of the companies’ circumstances at the time of the bench trial prejudiced it[,] . . . the district court’s RAND order properly applied the hypothetical agreement approach.”⁷¹ Notably, the panel did *not* conclude that the royalty rate Judge Robart established was the cost of obtaining a license just before the patented invention was declared essential to comply with the standard, but instead concluded only that he had acted properly under the circumstances. Motorola subsequently requested an en banc review of the panel’s decision arguing, in part, that “the district court admitted that it lacked the evidence that it needed for numerous of the variables in its newly invented formula for a [sic] setting a RAND rate.”⁷²

Regardless of the merits of the particular arguments made by the parties, this case demonstrates that setting a F/RAND royalty rate after a licensee has begun to employ a standard incorporating a patented technology is likely to be both extremely difficult and highly controversial.

67. *Id.* at 28–29, 31–32.

68. *Id.* at 2.

69. Reply Brief of Defendants-Appellants at 2, *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir. 2015) (No. 14-35393).

70. *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir. 2015).

71. *Id.* at 1040, 1042.

72. Petition for Rehearing and Rehearing En Banc for Defendants-Appellants at 15, *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir. 2015) (No. 14-35393).

B. In re Innovatio IP Ventures, LLC Patent Litigation

In *In re Innovatio IP Ventures, LLC Patent Litigation*, Judge Holderman examined a case where “[t]he prior owners of all of Innovatio’s patents contractually agreed with the IEEE to license any patents that were essential to the operation of the 802.11 wireless standard on [RAND] terms.”⁷³ To reach a decision, Judge Holderman generally followed Judge Robart’s approach and focused on three factors: (1) “the importance of the patent portfolio to the standard, considering both the proportion of all patents essential to the standard that are in the portfolio, and also the technical contribution of the patent portfolio as a whole to the standard”; (2) “the importance of the patent portfolio as a whole to the alleged infringer’s accused products”; and (3) “other licenses for comparable patents[,] . . . using [the court’s] conclusions about the importance of the portfolio to the standard and to the alleged infringer’s products to determine whether a given license or set of licenses is comparable.”⁷⁴ Judge Holderman also concluded that the “patent hold-up is a substantial problem that RAND is designed to prevent. The court’s RAND rate therefore must, to the extent possible, reflect only the value of the underlying technology and not the hold-up value of standardization.”⁷⁵

In determining the value of the technology, one factor Judge Holderman explicitly considered was “the ease with which it can be adopted into the standard.”⁷⁶ Thus, his analysis of the value of the patented technologies attempted to “take into account the ease of those patents’ integration into the standard as whole.”⁷⁷

Judge Holderman also attempted to take the combined value of all of the patents, known as “royalty stacking,” into account “as a way of checking the accuracy of a proposed royalty’s correspondence to the technical value of the patented invention.”⁷⁸ He also noted that “the concern of royalty stacking requires that the court, to the extent possible, evaluate a proposed RAND rate in the light of the total royalties an implementer would have to pay to practice the standard.”⁷⁹ Finally, although Judge Holderman rejected the “reverse hold-up” argument, which asserted that licensees will offer royalties that are so low that innovators will not have incentives to develop

73. No. 11 C 9308, 2013 WL 5593609, at *2 (N.D. Ill. Oct. 3, 2013).

74. *Id.* at *6.

75. *Id.* at *9.

76. *Id.*

77. *Id.*

78. *Id.* at *9–10.

79. *Id.* at *10.

new technologies or contribute them to the standard-setting process, he nonetheless indicated that he would take that concern into account in setting RAND royalties.⁸⁰

As an initial step in his analysis, Judge Holderman found that “Innovatio has provided the court no legally sound and factually credible method to apportion the price of the accused end-products to the value of only Innovatio’s patented features.”⁸¹ That is, he found that Innovatio failed to demonstrate the economic superiority of Innovatio’s technologies over their best alternatives.

Judge Holderman then stated that because one of the *Georgia-Pacific* factors

requires the court to consider the utility and advantages of the patented property over alternatives that could have been written into the standard instead of the patented technology in the period before the standard was adopted[,] . . . the presence of equally effective alternatives to the patented technology that could have been adopted into the standard will drive down the royalty that the patented holder could reasonably demand The court will therefore consider the presence of alternatives that could have been adopted into the standard as it evaluates the Innovatio patents’ contribution to the 802.11 standard.⁸²

Consistent with the “consensus” view, this is the *sole* basis on which to determine a RAND royalty. Moreover, even the presence of less effective alternatives would constrain the royalty that a patented holder could demand, although not to the same extent as equally effective alternatives.

Although Judge Holderman accepted the fact that the availability of other patented technologies would constrain a RAND royalty, he found that the effect of their presence was less than that of similar public domain technologies.⁸³ He also found that only technologies that were considered by the SSO at the time a standard was being adopted should be considered as alternatives.⁸⁴

Judge Holderman next engaged in an analysis of the technical advantages of various aspects of the Innovatio technologies. In particular, he found that “the Channel Sharing family [of patents] is of moderate to high importance,”⁸⁵ “the patents in the multi-Transceiver family are of moderate

80. *Id.* at *11–12.

81. *Id.* at *18.

82. *Id.* at *19.

83. *Id.* at *20.

84. *Id.*

85. *Id.* at *24.

to high importance,”⁸⁶ and the “Sleep family patents are of moderate importance to the standard.”⁸⁷ Judge Holderman then turned to various licenses that the parties proffered as “comparable” to the licenses at issue but found all of them insufficient as benchmarks.

Finally, “[i]n light of the absence of any comparable licenses,” Judge Holderman evaluated various alternative methods that the parties advanced for determining a RAND royalty.⁸⁸ He began by rejecting a “Bottom Up” approach advanced by an expert for the licensees on three grounds.⁸⁹ First, he found that “there are no alternatives to the Innovatio patents that would provide all of the functionality of Innovatio’s patents with respect to the 802.11 standard.”⁹⁰ However, that set too high a bar since even less effective technologies could constrain the royalty that a patent holder can charge.

Second, Judge Holderman rejected the “incremental value” approach, citing Judge Robart’s finding that “approaches linking the value of a patent to its incremental contribution to a standard are hard to implement.”⁹¹ Although that is undoubtedly the case, that is what the consensus view calls for. Indeed, this conclusion supports the view that setting RAND royalties is best left to the SSOs themselves and that leaving it to the courts is a decidedly inferior alternative.

Judge Holderman then turned to the “Top Down” approach that had also been proffered by the expert for the prospective licensees.⁹² He began by noting that, although this approach “is not perfect, no approach for calculating a RAND rate is in light of the inherent uncertainty in calculating a reasonable royalty,” but concluded that the “Top Down” approach “best approximates the RAND rate that the parties to a hypothetical ex ante negotiation would have agreed upon . . . before Innovatio’s patents were adopted into the standard.”⁹³

Using the Top Down approach, the expert for the licensees calculated the RAND royalty for Innovatio’s patents as the average profit from the sale

86. *Id.* at *27.

87. *Id.* at *30.

88. *Id.* at *30–36.

89. *Id.*

90. *Id.* at *37.

91. *Id.* Judge Holderman also found that the Top Down approach would result in royalties that are too low because “it is unlikely that the market would drive the price of all patented technology to zero.” *Id.* However, so long as the costs of innovation are sunk, the “best” technology would have to compete with other technologies, the owners of which would accept a royalty at or near zero since the alternative is not to have their technologies included in the standard. For a more extended discussion of this issue, see Besen & Levinson, *supra* note 20.

92. *In re Innovatio IP Ventures*, 2013 WL 5593609, at *37–39.

93. *Id.* at *37.

of a chip multiplied by the ratio of the number of standard-essential Innovatio patents to the total number of standard-essential patents in the 802.11 standard.⁹⁴ Among the benefits that Judge Holderman ascribed to this approach was that it was based on the profit margin on a chip, as opposed to the profit margin on the products in which the chip was embedded, and that it avoided the “royalty stacking” problem by limiting the total royalties for all patents included in the standard.⁹⁵

Judge Holderman then modified the calculation to take into account an estimate of whether Innovatio’s patents are in the top 50%, the top 20%, or the top 10% of all standard-essential patents included in the 802.11 standard.⁹⁶ He concluded, based on an estimate in an economics journal article,⁹⁷ “that the top 10% of all electronics patents account for 84% of the value in all electronics patents,” and that the Innovatio patents were in the top 10% of patents in the 802.11 standard.⁹⁸ Based on these estimates, he then calculated the RAND royalty rate for the Innovatio patents.

To the extent that the importance of the Innovatio patents determined in this manner reflects the availability of alternatives available at the time the standard was adopted, this approach, at least roughly, reflects the consensus view. However, Judge Holderman did not mention this factor when he performed his calculation. Moreover, the use of the chip manufacturer’s profits as the base for the RAND calculation, the estimate of the importance of the top 10% of all patents to the standard, and the conclusion that the Innovatio patents were in the top 10% of all patents are all subject to question. The resulting royalties are likely to, at best, only approximate the value of the Innovatio patents in comparison to their best alternatives.

C. Apple, Inc. v. Motorola, Inc.

The approaches taken by Judges Robart and Holderman can be contrasted with the approach of Judge Posner, sitting by distinction, in *Apple, Inc. v. Motorola, Inc.*⁹⁹ In contrast to the willingness of Judges Robart and Holderman to use the evidence provided by the parties as a starting point to

94. *Id.* at *37–39 (observing that “the profit margin on an accused product is not always dispositive for determining a RAND rate” but not indicating when that is the case how to proceed in such situations).

95. *Id.* at *39.

96. *Id.* at *43.

97. Mark Schankerman, *How Valuable Is Patent Protection? Estimates by Technology Field*, 29 RAND J. ECON. 77, 94 tbl.5 & n.12 (1998).

98. *In re Innovatio IP Ventures*, 2013 WL 5593609, at *43.

99. No. 1:11-cv-08540, 2012 WL 1959560 (N.D. Ill. May 22, 2012), *rev’d on other grounds*, 757 F.3d 1286 (Fed. Cir. 2014).

later modify the damages claims using their own judgment, Judge Posner placed the burden for determining the RAND royalty squarely on the parties and, after finding their evidence wanting, dismissed the cases with prejudice.¹⁰⁰

Judge Posner initially addressed the determination of royalties in a *Daubert* hearing that considered challenges to the damages experts of both Apple and Motorola.¹⁰¹ There, he was highly critical of the methods used by these experts. For example, he held that:

[Motorola's damages expert] failed to consider the range of plausible alternatives (to licensing Motorola's patents) facing Apple, alternatives that she would doubtless have considered in non-litigation consulting if asked by Apple[,] . . . what is the lowest-cost method of obtaining access to the functionality of these patents?¹⁰² [Apple's damages expert failed] to consider alternatives to a \$35 million royalty that would enable Motorola to provide the superior gestural control enabled by the relevant claim in the Apple patent. There is no basis in any expert report for supposing that it would cost Motorola millions of dollars, either in invent-around software development or in loss of consumer goodwill . . . to drop the tap for turning the page in the Kindle application . . . or to drop the Kindle application itself . . .¹⁰³

Judge Posner focused on the costs, including lost revenues that the alleged infringer would incur if it used an alternative to the patented technology at issue, which he sometimes referred to as the cost of “inventing around.”¹⁰⁴

Later, in connection with his rulings on the summary judgment motions of the parties, Judge Posner observed that “[t]he purpose of the FRAND requirements . . . is to confine the patentee's royalty demand to the value conferred by the patent itself as distinct from the additional value—the hold-up value—conferred by the patent's being designated as standard-essential” and concluded that “Motorola has provided no evidence for calculating a reasonable royalty that would be consistent with this point.”¹⁰⁵

Judge Posner noted further that

the mere fact that there is *a* chip that might substitute for the alleged infringing invention would not enable a trier of fact to infer that the cost

100. *See id.*

101. *Id.*

102. *Id.* at *11.

103. *Id.* at *7.

104. *See Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 905 (N.D. Ill. June 22, 2012).

105. *Id.* at 913. Judge Posner also noted that “[t]he cost . . . of having to invent around is . . . one method of estimating the reasonable royalty for a license,” and declined to base a royalty on evidence provided by Apple of the cost of inventing around a different patent because “the cost of designing around may have been different.” *Id.* at 907–08.

of *that* chip approximates the cost that Motorola avoided by (allegedly) infringing, and hence the royalty it might have had to pay Apple for a license to use Apple's patented chip.¹⁰⁶

Thus, although a Motorola damages expert identified an alternative to the allegedly infringing invention, Judge Posner concluded that the expert had not identified the *best* alternative—the one that would presumably have served as the constraint on the royalty demands of the patentee.

Judge Posner had previously also excluded the testimony of Apple's damages expert on the grounds that his testimony failed to determine the “lowest cost, whether in soft-ware development or loss of consumer goodwill” of avoiding patent infringement, which “will be the ceiling on [Motorola's] willingness to pay [Apple] for a patent license,”¹⁰⁷ although this was not in the context of a FRAND commitment by Apple. He then dismissed the cases with prejudice.¹⁰⁸

D. Commonwealth Scientific and Industrial Research Organization v. Cisco Systems, Inc.

This case revolved around a Commonwealth Scientific and Industrial Research Organization (“CSIRO”) patent that “discloses a wireless LAN incorporating forward error correction, frequency-domain interleaving, and multi-carrier modulation, among other techniques to solve challenges to indoor wireless networking known as the ‘multipath’ problem.”¹⁰⁹ The court found that CSIRO made a RAND commitment to the IEEE and its members in connection with its 802.11a standard and that the patent at issue “is essential to practice the 802.11 standard.”¹¹⁰

CSIRO argued that the benefits of the 802.11a standard over its predecessors “are primarily attributable to the technology of [its p]atent.”¹¹¹ As a result, the value attributable to the patent is the difference between the profits earned by Cisco on products based on the 802.11 standard and those earned on products based on the earlier ones. Although the court found that “some portions of [CSIRO's damages expert] report [were] informative,” it

106. *Id.* at 906–07 (emphasis in original).

107. *Apple, Inc.*, 2012 WL 1959560, at *7.

108. *Apple, Inc.*, 869 F. Supp. 2d at 924.

109. *Commonwealth Sci. & Indus. Research Org. v. Cisco Sys., Inc.*, No. 6:11-cv-343, 2014 WL 3805817, at *1 (E.D. Tex. July 23, 2014).

110. *Id.* at *3.

111. *Id.* at *5.

also found that the report “suffers from several fatal flaws that greatly limit its utility to the Court in determining appropriate damages in this case.”¹¹²

The shortcomings identified by Judge Davis included: (1) the calculated price premium for each category of products was based on a single product sold by a single retailer at a single point in time; (2) the ranges of price premiums for different products sold by the same manufacturer were extremely wide; (3) price differences not attributable to the patent were not fully considered; and (4) the calculated royalty rates were higher than those that had been earlier offered by CSIRO.¹¹³ Thus, although the Court accepted the principle that the RAND royalty should be based on the value of CSIRO’s technology as compared to its alternative, it found significant flaws in the way in which that value had been calculated.

Cisco based its royalty calculation on rates that were included in a licensing agreement between CSIRO and Radiata.¹¹⁴ However, while Judge Davis found Cisco’s damages model to be “informative,” he also found that it was “ultimately of limited use to the Court in determining the appropriate damages.”¹¹⁵ He held that the rates in the Radiata agreement could not be used as a basis for a RAND royalty for the following reasons: (1) a “special relationship” between CSIRO and Radiata; (2) the royalty was only one small part of the relationship between CSIRO and Radiata that was created by the agreement; (3) the Radiata royalty was negotiated at a significantly earlier time; and (4) chip prices had been depressed during the damages period as a result of “rampant infringement” that was occurring at that time.¹¹⁶ In short, the Court found that “Cisco’s overreliance on the [Technology Licensing Agreement between CSIRO and Radiata] discredits its entire damages model.”¹¹⁷

Having rejected the damages models offered by both sides, Judge Davis set a RAND royalty himself. In explaining his approach, he listed each of the *Georgia-Pacific* factors and indicated how these factors affected his decision.¹¹⁸ Although he noted that he considered, among other factors, “the utility and advantages of the patented product over older modes and devices,”¹¹⁹ Judge Davis based his decision largely on the rates offered by

112. *Id.* at *6.

113. *Id.* at *6–7.

114. *Id.* at *8.

115. *Id.* at *10.

116. *Id.* at *10–11.

117. *Id.* at *11.

118. *Id.* at *12–13.

119. *Id.* at *13.

CSIRO and informally proposed by CISCO during the relevant damages period, which he described as providing “a range [for] a reasonable starting point for negotiations between the parties.”¹²⁰ He then reduced these rates for the Linksys products to reflect the lower profit margin on these products compared to other Cisco products and the volume discounts that CSIRO had offered to customers like Cisco with large purchase volumes.¹²¹

Although it is difficult to criticize the court’s efforts given the task before it and the information available, it did not explicitly place a value on the “utility and advantages” of CSIRO’s patented technology over its alternatives, except to the extent that these were reflected in the parties’ offers. Thus, it did not calculate the RAND royalty rate in the manner called for by the consensus view.

V. AN ASSESSMENT OF THE EFFORTS BY THE COURTS TO SET F/RAND ROYALTY RATES

Based on my review of these recent cases, it should come as no surprise that I disagree with the statement by the European Commission that “courts and arbitrators are well-placed to set FRAND rates in cases of disputes.”¹²² Even where the courts accept the view that FRAND royalties should reflect the advantage of a technology over its best alternative prior to adoption of a standard including the technology, they often lack the information that they would need to make such an assessment.¹²³ As a result, they are reduced to using royalty rates that are likely to reflect that advantage highly imperfectly as benchmarks.¹²⁴

To be clear, I am not arguing that the courts have acted unreasonably, nor am I arguing that the royalty rates set by the courts have been either

120. *Id.* at *12.

121. *Id.* at *14.

122. Memorandum from European Commission, Antitrust Decisions on Standard Essential Patents (SEPs) - Motorola Mobility and Samsung Electronics - Frequently Asked Questions, Brussels, Apr. 29, 2014, http://europa.eu/rapid/press-release_MEMO-14-322_en.htm (last visited October 1, 2015).

123. Damien Geradin, *The Meaning of “Fair and Reasonable” in the Context of Third-Party Determination of FRAND Terms*, 21 GEO. MASON L. REV. 919, 946 (2014) (arguing that “it may not necessarily be easy to identify the ‘next best alternative’ ex ante standard adoption, especially if the ex ante incremental value method is used to determine FRAND licensing terms many years after the adoption of a given standard”). However, whereas Geradin concludes that the method should not determine royalty rates ex post, i.e., after the standard has been adopted, I conclude that, where possible, the royalty rate should actually be determined ex ante. *See id.* at 953.

124. Thomas F. Cotter, *The Comparative Law and Economics of Standard-Essential Patents and FRAND Royalties*, 22 TEX. INTELL. PROP L. J. 311, 357 (2014) (“Because [the value of using the patented technology over its best alternative] is often very difficult to quantify, . . . courts normally consider various proxies and other relevant indicia, including the value of comparable licenses and the advantages actually derived from the use of the patent.”).

unreasonably high or low. Given the task of setting these rates, and given the information that was available to them, it is difficult to criticize the courts' efforts. My concern is that they did not have the information they needed to determine the royalty rates that would have been set prior to adoption of a standard including a patented technology, as called for by the consensus view.¹²⁵ As noted above, there are several ways in which that task might be accomplished, all of which share the premise that the royalty rate would be established before a standard is promulgated and would reflect the advantage of the technology over its alternatives.

VI. SOME CONTRASTING VIEWS

In contrast to the views expressed in this article, Carlton and Shampine, who are also concerned with the potential for holdup after a technology has been included in a standard, observe that “the licensee has the option and a strong incentive to go to court rather than accept [unreasonable] terms . . . if the cost of litigation is small relative to the overall value to be paid under the license.”¹²⁶ At the same time, however, they identify a large number of matters that would have to be faced by a court in determining FRAND license terms including: (1) the degree to which the patented feature affects customer demand; (2) the value of any cross-license provided by the licensee; (3) the scope of the license, such as the number of patents that it covers; (4) the necessity of obtaining licenses from other parties, i.e., the “patent stacking” issue; and (5) the value of non-monetary license terms.¹²⁷ Carlton and Shampine note that litigation may occur where “the law is not clear, leading to different assessments among the parties of what a court is likely to find to be reasonable.”¹²⁸

The cases discussed here provide evidence that the law is not clear and that the courts would face great difficulty in dealing with the issues identified by Carlton and Shampine. For those reasons, one should not be optimistic about the ability of the courts to determine RAND royalties that are consistent with the consensus view.

125. *Apple, Inc. v. Motorola, Inc.*, No. 1:11-CV-08540, 2012 WL 1959560, at *9 (N.D. Ill. May 22, 2012) *rev'd on other grounds*, 757 F.3d 1286 (7th Cir. 2014) (rejecting as inadequately justified the royalty rates that were proffered by both the patent holder and the prospective licensee and dismissing the case rather than attempting to conduct an analysis of what the FRAND rate should be). If such judicial behavior were the norm, parties would likely be forced to agree on royalty rates before a standard was adopted—an outcome that I would endorse.

126. Carlton & Shampine, *supra* note 30, at 5–6.

127. *Id.* at 5.

128. *Id.* at 6 n.11.

Tsai and Wright take a different tack, arguing that the incompleteness of the contractual relationships between SSOs and their members is actually efficient, because it would be costly to provide greater specificity in these contracts.¹²⁹ However, whether it is worth incurring those costs depends in part on the efficiency with which the legal system “fills in the gaps” in the incomplete contracts. The cases reviewed here suggest that judges have considerable difficulty in overcoming these shortcomings. Moreover, as Tsai and Wright note, “Fear of antitrust liability imposes some costs of additional precision as such specificity with respect to prices, marketing, and distribution terms may be construed as unlawful price fixing.”¹³⁰ Thus, the failure of SSOs to demand greater specificity for the terms of FRAND commitments may reflect fear of antitrust liability rather than the greater efficiency of the resulting incomplete contracts.

Brooks and Geradin contend that the lack of specificity in the meaning attached to FRAND is actually a virtue, arguing that “only flexible terms such as ‘fair and reasonable’, the precise content of which is left to negotiation between the parties, can ensure the widest availability of the technology embodied in the standard in the widest possible variety of circumstances, without unduly diminishing the innovation incentives that patent law was designed to create.”¹³¹ Further, they claim that “*nothing* can be read in . . . extracts [of the ETSI IPR Policy] as suggesting that FRAND imposes *any specific and concrete obligations* on the owner of standard essential patents with regard to the actual level of royalties or other terms and conditions provided for in licensing agreements.”¹³² In effect, Brooks and Geradin argue that FRAND means whatever the parties agree to in private negotiations. Although that would not raise any issues if those negotiations were to occur before a standard is adopted and prospective licensees incur sunk investments, Brooks and Geradin seem to be arguing that no problem exists even if those negotiations occur after licensees are locked into the technologies that are based on the standard.

Brooks and Geradin do address the issue of how the courts should interpret F/RAND, arguing that “the only contractual question to be adjudicated is whether the terms offered, taking into account all of the

129. See Tsai & Wright, *supra* note 24. *Contra* Updegrove, *supra* note 24. (expressing frustration over the inability to get his SSO clients to provide greater specificity).

130. Tsai & Wright, *supra* note 24 (manuscript at 9).

131. ROGER G. BROOKS & DAMIEN GERADIN, *Taking Contracts Seriously: The Meaning of the Voluntary Commitment to License Essential Patents on “Fair and Reasonable” Terms*, in *INTELLECTUAL PROPERTY AND COMPETITION LAW* 389, 396 (Steven Anderman & Ariel Ezrachi, eds., 2011).

132. *Id.* at 397 n.19 (emphasis added).

specific circumstances between the parties and prevailing market conditions, fall outside of the *range* of reasonableness contemplated by the FRAND commitment,”¹³³ which would seem to give enormous latitude to the courts. Although they also suggest that courts could use “a ‘going rate’ or benchmarking method to identify a range of reasonable royalty rates,” they do not indicate how the courts should determine which rates provide the appropriate benchmarks.¹³⁴ As a result, patent holders and prospective licensees who are bargaining “in the shadow of the law” would not seem to have much in the way of guidance about how the courts might rule.

Sidak argues that it is not even possible to determine the incremental value of a technology that is included in a standard. He notes that “[o]nce a patent is essential to the standard, the hypothetical-negotiation framework used to determine the royalties for implementation patents does not apply,” and “[o]wing to the complementarity of SEPs, analysis of the incremental value of a patent is insufficient for SEPs because each SEP holds zero incremental value without all other SEPs.”¹³⁵ Although this statement is true after a standard has been promulgated, i.e., once a patent is essential to the standard, it is not true prior to that point.

Consider two technologies, A and B, both of which, along with a collection of other technologies, would perform the same function and each of which would be essential to practicing a standard after its adoption. Although both A and B would “hold zero incremental value without all other SEPs,” the overall value of the standard to licensees might be different depending on which of the two technologies is included in the standard, and the incremental value of the “better” technology is that difference.¹³⁶ Thus, for example, if the value of practicing a standard that includes technology A together with technology C is 200 and the value of practicing a standard that includes technology B together with technology C is 150, the incremental value of technology A is clearly 50.¹³⁷

133. *Id.* at 401–02 (emphasis in original).

134. *Id.* at 402.

135. J. Gregory Sidak, *The Meaning of FRAND, Part I: Royalties*, 9 J. COMP. L. & ECON. 931, 953 (2013) (arguing that the minimum amount that a patent holder would accept could exceed zero if licensing the technology to members of an SSO precludes or limits licensing to others).

136. *See id.*

137. The situation is more complicated, of course, if only A can be combined with C and B must be combined with a different technology, D. In that case, it is possible to calculate only the value of A and C relative to that of B and D. This is apparently the case that Sidak has in mind since he refers more than once to the standard as embodying a “fixed proportions” technology. *See id.*

In one view, SSO members are *users* of technologies that choose among technologies that are provided by sponsors.¹³⁸ However, Sidak views “the SSO as an ordinary, market-based joint venture whose purpose is to further the interests of the joint venture partners as sellers of technology inputs into the joint venture product (SEP holders) *and* as implementers of the joint venture’s product (licensees).”¹³⁹ Although that is undoubtedly the case in some circumstances, many of the disputes about the appropriate interpretation of the FRAND commitment, including some discussed above, involve situations in which the SEP holders are not implementers, while others involve cases in which only some SSO members are holders of SEPs. Moreover, even where Sidak’s characterization is correct, it does not follow that the determination of FRAND royalties is best left to after the fact negotiations, with any resulting disputes being resolved by the courts. Indeed, if anything, determining FRAND royalties is likely to be even more difficult where some SSO members are both patent holders and implementers of the standard.

Finally, Sidak expresses concern that applying the consensus view to determine FRAND royalties may discourage both innovation and participation in the SSO process by patent holders.¹⁴⁰ However, even if he is correct, that innovation will be discouraged if innovators expect to earn only the incremental value of their technologies as royalties. Not only would a judge have to assess the value of the patented technology compared to its best alternative, he would also have to consider how his decision might affect future technological developments both in the industry in question and more generally.

Layne-Farr and Wong-Ervin argue that “modifying the [Georgia-Pacific] factors to reflect FRAND commitments—including comparable licenses and working everything into a hypothetical negotiation framework—is a reasonable approach [T]he factors should be used with available data, the comparability of licenses should be defended, and all calculations should be explained.”¹⁴¹ They also argue “using . . . technical

138. *Competition and Intellectual Property Law and Policy in the Knowledge Based Economy: Hearing Before the Dep’t of Justice Antitrust Div. & the Fed. Trade Comm’n*, 1, 209 (2002) (statement of Dr. Stanley M. Besen) (making assumption about the choices user and sponsors make); see Stanley M. Besen, STANDARD SETTING AND INTELLECTUAL PROPERTY: AN OUTLINE OF THE ISSUES, http://apps.americanbar.org/antitrust/committees/intell_property/besen.pdf (last visited October 31, 2015).

139. Sidak, *supra* note 135, at 974 (emphasis added).

140. *Id.* at 988.

141. A. Layne-Farrar and K.W. Wong-Ervin, *Methodologies for Calculating FRAND Damages: Part 2*, LAW360, Oct. 9, 2014, http://www.law360.com/competition/articles/584909?nl_pk=61b2a5da-0e34-45ee-a99c-

debates [within SSO] to set an actual license rate will be difficult at best.”¹⁴² These statements are undoubtedly true. However, rate setting by the courts is likely to be even more difficult. In many, if not most, circumstances, the courts will have even less information about the alternatives available to an SSO prior to including a patented technology in a standard than the members of the SSOs themselves. For that reason, a better approach would be for SSOs and their members to set FRAND royalty rates before including technologies in a standard. Leaving rate-setting to the courts will likely be a far poorer alternative.

In a recent amicus curiae brief, Qualcomm, while not challenging the specific royalty established in *Microsoft v. Motorola*, raises concerns about the reasoning used by Judge Robart in that case.¹⁴³ Qualcomm objected to the use by the Court of royalty rates set by patent pools as benchmarks¹⁴⁴ for essentially the same reasons as discussed above. However, its principal argument is that the approach taken by Judge Robart could, if applied more broadly in setting RAND royalties, lead to inadequate compensation to patent holders. For example, it argues that “[t]he resulting methodology, if applied more broadly to all RAND-committed patents, will run a great risk of substantially undervaluing SEPs, radically realigning the proper royalty analysis, and disregarding the incentives for innovation that motivate patentees to discover and develop patented technology and contribute it to the standards process.”¹⁴⁵

Qualcomm’s basic argument is that “[a]ccepted principles of contract construction require the valuation of SEPs to be no different from other patents.”¹⁴⁶ That is, in determining royalties in cases involving RAND commitments to SSOs, Qualcomm argues that the courts should apply the same principles that they would in any case. Specifically, it argues that “[t]he use of an ex ante incremental value test in calculating a ‘reasonable royalty’ is . . . at odds with expectations rooted in patent law.”¹⁴⁷

1668ad3af0e4&utm_source=newsletter&utm_medium=email&utm_campaign=competition. (last visited October 31, 2014).

142. *Id.*

143. Brief for Qualcomm Inc., as Amicus Curiae in Support of Neither Party, *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir. 2015) (No. 14-35393), 2014 WL 4802385, at *7. (“Qualcomm does not challenge the District Court’s findings on the contributions of the patents and products at issue, and thus the actual rates and ranges it established.”); Brief for Intellectual Property Law Ass’n, as Amicus Curiae in Support of Neither Party, *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir. 2015) (No. 14-35393), 2014 WL 4802385.

144. Brief for Qualcomm Inc., *supra* note 143, at *16.

145. *Id.* at *17.

146. *Id.* at *5.

147. *Id.* at *29.

In Qualcomm's words, "[t]he District Court's methodology . . . wrongly treated RAND-committed patents as different from other patents."¹⁴⁸ Taken literally, this would mean that a patentee's RAND commitment to an SSO amounts only to a commitment to behave no differently from any other patentee. Of course, this ignores the fact that including a patented technology in a standard effectively excludes other technologies as alternatives.

In criticizing the use of the *ex ante* incremental value test, Qualcomm ignores both the fact that the economic value of a technology *is* its advantage over the best alternative and that while an inventor will undertake risky research and development only if it *expects* to earn more than its research costs, that return is not guaranteed. Nothing in economic theory says that the actual royalty in any specific case must be sufficient to cover the costs of research and development in that case. "Losers" in the competition to have their technologies included in a standard will fail to recover those costs, at least from the standardized product, and "winners" may recover more than those costs in order to compensate for the development costs of unsuccessful projects.

VII. CONCLUSION

Before a technology is included in a standard, users can often turn to alternatives, thus limiting the royalties that they must pay to use the technology. That is not the case after a standard has been adopted and users have incurred significant sunk costs. Faced with the need to adjudicate disputes between patent holders who want high royalties and users who want low ones, courts are left to what are inevitably highly imperfect methods for determining "fair" and "reasonable" royalties. In the end, that is the basic reason why it will often be better to have these rates determined *ex ante*, when users still have alternatives, than to leave them to be determined *ex post* by the courts.

148. *Id.* at *30.