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A Public Policy Evaluation of RAND Decisions in the U.S. Courts

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Standards-setting organizations (SSOs) typically ask holders of patents that are believed to be "essential" to the manufacture of standards-compliant products (sometimes termed standard-essential patents or "SEPs") to commit to making licenses available to an "unlimited" number of potential standard users on terms that are "reasonable and nondiscriminatory" (RAND), also known as "fair, reasonable, and nondiscriminatory" (FRAND).[1] Many commentators have lamented that such SSOs provide little or no guidance on what they mean by RAND royalties or licensing terms. Consequently, disputes over whether particular licensing terms are RAND may occur.

Competition authorities in particular have expressed concerns that without clear guidance as to what RAND means, patent holders who have "essential" patents may have some degree of market power over implementers wanting to make standards-compliant products in the relevant technology markets, given the difficulty of collectively changing standards once they have been adopted, and given the desire of implementers to make standards-compliant products. (In some markets, non-compliant products are not commercially viable.)

A number of commentators have proposed various criteria that they say reflect what RAND *should* mean so as to attain some (often not clearly specified) goals or desiderata. As of August 2016, some SSOs have contemplated amending their intellectual property rights (IPR) policies to provide

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1 "RAND" appears to be more commonly used by U.S.-based SSOs. "FRAND" appears to be more commonly used by European-based SSOs. Most commentators consider the two terms to be interchangeable.

more guidance on the definition of RAND. Until 2015, however, when the IEEE adopted a number of changes to its IPR policy, none of those proposals had been accepted. Moreover, until 2013, U.S. courts had not provided much guidance regarding the meaning of FRAND. Four U.S. District Court cases—*Apple v. Motorola*, *Motorola v. Microsoft*, *In re Innovatio*, and *Ericsson v. D-Link*—and one appellate decision, by the Federal Circuit (in *Apple v. Motorola*[2]) have provided some guidance on how U.S. courts consider RAND licensing disputes. This article summarizes and evaluates those judicial opinions from the perspective of economics and public policy.

Two decisions, by Judge Robart in *Microsoft v. Motorola*[3] and by Judge Holderman in *In re Innovatio*,[4] have articulated the criteria used to assess RAND royalties and have awarded such royalties. In addition, in *Ericsson v. D-Link*,[5] a Texas jury awarded Ericsson $10.1 million in patent-infringement damages against a number of device manufacturers for infringement of various Ericsson patents that had been declared "essential" to the Wi-Fi standard, and the trial judge ordered an ongoing royalty of $0.15 per unit on future sales.[6] (All these cases were appealed.)

Courts in the United States have experience in determining "reasonable royalty" patent-infringement damages in patent cases. To our knowledge, no SSO has explicitly addressed the issue of whether "reasonable" in the context of FRAND should be interpreted as being synonymous with "reasonable" in the sense of patent-infringement damages. Certain legal doctrines constrain "reasonable royalty" patent-infringement damages (such as the proposition that U.S. courts can award patent-infringement damages only on products "made, used, or sold" in the United States), and those doctrines do not appear to have any analog in the RAND standards-setting context. In addition, "reasonable royalty" patent damages are awarded only if the patent holder shows that (some or all of) the accused products infringe at least one valid claim of the patents in suit; RAND royalties can be and often are negotiated for what might be termed "untested" patents, for which the issues of validity or infringement have not been resolved (and which are often highly disputed). We have discussed the economic significance of the distinction between "untested" patents and proven-valid-and-infringed patents at length elsewhere.[7] That said, and given that few if any SSOs define what they mean

[2] Apple Inc. v. Motorola, Inc., 757 F.3d 1286 (Fed. Cir. 2014).

[3] Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217 (W.D. Wash. Apr. 25, 2013) (Robart, J.).

[4] *In re* Innovatio IP Ventures, LLC Patent Litig., MDL No. 2303, 2013 WL 5593609 (N.D. Ill. Oct. 3, 2013).

[5] Ericsson Inc. v. D-Link Sys., Inc., No. 6:10-cv-473, 2013 WL 4046225 (E.D. Tex. Aug. 6, 2013).

[6] *See* J. Gregory Sidak, *Ongoing Royalties for Patent Infringement*, 24 Tex. Intell. Prop. L.J. (forthcoming 2016).

[7] Edward Sherry & David Teece, *Royalties, Evolving Patent Rights, and the Value of Innovation*, 33 Res. Pol'y 179–91 (2004).

by RAND, the few courts that have considered interpreting RAND licensing have largely relied on (suitably modified) versions of the criteria used in determining "reasonable royalty" patent-infringement damages.

I. *Apple v. Motorola*

Judge Richard Posner, sitting by designation in the U.S. District Court for the Northern District of Illinois, did not articulate any particular standard to determine a FRAND royalty in *Apple v. Motorola*.[8] He dismissed both parties' damages cases for "failure of proof"[9] and concluded that neither party was "entitled" to injunctive relief.[10]

The Federal Circuit reversed much of Judge Posner's decision.[11] Most importantly, the Federal Circuit found that a FRAND commitment does not preclude the SEP holder from seeking injunctive relief, as several commentators had previously argued (although the right to seek an injunction does not imply that an SEP holder will necessarily obtain an injunction). The Federal Circuit stated:

> To the extent that the district court applied a *per se* rule that injunctions are unavailable for SEPs, it erred. While . . . FRAND commitments are certainly criteria relevant to [an SEP holder's] entitlement to an injunction, we see no reason to create . . . a separate rule or analytical framework for addressing injunctions for FRAND-committed patents.[12]

The Federal Circuit confirmed, nonetheless, that Motorola was not entitled to an injunction. In *eBay Inc. v. MercExchange, L.L.C.*, the Supreme Court in 2006 established a four-factor test that U.S. courts apply to the specific circumstances of a case to determine whether the issuance of an injunction for patent infringement is appropriate.[13] Specifically, the Court said that a patent holder must prove four things to obtain a permanent injunction:

> (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.[14]

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[8] Apple, Inc. v. Motorola, Inc., 866 F. Supp. 2d 901 (N.D. Ill. 2012), *aff'd in part, rev'd in part, vacated in part, and remanded*, 757 F.3d 1286 (Fed. Cir. 2014).

[9] *Id.* at 915.

[10] *Id.*

[11] Apple Inc. v. Motorola, Inc., 757 F.3d 1286 (Fed. Cir. 2014).

[12] *Id.* at 1331–32 (italics in original).

[13] 547 U.S. 388 (2006).

[14] *Id.* at 391 (citing Weinberger v. Romero-Barcelo, 456 U.S. 305, 311–13 (1982); Amoco Prod. Co. v. Gambell, 480 U.S. 531, 542 (1987)); *see* J. Gregory Sidak, *Injunctive Relief and the FRAND Commitment in the United States*, *in* 1 Cambridge Handbook of Technical Standardization Law: Antitrust and Patents

Applying the principles established in *eBay*, the Federal Circuit thus stated:

> [W]e agree with the district court that Motorola is not entitled to an injunction for infringement of the '898 patent. Motorola's FRAND commitments, which have yielded many license agreements encompassing the '898 patent, strongly suggest that money damages are adequate to fully compensate Motorola for any infringement. Similarly, Motorola has not demonstrated that Apple's infringement has caused it irreparable harm. Considering the large number of industry participants that are already using the system claimed in the '898 patent, including competitors, Motorola has not provided any evidence that adding one more user would create such harm.[15]

Put another way, the Federal Circuit concluded that an injunction was not necessary because money damages would be adequate compensation.

With respect to Judge Posner's grant of summary judgment on damages, the Federal Circuit reversed his "decision that Apple was not entitled to any damages for infringement of the '647 patent."[16] The Federal Circuit reasoned that the jury had a duty to award "damages adequate to compensate for the infringement, but in no event less than a reasonable royalty."[17] Thus, "[b]ecause no less than a reasonable royalty is *required*, the fact finder *must* determine what royalty *is* supported by the record."[18] Consequently, "[i]f a patentee's evidence fails to support its specific royalty estimate [as Judge Posner's failure of proof argument concluded], the fact finder is still *required* to determine what royalty is supported by the record."[19] Finally, the Federal Circuit said that, "[c]ertainly, if the patentee's proof is weak, the court is free to award a low, perhaps nominal, royalty, as long as that royalty is supported by the record."[20] However, "a fact finder may award no damages *only* when the record supports a zero royalty award,"[21] although "it seems unlikely that a willing licensor and willing licensee would agree to a zero royalty payment in a hypothetical negotiation, where both infringement and validity are assumed."[22]

(Jorge L. Contreras ed., Cambridge Univ. Press forthcoming 2017) (manuscript at 7–9), https://www.criterioneconomics.com/injunctive-relief-and-the-frand-commitment-in-the-united-states.html.

15 *Apple v. Motorola*, 757 F.3d at 1332.

16 *Id.* at 1326.

17 35 U.S.C. § 284; *see Apple v. Motorola*, 757 F.3d at 1318.

18 *Apple v. Motorola*, 757 F.3d at 1327 (emphasis added).

19 *Id.* (emphasis added).

20 *Id.* at 1328.

21 *Id.* (emphasis added).

22 *Id.*

A. Chief Judge Rader's Opinion Dissenting in Part

In his opinion dissenting in part, Chief Judge Randall Rader disagreed with the Federal Circuit's "affirmance of the district court's denial of Motorola's request for an injunction,"[23] saying:

> Market analysts will no doubt observe that a "hold out" (i.e., an unwilling licensee of an SEP seeking to avoid a license based on the value that the technological advance contributed to the prior art) is equally as likely and disruptive as a "hold up" (i.e., an SEP owner demanding unjustified royalties based solely on value contributed by the standardization). These same complex factual questions regarding "hold up" and "hold out" are highly relevant to an injunction request. . . . The record in this case shows evidence that Apple may have been a hold out. . . . This evidence alone would create a dispute of material fact.[24]

Judge Rader said, "[i]nstead of a proper injunction analysis, the district court effectively considered Motorola's FRAND commitment as dispositive by itself."[25] He opined that "the court should have allowed Motorola to prove that Apple was an unwilling licensee, which would strongly support its injunction request."[26] Judge Rader disagreed with the Federal Circuit majority's opinion that "[licensing] negotiations [between Apple and Motorola] have been ongoing," reasoning that "Motorola asserts otherwise—that Apple for years refused to negotiate while nevertheless infringing the '898 patent."[27] He concluded that "Motorola should have had the opportunity to prove its case that Apple's alleged unwillingness to license or even negotiate supports a showing that money damages are inadequate and that it suffered irreparable harm. The district court refused to develop the facts necessary to apply *eBay* as it should have."[28] We believe that Judge Rader had the better of this argument.

B. Judge Prost's Opinion Dissenting in Part

Judge Sharon Prost also issued a separate opinion dissenting in part.[29] She also said that she "would affirm the grant of summary judgment [on the injunction issue] for all three [Apple] patents,"[30] saying, "I agree with the district court that Apple's evidence fails to raise a genuine issue as to whether the allegedly infringing features are drivers of consumer demand for Motorola's

[23] *Id.* at 1332 (Rader, C.J., dissenting in part).
[24] *Id.* at 1333.
[25] *Id.*
[26] *Id.* at 1334.
[27] *Id.* (internal quotation marks omitted).
[28] *Id.*
[29] *Id.* at 1334 (Prost, J., dissenting in part).
[30] *Id.* at 1340.

products. As a result, Apple cannot show that Motorola's infringement has caused it irreparable harm."[31]

Judge Prost's statement seems to conflate the "drivers of consumer demand" issue with the "irreparable harm" issue, though the two are conceptually distinct. The former typically arises in connection with the issue whether the "entire market value rule"[32] applies, which strikes us as unrelated to the "irreparable harm" issue.

Judge Prost also disagreed with "the majority's suggestion that an alleged infringer's refusal to negotiate a license justifies the issuance of an injunction,"[33] saying that "an alleged infringer is fully entitled to challenge the validity of a FRAND-committed patent before agreeing to pay a license on that patent, and so should not necessarily be punished for less than eager negotiations."[34] Moreover, "if a trial court believes that an infringer previously engaged in bad faith negotiations, it is entitled to increase the damages to account for any harm to the patentee as a result of that behavior."[35] She said that "none of these considerations alters the fact that monetary damages are likely adequate to compensate for a FRAND patentee's injuries. I see no reason, therefore, why a party's pre-litigation conduct in license negotiations should affect the availability of injunctive relief."[36] In conclusion, Judge Prost, "agree[ing] with the district court that under the facts here, Motorola cannot show either irreparable harm or inadequacy of damages. . . . would therefore [have] affirm[ed] the district court's denial of Motorola's claim for injunctive relief for the '898 patent."[37]

We agree with the majority and Judge Rader, not Judge Prost, on this point. Judge Prost's analysis did not take account of the prospect of what Judge Rader calls the "hold out" problem (which we refer to as the "reverse holdup" issue). For the FRAND system to work well, both sides need to engage in good-faith negotiations over licenses. We acknowledge Judge Prost's point that an accused infringer has the right to challenge the asserted patent for invalidity and noninfringement, but that strikes us as a question separate from whether the accused infringer is acting in good faith if it refuses even to discuss the licensing issue. The court's ability to "increase

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31 *Id.* at 1341–42.

32 The "entire market value rule" is a court-developed doctrine addressing the circumstances under which it is appropriate to use the selling price of the entire complex device containing the patented technology as the damages base in calculating patent-infringement damages. To simplify somewhat, the basic idea is that this should happen only if the patented technology is "the basis" for consumer demand for the entire product.

33 *Id.* at 1342.

34 *Id.*

35 *Id.* at 1342. Judge Prost does not explain the basis for this statement. Penalizing a bad-faith refusal to negotiate is conceptually different from awarding up-to-treble damages for "willful" infringement under 35 U.S.C. § 284.

36 *Id.* at 1342–43.

37 *Id.* at 1343.

the damages" to account for bad-faith negotiating behavior, while helpful in discouraging such behavior, does not strike us as a complete substitute. In our view, Judge Prost ignores the role of the availability of injunctive relief in bringing a reluctant licensee to the bargaining table to negotiate a portfolio license or cross-license.

II. Judge Robart's Decision in *Microsoft v. Motorola*

On April 25, 2013, Judge James Robart issued a 207-page opinion on FRAND issues in *Motorola v. Microsoft*.[38] After an extended discussion of Motorola's patents in suit (which were not the totality of Motorola's SEPs related to the standards at issue), he concluded that they constituted only a "sliver" of the technology incorporated into the two standards he considered (the H.264 video compression standard and the 802.11 Wi-Fi standard).[39] He further determined that the two standards were responsible for only a relatively small part of the value of Microsoft's products at issue (the Xbox game console and Windows software). He ultimately found that Motorola's patents would command FRAND royalties of 0.555 cents per unit for Motorola's H.264-related patents and 3.471 cents per unit for Motorola's 802.11-related patents, or a total of 4.026 cents per unit.[40] (He also found that the *range* of FRAND rates for Motorola's patents was from 0.555 cents per unit to 16.389 cents per unit for H.264 and from 0.8 cents per unit to 19.5 cents per unit for 802.11—a range from a low of 1.355 cents per unit to a high of 35.889 cents per unit for both portfolios.)[41]

Judge Robart did not calculate the total dollar royalties implied by his findings, but commentators have estimated that, at those rates, Microsoft would pay Motorola roughly $1.8 million per year. That was roughly twice what Microsoft had proposed, but only a tiny fraction (estimated by some commentators at 1/20th of 1 percent)[42] of what Motorola had been asking. (Motorola had proposed royalty rates of 2.25 percent on the selling price of Xbox and Windows.)

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[38] Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217 (W.D. Wash. Apr. 25, 2013) (Robart, J.).

[39] *Id.* at *85 ¶ 533 (H.264 standard), *92 ¶ 576 (802.11 standard).

[40] *Id.* at *4, *85, *100.

[41] *Id.* at *4.

[42] *See, e.g.*, Florian Mueller, *Judge Allows But Restricts References to FRAND Rate-Setting Decision in Microsoft-Google Jury Trial*, Foss Patents (Aug. 26, 2013), http://www.fosspatents.com/2013/08/judge-allows-but-restricts-references.html. Our calculations yield a different ratio. Motorola was asking a 2.25 percent royalty; on a $400 Xbox, that would amount to $8.50 per unit, so that Judge Robart's 3.972 cents per unit would amount to one-half of 1 percent (not 1/20th of 1 percent) of what Motorola was asking. That said, we acknowledge that Judge Robart's award was only a tiny fraction of what Motorola had sought.

A. Background of the Motorola–Microsoft Litigation

Motorola has a number of both U.S. and non-U.S. patents that it believes are "essential" to two industry standards: the H.264 standard relating to video compression promulgated by the IEEE, an SSO, and the 802.11 Wi-Fi standard relating to wireless local area networks (WLAN) jointly developed by the ISO/IEC and the ITU, two other SSOs.[43]

In October 2010, Motorola sent two letters to Microsoft, offering to license its portfolios of H.264- and 802.11-essential patent portfolios for a royalty rate of 2.25 percent "calculated based on the price of the end product (e.g., each Xbox 360 product) and not on component software (e.g., Windows Mobile software)."[44] The offers were "subject to a grant back license under the [corresponding standards-essential] patents of Microsoft."[45]

Rather than submitting a counteroffer, Microsoft filed suit against Motorola in Federal District Court in Washington in November 2010, contending that Motorola's 2.25 percent offer was not consistent with commitments made by Motorola and its predecessors-in-interest to the relevant SSOs to make licenses for its essential patents available on RAND terms. Microsoft claimed both (1) that the royalty *structure* (a percentage-based royalty calculated on the end-product price) was inconsistent with RAND and (2) that the royalty *rate* that Motorola had offered was excessive and not RAND.

Motorola subsequently sued Microsoft for infringement of a number of its H.264- and 802.11-related patents by a number of Microsoft products, notably various versions of Microsoft's Xbox video game console and certain accessories used with the Xbox. Motorola also brought a section 337 action against Microsoft before the International Trade Commission, seeking to exclude Microsoft from importing infringing products into the United States.[46]

Google subsequently acquired the "Motorola Mobility" business of Motorola, including the relevant patent portfolio (of more than 17,000 patents), in May 2012 for $12.5 billion in a deal originally announced in August 2011.[47] In a deal announced in January 2014, Google subsequently sold the

[43] *Microsoft v. Motorola*, 2013 WL 2111217, at *1.

[44] *Id.* at *2 (internal quotation marks omitted). Initially, there was some uncertainty as to whether Motorola intended to charge two separate royalties on products that complied with both standards, but Motorola subsequently made it clear that it intended to charge only a single royalty for such products.

[45] *Id.*

[46] Certain Gaming and Entertainment Consoles, Related Software, and Components Thereof, Inv. No. 337-TA-752, 2010 WL 5534130 (I.T.C. Nov. 22, 2010).

[47] *See* David Goldman, *Google Seals $13 Billion Motorola Buy*, CNNMoney (May 22, 2012), http://money.cnn.com/2012/05/22/technology/google-motorola/.

Motorola handset business to Lenovo for $2.91 billion, while retaining the patents it had acquired.[48]

B. Summary and Analysis of Judge Robart's Decision

Judge Robart's decision raised a number of public policy issues. We discuss each of these issues separately below.

Judge Robart proposed, and Judge Holderman subsequently largely accepted, that, in the absence of more guidance from SSOs as to how the RAND commitment is to be interpreted, it was reasonable to use a "modified" version of the fifteen *Georgia-Pacific* factors used by U.S. courts in determining reasonable-royalty patent damages.[49] Certain "modifications" were needed to take account of the fact that the patent holder had made a RAND commitment, and thus (for example) had given up the right (that it otherwise would have had) to refuse to license its technology at all and to keep its technology for its own exclusive use,[50] and had likewise given up the right to "discriminate" among licensees (for example, by treating its competitors and non-competitors differently).[51]

Judge Robart focused on what he termed the value of the technology "itself," not on the value added by being incorporated into the standard.[52] That focus is basically an *ex ante* approach, in the sense that it looks to what rates would be negotiated prior to the technology being incorporated into the standard, at a time when the SSO still had the option of selecting an alternative technology for incorporation should the patent holder seek to extract too high a royalty. He examined the technology covered by each of the patents in suit (given his claim constructions) and concluded that they were not particularly valuable,[53] contributing only a "sliver" of the value of the standards.[54] In our view, such a position would not preclude firms that have patented technology that is inherently valuable, and that is incorporated into the standard *because* of its inherent value, from obtaining a much higher rate than Judge Robart awarded Motorola for its declared-essential, but (in his view) not particularly valuable patents.

Judge Robart said, "Microsoft contends that the economic value of patented technology isolated from the value derived from incorporation into the standard would be determined by calculating the incremental value of the technology compared to the alternatives that could have been written

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[48] *See* Press Release, Google, Lenovo to Acquire Motorola Mobility from Google (Jan. 29, 2014), https://investor.google.com/releases/2014/0129.html.

[49] *Microsoft v. Motorola*, 2013 WL 2111217, at *16–20.

[50] *Id.* at *16 ¶ 92, *18 ¶ 101.

[51] *Id.* at *18 ¶ 102.

[52] *Id.* at *13 ¶ 80.

[53] *Id.* *51–65.

[54] *Id.* *85 ¶ 533 (H.264 standard), *92 ¶ 576 (802.11 standard).

into the standard."[55] He said that this "approach suffers from several flaws," including "its lack of real-world applicability."[56] In particular, Judge Robart said, "[n]either the IEEE nor the ITU specifies that RAND terms must be determined using an incremental value approach."[57] In our view, that is not an issue of "real-world applicability" so much as an acknowledgement that the incremental value approach is *not* mandated by any SSO, is not part of what the SSOs consider FRAND, and seems to be a concept made up out of whole cloth by academics. If any SSO *had* mandated the use of an incremental value approach as part and parcel of a FRAND regime, issues of "impracticality" could be laid at the SSO's doorstep. Judge Robart noted that "[a]nother flaw in Microsoft's approach is its impracticability with respect to implementation by the courts."[58] He concluded that, "[n]evertheless, a reasonable royalty rate for an SEP committed to a RAND obligation must value the patented technology itself, which necessarily requires considering the importance and contribution of the patent to the standard."[59]

At one point, Judge Robart appeared to have accepted (though not implemented)[60] Microsoft's contention that a RAND royalty would be limited to the "incremental value" of the patented technology relative to the next-best alternative,[61] saying that the "incremental value approach" is "*required* in the court's hypothetical negotiation paradigm,"[62] while acknowledging that "approaches linking the value of a patent to its incremental contribution to a standard are hard to implement."[63]

We have a more significant conceptual concern with the "incremental value" approach than simply its difficulty of implementation. Speaking of "incremental value" raises the question: "incremental" *relative to what?* To a freely available public-domain alternative? Or to an alternative patented technology? The two "incremental values" are often not the same. To illustrate the difference, suppose that three alternative technologies can be used to make a given product: an unpatented (public domain) technology *PD* that has a cost of $100 per unit, a patented alternative *A* that has a cost of $80 per unit, and another patented alternative *B* that has a cost of $78 per unit. The "incremental value" of *A* relative to *PD* is $20 per unit, and the "incremental value" of *B* relative to *PD* is $22 per unit, but the "incremental value" of *B*

[55] *Id.* at *13 ¶ 75.
[56] *Id.* at *13 ¶¶ 76–77.
[57] *Id.* at *13 ¶ 77.
[58] *Id.* at *13 ¶ 79.
[59] *Id.* at *13 ¶ 80.
[60] *Id.* at *13–14 ¶¶ 75–81. Judge Robart did not actually calculate the "incremental value" of Motorola's technology relative to any alternative (patented or unpatented). Nor did his formula for the RAND royalty depend on any such "incremental value."
[61] *Id.* at *13 ¶ 79, *14 ¶ 81.
[62] *Id.* at *80 ¶ 501 (emphasis added).
[63] *Id.* at *13 ¶ 79.

relative to A is only $2 per unit. In the polar extreme case where alternatives *C* and *D* both involve the *same* cost of $78 per unit, the "incremental value" of each *relative to* the other is *zero*, despite the fact that both have an "incremental value" relative to the freely available *PD* of $22 per unit.[64]

As we explain in detail in Part IV, Judge Holderman in *Innovatio* rejected the defendants' expert's claim that a RAND royalty for an SEP was limited to its incremental value of the patented technology relative to other *patented* alternatives, expressing concern that "even assuming that patent holders agreed to essentially give away their technology so that it will be adopted into the standard, such a low return for the patent holders would discourage future innovators from investing in new technology and from contributing their technology to future standards."[65] He concluded that a patented alternative "will not drive down the royalty in the hypothetical negotiation by as much as technology in the public domain. In other words, the existence of patented alternatives does not provide as much reason to discount the value of Innovatio's patents as does the existence of alternatives in the public domain."[66]

Motorola had originally offered the 2.25 percent rate because that was the rate that Motorola had previously offered for its SEPs relating to *other* standards (notably, cellular-communications standards). The "reasoning" behind the offer seemed to be along the lines of "historically, we have successfully charged rates in the range of 2.25 percent of the selling price of the licensed products for our SEP portfolios in other areas. A standards-essential portfolio is thus worth 2.25 percent regardless of which standard is involved. We have SEPs relating to the H.264 and 802.11 standards. Therefore, we will ask for the same 2.25 percent royalty for our portfolios related to those standards as we have in the past successfully asked for our other standards-essential portfolios."

Judge Robart conceded that Motorola's patent portfolio in cellular communications was "extremely strong"[67] and could command higher rates than he awarded for its H.264 and 802.11 patents. Following Judge Robart's

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[64] *See* J. Gregory Sidak, *The Meaning of FRAND, Part I: Royalties*, 9 J. Competition L. & Econ. 931, 936–38 (2013).

[65] *In re* Innovatio IP Ventures, LLC Patent Litig., MDL No. 2303, 2013 WL 5593609, at *20 (N.D. Ill. Oct. 3, 2013).

[66] *Id.*

[67] *Microsoft v. Motorola*, 2013 WL 2111217, at *69 ¶ 430. Judge Robart "concludes that an agreement that licenses Motorola's cellphone portfolio as well as other Motorola patents may, in terms of value, be dominated by the cellphone portfolio, as opposed to the other patents included in the agreement." *Id.* Motorola's practice was to license all of its relevant patents for a single license fee, rather than licensing each patent portfolio separately. "[T]he challenge in apportionment is made more difficult by Motorola's practice of providing licensees with a license to its 802.11 and H.264 portfolios at no additional charge if a licensee takes a license to its cellular portfolios." *Id.* at *69 ¶ 428. This factor caused Judge Robart to discount the relevance of the Motorola-RIM license as being primarily driven by the licensed cellular patents rather than Motorola's 802.11 and H.264 patents. *Id.* at *69–70 ¶¶ 430–35.

decision, there was a subsequent jury trial on the question of whether Motorola had breached its RAND obligations by making its initial 2.25 percent offer to Microsoft. Motorola lost—an unsurprising result given the wide disparity between Motorola's offer and the "range" of royalty rates that Judge Robart found was FRAND. Motorola was ordered to pay $14.5 million in damages, which should be contrasted with the royalties that Microsoft was ordered to pay Motorola, estimated at $1.8 million per year.[68]

As noted above in our discussion of Judge Posner's opinion, we have argued elsewhere[69] that (1) the standards-setting process is a cooperative one, requiring the cooperation of both technology developers and potential implementers of the standard; (2) there is no good economic reason to believe that all of the gains from the standardization process should flow to implementers (or to downstream consumers), and none of those gains should flow to developers whose technology is incorporated into the standard (other than in the "volume"-related sense that being incorporated into the standard will increase the volume of standards-compliant products over which royalties will be due); and (3) a policy (such as that proposed by Judge Robart and Judge Posner) that restricts patent holders whose technology is incorporated into the standard to receiving only the "inherent value" of their technology, and that gives them none of the value associated with the standardization process[70] (other than in the volume sense), is inherently biased against innovators and in favor of implementers. Certainly nothing in the IPR policies of the IEEE, ITU, or ISO/IEC (or any other SSO of which we are aware) mandates such a conclusion.[71]

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[68] *See* Joe Mullin, *$4 Billion Motorola Patent Demand Was Breach of Contract, Jury Rules*, Ars Technica (Sept. 5, 2013), http://arstechnica.com/tech-policy/2013/09/4-billion-motorola-patent-demand-was-breach-of-contract-jury-rules/.

[69] David Teece, Edward Sherry & Peter Grindley, On the "Incremental Value" Test and Standards Valuation: A Critique of the FTC's Approach to Patent Valuation (Working Paper, 2014) (on file with authors).

[70] For example, Judge Robart said that "[r]ewarding the SEP owner with *any* of the value of the standard itself *would constitute hold-up* value and *be contrary to the purpose* behind the RAND commitment." *Microsoft v. Motorola*, 2013 WL 2111217, at *19 ¶ 109 (emphasis added). He also said that "the RAND commitment exists so that SEP patent holders *cannot demand more than they contribute*." *Id.* at *18 ¶ 104 (emphasis added). Our points are (1) there are "gains from cooperation" associated with the standardization process; (2) by participating in the collaborative standards-setting process and making their technology available for use in making standards-compliant products, patent holders have "contribute[d]" more than simply the *ex ante* value of their technology; and (3) (in our view) patent holders should be able to get a "fair share" of the gains from cooperation associated with standardization without being accused of engaging in "holdup." The difficulty, of course, is the "slippery slope" argument: how much of the "gains from cooperation" can patent holders receive before they shade over into inappropriate "holdup"? Saying that the patent holder should be able to get a "fair share" of the gains is a notoriously difficult test to administer. A bright-line "innovators should receive *none* of the benefits" test avoids the prospect of holdup, but at significant cost. *See* J. Gregory Sidak, *The Value of a Standard Versus the Value of Standardization*, 68 Baylor L. Rev. 59 (2016); J. Gregory Sidak, *Tournaments and FRAND Royalties*, 1 Criterion J. on Innovation 101 (2016).

[71] *See* J. Gregory Sidak, *The Antitrust Division's Devaluation of Standard-Essential Patents*, 104 Geo. L.J. Online 48 (2015).

Judge Robart gave short shrift to licenses that were not entered into subject to RAND commitments[72] and licenses entered into as a result of settlements of litigation.[73] We acknowledge that the circumstances for RAND licensing and licensing in non-RAND and litigation contexts are different, affecting the "comparability" of such licenses, but we question his decision to all but disregard non-RAND licenses and licenses entered into as a result of litigation. All licenses (in effect) are entered into under at least the shadow of the threat of litigation, and rates for non-FRAND licenses or licenses for non-SEPs nevertheless provide some useful information about "reasonable" royalties in the industry even if the circumstances are different, once the differences are taken into account.

Judge Robart rejected Microsoft's contention that the rates charged by other patent pools (there are two relevant patent pools: a relatively successful one for H.264[74] and a less-successful one for 802.11)[75] are determinative of the value of FRAND technology.[76] Judge Robart accepted Motorola's position that there are economic reasons to believe that firms that elect *not* to contribute their patents to the pool (given the rates the pool charges and the "sharing rule" that the pool uses to divide pool revenues among participants) are likely to be seen by their owners as more valuable than the patents that are contributed to the pool, so the patents not in the pool are self-selected *not* to be comparable to the patents that *are* contributed to the pool.[77] Yet in the end, he concluded that the pool rates are an "indicator" of the appropriate FRAND rates.[78] He relied on an internal Microsoft document to the effect that Microsoft got significant non-cash benefits (amounting to twice the royalties received) from its own pool participation activities[79] to "adjust" the pool rates upward, effectively applying the same twofold-upward adjustment to Motorola and Google.[80] (Whether similar documents would exist in other cases or contexts is questionable. Whether it is appropriate to extrapolate from Microsoft's document to a different licensor is likewise questionable. Microsoft's business model is very different from Motorola's or Google's business model, suggesting that it is unlikely that Microsoft's "twice" ratio applies to Motorola or Google.)

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72 *Microsoft v. Motorola*, 2013 WL 2111217, at *18 ¶ 100, *19 ¶ 108.

73 *Id.* at *67 ¶ 415, *71 ¶ 443, *72 ¶ 448.

74 *Id.* at *75–87 ¶¶ 467–545.

75 *Id.* at *87–92 ¶¶ 547–77.

76 *Id.* at *82 ¶ 507 ("a pool rate itself does not constitute a RAND royalty rate for an SEP holder who is not a member of the pool.").

77 *Id.* at *79–81 ¶¶ 498–504.

78 *Id.* at *83 ¶ 514 (H.264 pool), *89 ¶ 562 (802.11 pool); *see* Sidak, *The Meaning of FRAND, Part I: Royalties*, *supra* note 64, at 968 (critiquing Judge Robart's reliance on patent pools).

79 *Microsoft v. Motorola*, 2013 WL 2111217, at *81 ¶¶ 504–06, 524–25.

80 *Id.* *84–85 ¶¶ 525–26 & n.23. He said he applied the two-fold adjustment for Microsoft to Google (Motorola) "in the absence of any other relevant evidence." *Id.* at *84 ¶ 525. But the difference between Microsoft's business model and Motorola's and Google's business model(s) is well known.

Judge Robart agreed with Motorola that the appropriate methodology is to try to determine what the parties would have agreed upon in bilateral negotiations, using a "modified" *Georgia-Pacific* framework ("modified" to account for the existence of the RAND commitment, which he said renders some of the traditional *Georgia-Pacific* factors irrelevant).[81] His reasoning appeared plausible, but it is based on his questionable fundamental premise that "the purpose" of RAND is to "ensure widespread adoption" of the standard.[82] One can argue that the overall goal of the system of seeking RAND commitments has at least two other purposes: (1) to adequately reward patent holders for their contributions to the standard, while (2) making sure that implementers are not blocked from implementing the standard by the unavailability of licenses to standards-essential technology. Judge Robart gives lip service to the former consideration[83] when setting his rates, but makes little or no attempt to implement it in practice.

Moreover, FRAND commitments can be made and enforced in connection with unsuccessful standards (ones that never achieve widespread adoption) as well as successful ones, so interpreting the goal of FRAND as "ensur[ing] widespread adoption" seems to us to be incorrect, or at least overly simplistic. Standards are designed to promote interoperability and compatibility between products made by different suppliers. That goal can be achieved even if the standard does not achieve "widespread adoption." One goal of RAND is to ensure that implementers have access to the technology needed to make standards-compliant products, and again that goal has nothing to do with whether the standard achieves "widespread adoption."

Judge Robart emphasized the significance of royalty stacking to assessing RAND rates,[84] while disregarding real-world mechanisms (for example, cross-licensing involving relatively small "balancing payments" rather than full two-way cash royalties; "Mexican standoff" situations in which two firms that have patents that they believe read on each other's products tacitly agree to leave the patent issue alone rather than explicitly engage in cross-licensing; or "repeat play" or reputation situations) that have evolved to address the "royalty stacking" issue. As noted below, Judge Davis in *Ericsson v. D-Link* took a very different approach to the "royalty stacking" issue than the one adopted by Judge Robart. We believe that Judge Davis had the better side of this issue.

Part of what may have affected Judge Robart's use of the 802.11 pool rates was Motorola's endorsement of the 802.11 pool rates at a time when it

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[81] *Id.* at *18, ¶¶ 99, 101–02.
[82] *Id.* at *10 ¶ 51.
[83] *See, e.g.*, *id.* at *20 ¶ 113.
[84] *Id.* at *73 ¶ 456, *86 ¶ 538. "RAND is informed by two prevailing concerns: preventing stacking and eliminating holdup. The court finds that, among these two goals, the anti-stacking principle is the primary constraint on the upper bound of RAND." *Id.* at *86 ¶ 538.

was considering joining the 802.11 pool (which it ultimately did not join).[85] Another factor was an evaluation of Motorola's 802.11 patents by an industry, consulting firm called InteCap, Inc.[86] Judge Robart concluded that the InteCap valuation "overstate[d] [Motorola's 802.11 patent portfolio's] importance by at least a factor of 25"—his reasoning being based on his technical assessment of the importance Motorola's 802.11 patents—but he used the "adjusted" InteCap numbers as one of the main inputs into his conclusions.[87] Judge Robart opined that

> a patent's royalty rate should be based on the importance of the patent to the standard and to the implementer's product. Under this analysis, this royalty rate would fluctuate little, if at all, based on the end selling price of the product. Accordingly, if 0.8 cents per unit is a reasonable royalty rate for a $200.00 Xbox, then it should be a reasonable royalty rate for an Xbox selling for $400.00 that uses the patented technology in the same manner.[88]

He did not explain his reasoning. In our view, his conclusion did not follow (as a matter of either logic or economics) from his premises. It is certainly possible that the value the licensee gets from incorporating the patented technology into its product varies with the product's features and characteristics, selling price, or profit margin, given the likelihood of economic synergies between different product features, even if different products "use[] the patented technology in the same manner."[89] This is a significant aspect of his ruling, as it appears to rule out percentage-based royalties based on the selling price of the end-user product as being inconsistent with (his view of) FRAND. Since such royalties are common in the industry (though not in the two patent pools he considered) and thus are presumably "reasonable" in the "commercially reasonable" sense, he did not explain how he would deal with them.[90] Instead, he adopted the two pools' approach of charging cents-per-unit royalties rather than percentage-based royalties, which in our experience are as commonly used as, if not more commonly used than, cents-per-unit royalties. He did not explain how his analysis would have changed if he had found some percentage-based licenses "comparable," nor how it might have changed had one of the two pools charged a percentage-based royalty.

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85 *Id.* at *75–78 ¶¶ 472–87.
86 *Id.* at *95–98 ¶¶ 591–612.
87 *Id.* at *98 ¶¶ 610–11, *99 ¶¶ 614–19.
88 *Id.* at *99 ¶ 617.
89 *Id.*
90 *See* J. Gregory Sidak, *Apportionment, FRAND Royalties, and Comparable Licenses After* Ericsson v. D-Link, 2016 U. Ill. L. Rev. (forthcoming) (manuscript at 14–15) [hereinafter Sidak, Ericsson v. D-Link] (explaining that real-world licenses most accurately reveal what the parties consider to be fair and reasonable), https://www.criterioneconomics.com/apportionment-frand-royalties-comparable-licenses-ericsson-dlink.html; J. Gregory Sidak, *The Proper Royalty Base for Patent Damages*, 10 J. Competition L. & Econ. 989 (2014).

Though Judge Robart gave lip service to the need to adequately compensate patent holders if their technology is incorporated into standards,[91] his ultimate conclusion (that the FRAND royalty rates for Motorola's essential patents are in the single-digit cents-per-unit royalty range) may not be sufficient to provide adequate compensation, and if extrapolated to other cases could discourage holders of valuable technology from participating in the standards-setting process.

It is hard to know how broadly to extrapolate Judge Robart's overall ruling, given his finding that Motorola's patents contributed only a "sliver" of the technology incorporated in the relevant standards. If his ruling is limited to such contexts, the economic harm to patent holders might not be too problematic. But if one were to extrapolate from the ratio of Motorola's original request (2.25 percent, or roughly $8.50 per unit on a $400 Xbox) to the single-digit cents-per-unit royalties (totaling 3.972 cents per unit for the two portfolios) that he awarded, the threat to patent holders' interests could be significant.

With respect to the H.264 standard, Judge Robart concluded that, while several of Motorola's H.264-related patent families were "essential" to various H.264 modes, "14 of the 16 Motorola H.264 SEPs are directed only to interlaced video,"[92] and that Microsoft's accused products made little use of interlaced video.[93] Further, "of the two [Motorola] patents not directed towards interlaced video, only one of those would be used by Microsoft products."[94]

With respect to the 802.11 standard, he concluded, "Motorola presented scant evidence that its patents are essential to the 802.11 standard,"[95] that in a hypothetical negotiation "their value would be diminished by the lack of evidence regarding their relevance,"[96] and that "the implementer in a hypothetical negotiation would view Motorola's patents with skepticism."[97] He further opined that "neither party has demonstrated the presence or absence of feasible alternatives to Motorola's SEPs" and that "in a hypothetical negotiation, the parties simply would disagree as to the technical contribution of Motorola's SEPs to the 802.11 standard."[98] It is not clear whether Judge Robart addressed the only context in which damages would be relevant—namely, that Motorola succeed in prevailing on liability. If the analysis assumes that liability will be established for Motorola's 802.11 patents, skepticism about the "relevance"—which would be justified for "untested" patents

[91] *Microsoft v. Motorola*, 2013 WL 2111217, at *12 ¶ 73.
[92] *Id.* at *42 ¶ 260.
[93] *Id.* at *46–49 ¶¶ 280–307.
[94] *Id.* at *85 ¶ 532.
[95] *Id.* at *53 ¶ 338.
[96] *Id.*
[97] *Id.* at *53 ¶ 342.
[98] *Id.* at *54 ¶ 346.

for which liability had *not* yet been established—would appear to be irrelevant. Again, this may reflect a difference between FRAND licensing for untested patents (for which such "skepticism" would play a significant role) and reasonable-royalty damages for proven-valid-and-infringed patents (for which it should not).

He considered a number of licenses, including "(1) a 2011 license agreement between MMI and VTech Telecommunications Ltd. ('VTech'); (2) a 2010 patent cross-license agreement between Motorola and Research In Motion Limited ('RIM'); and (3) three agreements entered into by Symbol before it was acquired by Motorola."[99] He concluded that the VTech license was part of a larger settlement agreement of a lawsuit involving Motorola's non-SEPs brought against VTech,[100] and "VTech took a license to Motorola's 802.11 and H.264 portfolios only as part of a package deal in which it also resolved Motorola's infringement claims."[101] He concluded that "the court cannot say that the VTech license agreement for Motorola's 802.11 and H.264 SEPs is a reliable indicator of a RAND royalty rate,"[102] adding that "[the] threat of a lawsuit, following a history of litigation between the parties, cannot form the basis for such a [RAND] reasonable negotiation."[103] He concluded that "the VTech license agreement does not establish a RAND royalty rate and is not an indicator to what is in fact an appropriate RAND royalty rate for Motorola's 802.11 and H.264 patent portfolios in a negotiation with Microsoft."[104]

Motorola entered into two cross-licenses with RIM covering both Motorola's 802.11 and H.264 patent portfolios, some of Motorola's cellular-standard-related patents, and other non-standard-essential patents. Judge Robart concluded that it was difficult if not impossible to apportion the payments made by RIM to Motorola to the 802.11 and H.264 patents, because "the terms of the agreement do no such thing."[105] He added:

[99] *Id.* at *65, *66–72 ¶¶ 407–54.
[100] *Id.* at *66 ¶¶ 408–09.
[101] *Id.* at *67 ¶ 415.
[102] *Id.*
[103] *Id.*
[104] *Id.* at *68 ¶ 420.
[105] *Id.* at *69 ¶¶ 427–29.

> the challenge to apportionment is made more difficult by Motorola's practice of providing licensees with a license to its 802.11 and H.264 portfolios at no additional charge if a licensee takes a license to its cellular portfolios.[106]
>
> . . . .
>
> To the contrary, the agreement makes clear that royalty payments are to be made on RIM's aggregate sales regardless of the standards its products implement or the patents its products infringe.[107]

We would agree that such apportionment would be difficult, and that the Motorola–RIM license was entered into in settlement of litigation (including an ITC section 337 proceeding), but in our view, that does not justify Judge Robart's giving short shrift to the relevance of, or weight given to, the RIM license. Motorola pointed out that RIM agreed to pay a (redacted) running royalty, including on its PlayBook tablet, which implements the 802.11 and H.264 standards but is not cellular compatible. Judge Robart concluded that "the PlayBook tablet is not a strong selling item for RIM,"[108] though we fail to see the relevance of that fact if royalties were owed as he suggests. If sales were low, the total royalties paid would also be low, but that has nothing to do with the question of whether the per-unit royalty was reasonable. He said that "the court cannot conclude that Motorola has established the RIM license agreement as a comparable royalty pursuant to [*Georgia-Pacific*] Factor 1."[109]

He discussed a number of licenses entered into by Symbol, including a 6-percent license between Symbol and Proxim (subject to a royalty cap)[110] entered into after a jury had awarded Symbol 6-percent damages in a patent-infringement damages suit.[111] He said that the witness who discussed the Symbol-Proxim license "did not know whether the jury had been instructed that there were RAND limitations on the royalties that could be awarded."[112] He said that "the Proxim agreement is not probative of the value of Motorola's 802.11 portfolio because the two patents licensed under the Proxim agreement . . . expired before Motorola even sent the October 21, 2010 demand letter to Microsoft."[113] We do not find this argument persuasive. First, it says nothing about the H.264 patent portfolio. Second, rates for other standards-essential portfolios from the same company provide at least some evidence of what industry participants believe is "reasonable." Third, the fact that the Symbol-Proxim license was structured as a percentage-based

[106] *Id.* at *69 ¶ 428.
[107] *Id.* at *69 ¶ 429.
[108] *Id.* at *70 ¶ 434.
[109] *Id.*
[110] *Id.* at *70 ¶ 439.
[111] *Id.*
[112] *Id.* at *71 ¶ 441.
[113] *Id.* at *71 ¶ 442.

royalty (rather than a cents-per-unit royalty) seems to be more significant than Judge Robart appears to believe that it is.

Judge Robart also gave short shrift to two other Symbol licenses—a Symbol-HHP license and a Symbol-Terrabeam license—on the grounds that the payments under those licenses were "significantly less than the amount Motorola [sought] in this case."[114] This does not strike us as particularly meaningful, as the total royalties are the product of the royalty rate times the royalty base, and one would expect that Microsoft's royalty base would be much higher than that of either HHP or Terrabeam. Moreover, given that commentators have concluded that Judge Robart awarded Motorola roughly 1/20th of 1 percent of the royalties that Motorola had been seeking from Microsoft, this dismissal of the relevance of the Symbol-HHP and Symbol-Terrabeam licenses seems to us inappropriate.

Judge Robart also analyzed the royalty stacking implications of the royalty rates sought by Motorola.[115] He pointed out that if other firms with declared-essential patents had sought the level of royalties Motorola was seeking, the cumulative royalty stacks would be prohibitive, discouraging firms from implementing the standards.[116] He did not address the real-world solutions (such as cross-licenses with "balancing payments" less than the announced rates, "Mexican-standoff" situations, and repeat play and reputation effects) that have evolved to mitigate the "royalty stacking" issue. Nor did he affirmatively justify his own rates on stacking grounds.

Microsoft had proposed two royalty rates charged by two patent pools—the MPEG-LA H.264 patent pool and the Via Licensing 802.11 patent pool—as "comparables."[117] Judge Robart concluded (correctly) that participation in patent pools is voluntary,[118] and that pool revenue "sharing" rules give the same per-patent royalty to each patent in the pool,[119] which undercompensates the more valuable patents included in the pool. He noted that, as a result, firms with particularly valuable patent portfolios self-select *not* to participate in patent pools,[120] adding that "as a general matter patent pools tend to produce lower rates than those that could be achieved through bilateral negotiations."[121]

Judge Robart made much of the fact that Motorola participated in the process leading up to the launch of the H.264 pool and made statements endorsing the pool rates,[122] though Motorola ultimately did not

[114] *Id.* at *72 ¶ 453.
[115] *Id.* at *72.
[116] *Id.* at *73 ¶¶ 456, 459.
[117] *Id.* at *74–98.
[118] *Id.* at *74 ¶ 463.
[119] *Id.* at *74 ¶ 465.
[120] *Id.* at *80 ¶ 500.
[121] *Id.* at *80 ¶ 499.
[122] *Id.* at *75 ¶ 470, *75–76 ¶¶ 472–77, *77 ¶¶ 479, 481, 483–85.

participate in the pool.[123] He stated that "a pool rate itself does not constitute a RAND royalty rate for an SEP holder who is not a member of the pool."[124] Nevertheless, Judge Robart found that "patent pools can serve as indicators of a royalty rate that falls within the range of royalty rates consistent with the RAND commitment."[125] He concluded, "the MPEG LA H.264 patent pool has achieved widespread adoption of the H.264 standard," pointing to the large number of licensors, patents and licensees.[126] He also concluded that the MPEG LA H.264 patent pool "contains significant and important technology vis-à-vis the H.264 standard," and said that this "alleviates the court's concern that patent pool rates may discourage SEP holders with valuable SEPs from participating."[127] We question this reasoning. His earlier acknowledgement that *some* holders of particularly valuable patents elect *not* to participate in the pool is not "alleviated" by the fact that some *other* holders of valuable patents *do* elect to participate, especially if they receive particularly significant non-monetary benefits from participating.

He noted that pool participants, especially those who also implement the standard, receive non-pecuniary benefits from participating in the pool. He relied on Microsoft's estimates that it received twice as much in benefits as it received in royalties[128] and "conclude[d] that Microsoft views membership in the MPEG LA H.264 patent pool as providing a value of at least twice as much as it receives in royalty rates."[129] He said, "[i]n the absence of any other relevant evidence, the court thereby concludes that Google, like Microsoft, would also view membership in the MPEG LA H.264 patent pool as providing a value of twice the royalty rates it would receive as a licensor in the pool."[130] This is a non sequitur. One cannot infer from one firm's action the value that another, differently situated firm receives (or would receive) from a similar course of conduct. The claim that the two firms "are similarly situated as sophisticated, substantial technology firms with vast arrays of technologically complex products"[131] ignores that fact that the two firms had very different business models, and in that regard are not "similarly situated" despite the fact that both are "sophisticated, substantial technology firms." Microsoft, unlike Google, sold both hardware products (the Xbox) and software, while Motorola was in the business of selling cellular handsets (which do not compete with the Xbox and likely have different profit margins than game consoles do), but not software. Furthermore, Google gave away its

[123] *Id.* at *78 ¶ 487.
[124] *Id.* at *82 ¶ 507.
[125] *Id.* at *82 ¶ 508.
[126] *Id.* at *82 ¶ 509.
[127] *Id.* at *82 ¶ 511.
[128] *Id.* at *81 ¶¶ 504–06.
[129] *Id.* at *84 ¶ 524.
[130] *Id.* at *84 ¶ 525.
[131] *Id.*

Android software and made most of its money selling advertising, an entirely different business model than that followed by either Microsoft or Motorola.

Judge Robart provided a long algebraic footnote purporting to value a RAND royalty rate by comparing it to the pool rates and the value (above and beyond royalties received and paid) a pool participant gets from participating in the pool.[132] Both his algebra and his reasoning have significant conceptual problems,[133] but he nevertheless concluded that "the RAND rate in this case is three times the pool rate"[134] based on the Microsoft document he cited.

Judge Robart also pointed to the fact that Google, which acquired the Motorola patents after Motorola had sent its initial offer letters, was a participant in the MPEG LA H.264 patent pool.[135]

With respect to the Via Licensing 802.11 patent pool, Judge Robart pointed out that it was less successful than the MPEG LA H.264 patent pool, having attracted fewer licensors, fewer patents, and fewer licensees.[136] Neither Microsoft nor Motorola joined the Via Licensing pool.[137] He said that the Via Licensing pool "does not distinguish between patents in the pool on the basis of technical merit, but rather gives the exact same royalty to all patents in the pool. Also, the pool does not consider the importance of patents to the implementer's products."[138] He concluded:

> Nevertheless, the Via Licensing 802.11 patent pool has certain characteristics that are indicative of a RAND royalty rate. . . . [T]he court concludes that the Via Licensing 802.11 patent pool is an indicator of a RAND royalty rate for Motorola's 802.11 SEP portfolio, albeit not as strong an indicator as the MPEG LA H.264 patent pool. . . .[139]

Judge Robart adapted Microsoft expert Dr. Matthew Lynde's calculations to calculate a royalty for Motorola's still-asserted patents, concluding that his estimate "is conservative and may represent something akin to a ceiling rate" for two reasons.[140] He concluded, "Motorola's 11 relevant SEPs constitute only

[132] *Id.* at *85 ¶ 526 n.25.

[133] The most serious conceptual problem is that he equated the value of participating in the pool with the value of not participating in the pool, which is true only for the "marginal" participant who is indifferent between joining and not joining. *Id.* Another major problem is that he assumed that the rate that Motorola "would have to pay for the pool's H.264 patent collection if it abstained from [joining] the pool" is "1.5 times the pool rate." *Id.* But pools charge the same rate to participants (that is, those who contribute their patents to the pool) as they charge to non-participants. If anything, if Motorola elected not to join the pool, the pool would have included fewer patents, and one would expect the pool to charge the same amount or *less* if it had fewer patents to license. There is no logical or economic basis for his "1.5 times the pool rate" assumption.

[134] *Id.*

[135] *Id.* at *83 ¶¶ 517–18.

[136] *Id.* at *87 ¶ 549, *89 ¶¶ 557–58.

[137] *Id.* at *88 ¶ 555.

[138] *Id.* at *88 ¶ 556.

[139] *Id.* at *89 ¶¶ 559, 562.

[140] *Id.* at *91–92 ¶¶ 572–76.

a sliver of the overall technology incorporated into the 802.11 Standard."[141] Microsoft also pointed to the royalties that

> a third-party company, Marvell Semiconductor . . . pays for the intellectual property in its Wi-Fi chips. The court agrees that the Marvell rate provides an indicator for 802.11 RAND under [*Georgia-Pacific*] Factor 12 of the hypothetical negotiation because the experiences of Marvell, a third-party, tend to establish what is customary in the business of semiconductor licensing.[142]

We question that conclusion. What Marvell pays may be relevant to "what is customary in the business of semiconductor [chipset] licensing," but Motorola proposed to license Microsoft, which buys chipsets and incorporates them into its Xbox products.[143] Motorola's license proposal was not at the "semiconductor" level. Its proposed royalty base was the selling price of the entire product, not the chipset price.

Marvell supplies "semiconductor chipsets that provide 802.11 functionality for a variety of products, including the Microsoft Xbox."[144] Judge Robart noted that "Microsoft currently pays just under $3.00 per Marvell chip to provide 802.11 functionality to the Xbox gaming console,"[145] while ignoring that Microsoft charged significantly more (on the order of $60 to $70)[146] to provide an 802.11 adapter that provided 802.11 functionality for older Xboxes that did not come with that functionality built in. He said, "ARM provides Marvell with the patent licenses and 'design and know-how' Marvell needs to make its 802.11-compliant chips. In exchange, Marvell pays ARM a royalty of 1% of the purchase price of the chip (3–4 cents per chip)."[147] He cited testimony by a Marvell witness to the effect that the structure of the ARM license (calculated as a percentage of the selling price of the chipset, not the end-user device incorporating the chipset) was "a reasonable 'high-ceiling' royalty of what *a semiconductor company* should pay for an intellectual property

[141] *Id.* at *92 ¶ 576.

[142] *Id.* at *93 ¶ 578. We are not convinced. As noted in the text below, Marvell is a chip manufacturer facing competition from other chip manufacturers, and its willingness to pay for a license is affected by that fact. Microsoft is not a chip manufacturer, but a supplier of consumer devices (the Xbox) and software (Windows). The prices of, and profit margins on, chipsets say nothing about the prices of, and profit margins on, consumer devices and (especially) software.

[143] *Id.*

[144] *Id.* at *93 ¶ 579.

[145] *Id.* at *93 ¶ 581.

[146] A Microsoft adapter that adds 802.11 functionality to older Xboxes that did not come with that functionality built in (as newer Xboxes do) retailed at the time of the decision for $99 on Amazon. *See* Microsoft Xbox 360 Wireless a/b/g Network Adapter, Amazon, http://www.amazon.com/Microsoft-Xbox-360-Wireless-Network-Adapter/dp/B000B6MLV4/ref=sr_1_2?ie=UTF8&qid=1398399508&sr=8-2&keywords=xbox+360+wi+fi+adapter. We do not know how much Microsoft *charges* for such adapters; the "$60 to $70" in the text is an estimate.

[147] *Microsoft v. Motorola*, 2013 WL 2111217, at *93 ¶ 582.

royalty."[148] Consequently, he opined that the "ARM rate is a reference point in the present RAND hypothetical negotiation."[149]

Echoing an earlier comment, Judge Robart quoted the same Marvell witness for the proposition that "the chips provide the same functionality in each host device regardless of the end cost of the device, so it is logical that the royalty rate be the same across all devices"[150] and that a royalty rate "based on the consumer end product . . . would also be impractical because when Marvell sells the chips it usually does not know their intended end use."[151] We do not agree that the conclusions follow from the premises. From an economic perspective, one relevant question is the value to the licensee of being able to use the patented technology, and there is no *a priori* reason why that value would be the same across different devices, even if different devices use identical chipsets. Judge Robart downplayed the fact that the Marvell license was at the chipset level, while Microsoft's business is at the consumer device (Xbox) and software (Windows) levels.

We note that the economics of chipset manufacture and consumer device and software sales, and the value that different licensees receive from using patented technology in the different contexts, are very different. It might well be "impracticable" to charge a *chipset* manufacturer a royalty based on the selling price of the consumer products in which the chipsets are used, if for no other reason than because the chipset manufacturer does not *have* that information (it is collected by the chipset manufacturer's customers). But that has nothing to do with whether a royalty paid by the *device* manufacturer can use the device price (rather than the chipset price) as the royalty base. As Judge Robart noted, "[t]he profit margin on semiconductor chips is narrow,"[152] while margins on devices and (especially) software can be significantly higher. It is as though Judge Robart believed that a RAND license could be evaluated at any stage in the "value chain," from chipset to handset to cellular system, with the RAND royalty being the same at all levels. That is true for fixed cents-per-royalty rates, but it does not follow, as a matter of either logic or economics, from either the "reasonable" or the "nondiscriminatory" aspect of RAND, the latter of which is generally understood to require only that *similarly situated* licensees be treated similarly.

Judge Robart also considered an analysis commissioned by Motorola from InteCap.[153] InteCap "proposed a licensing model that segmented licensing markets and target companies" into three categories: chipset manufacturers; 802.11-dedicated products, such as routers and access points; and

[148] *Id.* at *94 ¶ 583 (emphasis added). Microsoft is not a "semiconductor company."
[149] *Id.* at *95 ¶ 588.
[150] *Id.* at *94 ¶ 585.
[151] *Id.*
[152] *Id.* at *94 ¶ 586.
[153] *Id.* at *95–98 ¶¶ 591–612.

manufacturers of 802.11-enabled consumer products like laptops, PCs, and gaming consoles.[154] InteCap's proposed licensing model considered two factors: an "802.11 feature factor," which InteCap "defined as the 'Value of 802.11 functionality related to [the] total product functionality;" and a "Royalty stacking adjustment factor."[155] InteCap's "valuation model assumed a 25% stacking factor," which Judge Robart called an "assumption [that] clearly overemphasizes the relative size and importance of Motorola's 802.11 SEP portfolio at issue in this litigation."[156] He concluded, based on his review of Motorola's patents in suit, that "Motorola's 802.11 SEP portfolio as it exists today provides nowhere near 25% of the overall functionality of the 802.11 Standard,"[157] and that "the InteCap evaluation applied to Motorola's current 802.11 SEP portfolio overstates its importance by at least a factor of 25."[158] "InteCap's [adjusted] model resulted in an effective royalty of 0.1% on the price of the products of [802.11-compliant consumer products]."[159] He further concluded that "the [adjusted] InteCap rate would serve as a RAND indicator in a hypothetical negotiation,"[160] despite Motorola's argument that the patents considered by InteCap were not the same as the 802.11 portfolio at issue in the case.[161] He specified that "the adjusted rate the parties would look to is between 0.8 and 1.6 cents per unit."[162]

Judge Robart considered three rate ranges for the 802.11 patent portfolio: one from the Via Licensing 802.11 pool, one from the ARM rate for the Marvell Wi-Fi chip, and an adjusted one from the InteCap analysis. He concluded that "these three indicators are very close to one another" when contrasted with Motorola's asking rate of 2.25 percent.[163] He said that

> a patent's royalty rate should be based on the importance of the patent to the standard and to the implementer's product. Under this analysis, this royalty rate would fluctuate little, if at all, based on the end selling price of the product. Accordingly, if 0.8 cents per unit is a reasonable royalty rate for a $200.00 Xbox, then it should be a reasonable royalty rate for an Xbox selling for $400.00 that uses the patented technology in the same manner.[164]

[154] *Id.* at *95 ¶ 592.
[155] *Id.* at *95 ¶ 593.
[156] *Id.* at *96 ¶ 595. As noted below in our discussion of Judge Davis' discussion of the "royalty-stacking" issue, Judge Robart's analysis was not based on any evidence of an actual "royalty stack," but on the theoretical possibility of such a "stack" given the total number of potentially relevant patents, size of Motorola's patent portfolio, and royalties Motorola sought.
[157] *Id.* at *97 ¶ 602.
[158] *Id.* at *98 ¶ 610.
[159] *Id.* at *96 ¶ 596.
[160] *Id.* at *96 ¶ 598.
[161] *Id.* at *97 ¶¶ 601–02.
[162] *Id.* at *98 ¶ 612.
[163] *Id.* at *99 ¶ 615.
[164] *Id.* at *99 ¶ 617.

We disagree. This argument (which is based on the "reasonableness" aspect of RAND and not on the "nondiscrimination" aspect) ignores the fact that the licensee receives more money (and probably earns a higher per-unit profit) on a $400 device than on a $200 device. It is a quite common industry practice (though, admittedly, not the practice followed by the two patent pools that Judge Robart considered) to charge percentage-based running royalties, so that the royalty per device varies with the selling price of the licensed products. Judge Robart cited to nothing in the RAND policies of any of the SSOs, and nothing in Motorola's RAND commitments, suggesting that percentage-based royalties are not RAND. If SSOs intended to adopt a policy that a percentage-based running royalty was not RAND, one would expect that they would have done so explicitly. None has. If SSOs intended or understood that percentage-based royalty rates were inconsistent with RAND, one would expect them to have said so. None has. In our view, Judge Robart effectively reads into a RAND commitment or a RAND policy something that is not there. In particular, if a patent holder charges the same percentage-based running royalty to all "similarly situated" licensees, it is hard to see how that is "discriminatory" or not "reasonable."

Judge Robart concluded, "[a]ccordingly, the court adopts the rate of 3.471 cents per unit as the rate Microsoft and Motorola would agree to for a license to Motorola's 802.11 SEP portfolio acting reasonably in a hypothetical negotiation in light of the RAND commitment."[165] He concluded that the upper and lower bounds on a RAND royalty range[166] would be 19.5 cents per unit[167] and 0.8 cents per unit,[168] respectively.

C. Royalty Stacking

Chief Judge Davis' opinion in *Ericsson* differed from Judge Robart's decision in *Motorola* in its treatment of royalty stacking. Judge Robart pointed to the potential that, if other holders of portfolios of standards-essential patents sought to charge rates similar to those that Motorola was asking, the cumulative royalty burden would be unrealistically high and would make implementation of the standards impracticable.[169] But Microsoft apparently never presented evidence of the cumulative royalties that it or others actually paid for licenses to either of the two standards at issue.

In *Ericsson*, the defendants made a similar argument to Microsoft's, but Judge Davis rejected it. He said:

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[165] *Id.* at *100 ¶ 621.
[166] *Id.* at *100 ¶ 622.
[167] *Id.* at *100 ¶ 624.
[168] *Id.* at *101 ¶ 627.
[169] *Microsoft v. Motorola*, 2013 WL 2111217, at *73 ¶ 459.

> The best word to describe Defendants' royalty stacking argument is theoretical. . . . [G]iven the opportunity to present evidence of an actual stack on 802.11 essential products, Defendants came up empty. . . . Instead, Dr. Perryman [defendants' expert] never identified an actual royalty stack; he never even attempted to determine the actual amount of royalties Defendants currently pay for 802.11 patents.[170]

Judge Davis denied the defendants' motion for judgment as a matter of law regarding royalty stacking.[171]

At least one commentator has pointed out this difference between the two opinions.[172] We believe that Judge Davis had the better of this argument. If one is concerned (as Judge Robart said he was[173]) with the question of whether cumulative royalties preclude or limit widespread adoption of some standard, presumably one wants to look at not merely theoretical possibilities, but also actual realities. Judge Robart did not discuss any real-world mechanisms other than patent pools—cross-licensing for relatively small "balancing payments," "Mexican standoff" situations, or repeat play and reputation effects—that tend to alleviate the potential for royalty stacking. Many standards for which royalty-stacking concerns have been raised have been extremely successful, achieving widespread acceptance, suggesting that concerns that royalty stacking will deter or limit standard adoption are (as Judge Davis put it) more "theoretical" than actual.

Judge Robart downplayed the lack of evidence of an actual "royalty stack" by pointing out that his focus was on whether Motorola had complied with its RAND commitment; that the cumulative royalty stack depends not only on what Motorola was seeking, but also on the royalties that others charge for their patented portfolios; and that the issue of whether a particular patent holder complies with its RAND commitments is not affected by whether other patent holders comply with theirs.[174] While there is some truth in that argument, we believe that it has little to do with his main point about the prospect that "royalty stacking" can be affecting, or is likely to affect, adoption or implementation rates of a given standard.

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[170] *Ericsson v. D-Link Sys.*, 2013 WL 4046225, at *18.

[171] *Id.*

[172] *See* David Long, *Rebutting Judge Robart? E.D. Tex. Judge Leonard Davis Upholds Jury Damages Award on WiFi SEPs, Dismisses RAND-Related Issues (Ericsson v. D-Link)*, Essential Patent Blog (Aug. 7, 2013), http://www.essentialpatentblog.com/2013/08/rebutting-judge-robart-e-d-tex-judge-leonard-davis-upholds-jury-damages-award-on-wifi-seps-dismisses-rand-related-issues-ericsson-v-d-link/ (stating that Judge Davis "made some statements [on royalty stacking] that might be construed as a marked departure from the route taken by Judge Robart in the *Microsoft-Motorola* case" and that Judge Robart's decision was not binding precedent on other federal district courts).

[173] *Microsoft v. Motorola*, 2013 WL 2111217, at *11 ¶ 64 (stating that royalty stacking "can undermine the standards").

[174] *Id.* at *74 ¶ 460.

Judge Robart noted that Motorola had addressed the issue of royalty stacking in a submission that it, Nokia, and Ericsson made to ETSI in 2006.[175] We believe that Judge Robart's reliance on that submission is misplaced. Motorola, Ericsson, and Nokia, which at the time were major handset manufacturers, made a proposal to ETSI that they termed the "Minimal Change, Optimum Impact" (MCOI) proposal, urging that FRAND rates be evaluated consistently with what they termed two core principles, "aggregate reasonable terms" and "proportionality." They defined "aggregate reasonable terms" to mean that "*in the aggregate* the terms are *objectively commercially reasonable* taking into account the generally prevailing business conditions relevant for the standard and applicable product, patents owned by others for the specific technology, and the estimated value of the specific technology in relation to the necessary technologies of the product."[176] They defined "proportionality" to mean that "[c]ompensation under FRAND must reflect the patent owner's proportion of all essential patents. This is not simply a numeric equation but the compensation must, within reasonable bounds, reflect the contribution."[177]

The MCOI proposal was a proposal for a general policy to be applied to *all* holders of SEPs, not just to the proponents. It amounted to a proposal for *mutual forbearance* by all SEP holders. The three proponents of the MCOI proposal "wore two hats," as patent holders and as handset suppliers. For patent holders, the MCOI proposal, if adopted, would have limited the royalties that its proponents would have *received from* others. But for handset suppliers, the MCOI proposal, if adopted, would have limited the royalties they would have to *pay to* others. Given that at the time (2006), the proponents were major handset manufacturers, one would expect that they believed that the benefits they would have received in the form of lower royalties they had to *pay to* others would have outweighed the costs to them in the form of lower royalties *received from* others. They never suggested that the proposal would apply unilaterally to their own patents while not applying to the patents of other SEP holders.

ETSI rejected the MCOI proposal (and, to our knowledge, no similar proposal has been accepted by any SSO) in part because of concerns expressed by DG Comp, the European competition authorities. Since Motorola (and the other proponents) never received the benefits of the mutual forbearance on royalties associated with the MCOI, we do not believe that it should *pay* the cost in the form of restrictions on the royalties it would have been able to receive had the MCOI proposal been adopted (as it was not). Judge Robart

[175] *Id.* at *11 ¶ 67.

[176] *See* Tim Frain, *Patents in Standards & Interoperability* 7–8 (Nov. 29, 2006), http://www.wipo.int/export/sites/www/meetings/en/2006/patent_colloquia/11/pdf/frain_paper.pdf.

[177] *Id.*

did not mention the fact that the proposal that he cited was rejected by ETSI, nor that it was put forth as a *mutual forbearance* proposal.

III. Judge Holderman's Decision in *In re Innovatio*

Innovatio had a portfolio of patents, acquired from Broadcom, that had been declared as potentially essential to practice the 802.11 Wi-Fi standard. Rather than licensing the manufacturers of devices (for example, Wi-Fi routers) that were used to run Wi-Fi networks, Innovatio sent out thousands of letters to businesses (for example, hotels, coffee shops, and retailers) that operated Wi-Fi networks on their premises, offering to license at the "Network Operator" level. Many refused, and Innovatio filed a number of lawsuits alleging infringement at the Network Operator level. Those suits were consolidated in a multidistrict litigation proceeding before Judge Holderman in the U.S. District Court for the Northern District of Illinois. A number of Wi-Fi device manufacturers—Cisco, Motorola, HP, Sonic Wall, and Netgear (the "Manufacturers")—intervened in the consolidated suits, seeking a declaratory judgment of invalidity and noninfringement. The parties agreed to litigate the issue of a RAND royalty for licenses to device manufacturers in a bench trial to the court prior to rulings on the claim construction, validity, and infringement issues.[178]

Judge Holderman issued an eighty-nine-page "Memorandum Opinion, Findings, Conclusions, and Order" on the FRAND issue in October 2013. In contrast to Judge Robart, who found that Motorola's patents were only of minimal value to the two standards he considered, Judge Holderman found that Innovatio's patents were of "moderate to high" importance to the 802.11 Wi-Fi standard.[179] He endorsed many aspects of Judge Robart's analysis, but disagreed with Judge Robart on a couple of key issues. He said that, "unlike Judge Robart, the court will not adjust the RAND rate in light of pre-litigation uncertainty about the essentiality of a given patent."[180]

We believe that Judge Holderman's position on this point is correct. If RAND royalties will be awarded only after the patent holder prevails on its liability case, the rates should reflect the rates appropriate for a proven-valid-and-infringed patent, and there should be no "discount" for uncertainty connected with disputed issues of validity or infringement. (That is not to say that RAND licenses cannot be entered into for "untested" patents; there

[178] *In re* Innovatio IP Ventures, LLC Patent Litig., MDL No. 2303, 2013 WL 5593609, at *1 (N.D. Ill. Oct. 3, 2013).
[179] *Id.* at *23.
[180] *Id.* at *7.

is no requirement that RAND licenses be restricted to proven-valid-and-infringed patents.)

Judge Holderman cited repeatedly to Judge Robart's *Microsoft* decision. He largely accepted Judge Robart's modified *Georgia-Pacific* approach.[181] Like Judge Robart's treatment of Motorola's proposed "comparable" licenses, Judge Holderman largely dismissed the "comparable" licenses that Innovatio pointed to, concluding that

> as a factual matter none of [Innovatio's licensing expert's] proposed licenses are in fact appropriate for a comparative analysis in the RAND context. . . . They are therefore not reliable benchmarks by which Innovatio may apportion the value of the patented features in the claims of its patent portfolio from the value of wireless connectivity in general.[182]

As noted above, with respect to the relevance of proposed noninfringing alternatives that are themselves patented, Judge Holderman said:

> The court agrees that it is implausible that in the real world, patent holders would accept effectively nothing to license their technology. Moreover, even assuming that patent holders agreed to essentially give away their technology so that it will be adopted into the standard, such a low return for the patent holders would discourage future innovators from investing in new technology and from contributing their technology to future standards. . . . Accordingly, the court will consider patented alternatives, but will recognize that they will not drive down the royalty in the hypothetical negotiation by as much as technology in the public domain. In other words, the existence of patented alternatives does not provide as much reason to discount the value of Innovatio's patents as does the existence of alternatives in the public domain.[183]

In this regard, he accepted the trial testimony of one of the authors (Teece).

With respect to proposed noninfringing alternatives, Judge Holderman differentiated between those that were and were not considered by the IEEE at the time the standard was adopted. With respect to the latter, he said:

> If a proposed alternative had not even been presented to the IEEE, however, it is implausible to believe that asserting such a technology as a plausible alternative would be an effective negotiating point [in the hypothetical negotiation], as it is exceedingly unlikely that the IEEE would adopt such an alternative. . . . Rather than second-guessing the technical expertise of the many engineers and technicians who participated in the development of

[181] *Id.* at *4–8.
[182] *Id.* at *18.
[183] *Id.* at *20.

> the 802.11 standard, the court will assume that technology that did not even merit a mention by the IEEE in its deliberations about the standard was not likely to have been a serious contender for adoption into the standard. Accordingly, the court will only consider technology that was considered by the standard-setting body when determining whether there are alternatives to the patented technology that could have been adopted into the standard.[184]

With respect to the possibility of "reverse holdup"—the prospect that a patent holder will be inadequately compensated for others' use of its patented technology, especially in circumstances involving widespread infringement—Judge Holderman said:

> The court is not persuaded that the concern of reverse hold-up is relevant in this case, as there is *no evidence before the court that Innovatio or its predecessors ever offered the Manufacturers a license*, or that such an offer was rejected on the ground that it was not fair or reasonable. Moreover, the court is not persuaded that reverse hold-up is a significant concern in general, *as it is not unique to standard-essential patents*.[185]

We find this explanation puzzling and unpersuasive. To our knowledge, no one has ever suggested that the prospect of reverse holdup is "unique to standard-essential patents." Reverse holdup can arise in both SEP and non-SEP contexts. That Innovatio did not offer the manufacturers a license is not surprising given that Innovatio's strategy was to license at the end-user (Network Operator) level, "downstream" from the manufacturers, not at the manufacturer level. Its "failure" to offer the manufacturers a license has nothing to do with whether others use Innovatio's patents without paying adequate compensation, which is the core of the "reverse holdup" scenario.

In *Innovatio*, the manufacturer defendants argued that the appropriate royalty or damages base should be the cellular chipset that was incorporated into the devices that they sold, arguing that the chipset provided "the guts" of Wi-Fi functionality. Innovatio argued that the case law focused on the smallest saleable patent-practicing device and that "patent practicing" should be interpreted to mean satisfying all of the elements of the patent claims. Innovatio noted that a number of the claims of the patents in suit were not satisfied by the chipset, as some of the claims were "systems" claims requiring much more than just a chipset. (Though a stand-alone chipset would not infringe such claims directly, it might be found to infringe under the "contributory infringement" or "inducement to infringe" theories when used in its ordinary and intended purpose—namely, built into a device that

[184] *Id.*
[185] *Id.* at *11 (emphasis added).

was used as part of a cellular system.) The manufacturer defendants argued that some of the earlier cases had spoken not of "patent practicing" products, but of whether the accused products embodied the "inventive steps" of the patent, and argued that all of the essential innovative features were to be found in the chipset.[186]

Following a line of U.S. Supreme Court cases dating back to 1884, Judge Holderman said that the patent holder had an obligation to apportion the selling price of the infringing products as between the patented feature and unpatented features.[187] He asked whether Innovatio had succeeded in showing that it had properly apportioned the revenues and profits that the manufacturer defendants had earned from making and selling infringing products as between the patented technology and non-patented features. Innovatio's experts' apportionment testimony had two parts: by (1) Bergey, "a former Vice President of Broadcom," as to what he termed a "Wi-Fi Feature Factor" for various classes of end-user devices, ranging from 10 percent for laptops to 95 percent for access points, wireless radio modules and dongles; and (2) Evans, a patent licensing expert, on royalty rates from what he identified as "comparable" licenses.

Judge Holderman dismissed Mr. Bergey's testimony as "not based on an established method of analysis, but is instead speculative and subjective."[188] He concluded that Mr. Bergey's testimony "lacked a credible methodology,"[189] was "based merely on speculation,"[190] was "based on his own subjective impressions,"[191] and was "not credible."[192]

Judge Holderman also concluded that the "comparable" licenses identified by Mr. Evans were not good "comparables," finding that "none of Innovatio's proposed comparable licenses are appropriate for determining a royalty in the RAND licensing context."[193] Some of the licenses considered by Mr. Evans had been considered and rejected by Judge Robart. Judge Holderman rejected licenses entered into by Symbol with Proxim and Terrabeam on the grounds that "they were both adopted under the duress of litigation"[194] and following "a jury verdict awarding Symbol $22.9 million for Proxim's infringement,"[195] citing the "coercive effect of a $22.9 [sic] jury verdict in favor of Symbol."[196] Judge Holderman also disregarded a Qualcomm–Netgear license because

[186] *Id.* at *12–14.
[187] *Id.* at *14.
[188] *Id.* at *15.
[189] *Id.* at *16.
[190] *Id.* at *17.
[191] *Id.* at *16.
[192] *Id.* at *16–17.
[193] *Id.* at *31.
[194] *Id.* at *33.
[195] *Id.*
[196] *Id.*

(1) Qualcomm had far more patents than the Innovatio patents in dispute and (2) the Qualcomm patents related to different standards than the 802.11 Wi-Fi standard at issue. Judge Holderman concluded that Innovatio expert Dr. Raymond Nettleton's effort to appeal to the Qualcomm–Netgear license was "not credible" given Dr. Nettleton's admissions at his deposition that he had not studied the Qualcomm patents.[197] Judge Holderman concluded:

> 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. In light of that failure of proof, the court has no choice based on the record but to calculate a royalty based on the Wi-Fi chip.[198]

In other words, the court's decision to use the selling price or profitability of the Wi-Fi chip as the basis for its royalty calculations was based on Innovatio's "failure of proof," which is *not* an affirmative endorsement that the chipset is the appropriate damages base but merely a recognition of Innovatio's "failure of proof."

With respect to the rates in the Via Licensing 802.11 patent pool, Judge Holderman identified "several problems with the use of the Via pool as an indicator of a RAND rate in this case,"[199] pointing to the relatively small number of licensors and licensees the Via pool had attracted.[200] He also cited Judge Robart's Microsoft opinion that "the purpose of the RAND commitment is to achieve widespread adoption of the standard. It stands to reason then that the less a patent pool achieves widespread adoption of the standard, the less relevant the pool becomes as an indicator of a RAND royalty rate."[201] Judge Holderman also acknowledged the self-selection nature of patent pools, namely that the combination of the (1) rates charged by the pool and (2) "sharing rule" by which the pool proceeds are divided among patentholder participants implies that holders of especially valuable patents are more likely to elect not to participate in the pool. Judge Holderman noted:

> Using the Via patent pool, which the evidence shows did not include high-value patents, to calculate a rate for low-value patents may be appropriate. By contrast [to Judge Robart's analysis of Motorola's patents] this court has determined that Innovatio's patent portfolio is of moderate to

[197] *Id.* at *34.
[198] *Id.* at *18.
[199] *Id.* at *35.
[200] *Id.* ("[T]he court finds it more plausible . . . that the prices are too low to give patent holders a reasonable return on their technology.").
[201] *Id.* (quoting Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217, at *89 (W.D. Wash. Apr. 25, 2013)).

> moderate-high importance to the 802.11 standard. In that context, the Via patent pool is not an appropriate comparable license.[202]

The manufacturer defendants' economic expert, Dr. Gregory Leonard, also pointed to "four licenses for 802.11 technology that did not arise in the context of a RAND obligation."[203] Judge Holderman said, "The court does not take a position on the question of whether non-RAND licenses can ever be useful in determining a RAND rate,"[204] though elsewhere he said that, "[u]nder the modified Georgia-Pacific factors . . . the court should consider *only* licenses that arise out of circumstances comparable to RAND licensing circumstances."[205] (He did not reconcile these two statements.) He ruled that Microsoft expert Dr. Matthew Lynde's testimony was "insufficient for the court to determine the relative merit of the patented technology in each of those licenses compared with the technology in Innovatio's patents" and found "that they are unreliable indicators in this case of the appropriate RAND rate."[206]

Judge Holderman also rejected Dr. Leonard's proposed "Bottom Up" method, which sought to look at the amount that a hypothetical licensee would pay, based on the proposition that "a hypothetical licensee in the 1997 negotiation would not pay more for Innovatio's patents than the amount necessary to adopt an alternative."[207] He noted 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."[208] He echoed Judge Robart's opinion that "an accurate [incremental] analysis is too complicated for courts to perform,"[209] and noted, "[a]s a final problem with the Bottom Up method, Dr. Leonard did not account for the royalty that the alternatives to Innovatio's patents might be able to charge."[210]

Dr. Leonard's "Top Down" approach fared better. Judge Holderman concluded that, "[a]lthough the Top Down approach is not perfect, no approach for calculating a RAND rate is in light of the inherent uncertainty in calculating a reasonable royalty."[211] He further opined that

> the Top Down approach best approximates the RAND rate that the parties to a hypothetical ex ante negotiation most likely would have agreed upon in 1997, before Innovatio's patents were adopted into the standard. The court

[202] *Id.* at *36.
[203] *Id.*
[204] *Id.*
[205] *Id.* at *33 (emphasis added).
[206] *Id.* at *36.
[207] *Id.* at *37.
[208] *Id.*
[209] *Id.*
[210] *Id.*
[211] *Id.* at *36.

> will therefore use the Top Down approach, with appropriate modifications, to calculate a RAND rate.[212]

Judge Holderman relied on a July 2013 report by the PA Consulting Group for an estimate that there were 3000 potentially essential patents for the 802.11 standard, acknowledging that not all patents declared as potentially essential are in fact essential.[213] He relied on a published estimate that "the top 10% of all electronics patents account for 84% of the value in all electronics patents."[214] Based on his assessment that the Innovatio patents were of "moderate to moderate-to-high" importance to the standard, he concluded that the Innovatio patents were in the top 10 percent of all 3000 declared-essential patents,[215] such that the 19 Innovatio patents remaining in suit were responsible for 19/300 of 84 percent of the estimated $1.80 per chipset profit margin on chipsets, or 9.56 cents per Wi-Fi chip.[216]

A. Judge Holderman's Economic Fallacy?

Perhaps the least defensible part of Judge Holderman's opinion was his conclusion that "the profit margin on the sale of a chip for a chip manufacturer" is "the maximum potential royalty" for a *device* manufacturer.[217] As noted above, Judge Holderman's use of the chipset prices and profit margins was based on Innovatio's "failure of proof"[218] with respect to apportionment of device revenues and profits as between the patented features and other features. Had Innovatio done the apportionment job properly, it is likely that Judge Holderman would not have committed the economic fallacy that we critique here.

Judge Holderman adopted Dr. Leonard's Top Down approach,[219] which started with the average price of a Wi-Fi chip and then looked at the "average profit that a chipmaker earns on the sale of each chip."[220] But prior case law firmly establishes that

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[212] *Id.* at *37.
[213] *Id.* at *43.
[214] *Id.* (citing Mark Schankerman, *How Valuable Is Patent Protection? Estimates by Technology Field*, 29 RAND J. Econ. 77, 94 tbl.5 & n.12 (1998)).
[215] *Id.* at *43. This calculation improperly conflates the category considered in the published Schankerman study—namely, "all electronics patents"—with the 3000 declared-essential patents. Large numbers of "electronics patents" were not declared as essential to the 802.11 standard. One would expect that declared-essential patents would be more valuable, on average, than non-declared-essential patents, as many patents involve inventions that were never practiced commercially.
[216] *Id.*
[217] *Id.* at *38.
[218] *Id.* at *14.
[219] *Id.* at *37.
[220] *Id.* at *38.

> an infringer's net profit margin is not the ceiling by which a reasonable royalty is capped. The infringer's selling price can be raised, if necessary, to accommodate a higher royalty rate. Requiring the infringer to do so, may be the only way to adequately compensate the patentee for the use of its technology.[221]

Judge Holderman acknowledged this established case law conceptually,[222] but his conclusion to the contrary—"chip manufacturers facing a demand for a royalty far outstripping their expected profit margin would not agree to take a license on the patents, but would instead exit the chip-making business"[223]—largely ignored it, and tacitly assumed that the chip manufacturers' profits are exogenously set (and fixed at their historical levels). If chip manufacturers were required to pay royalties, they could have sought to pass them on in the form of higher chip prices,[224] especially given the "patent exhaustion" doctrine that a license "upstream" in the value chain precludes the patent holder from seeking further royalties from those "downstream" from its licensees. The alternative was not solely to "exit the chip-making business."

B. Price-Depressing Effect of Widespread Infringement

Judge Holderman's reasoning also ignored the price-depressing effect of widespread infringement, which occurs when some chipset manufacturers make infringing chipsets without taking a license or paying royalties, prices of and profit margins on chipsets will be reduced relative to what they would have been had royalties been paid, and capping royalties at the infringer's depressed profit margins would not adequately compensate the patent holder. Judge Holderman said:

> In the record of this case, there is no evidence of widespread infringement of 802.11 standard-essential patents. To the contrary, Dr. Leonard testified that Broadcom, Intel, and Atheros, three major Wi-Fi chip manufacturers, are all licensed under Innovatio's patents. . . . Those three manufacturers, representing a significant portion of the chip market, have already in essence paid a royalty for the use of Innovatio's technology, and can exert downward price pressure on any currently unlicensed chip manufacturer that tried to raise its prices to account for a royalty to Innovatio.[225]

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[221] Ericsson Inc. v. D-Link Sys., Inc., No. 6:10-cv-473, 2013 WL 4046225, at *20 (E.D. Tex. Aug. 6, 2013) (basing a jury instruction on Douglas Dynamics, LLC v. Buyers Prods. Co., 717 F.3d 1336 (Fed. Cir. 2013); Rite-Hite v. Kelley, 56 F.3d 1538 (Fed. Cir. 1995)); Aqua Shield v. Inter Pool Cover Team, 774 F.3d 766 (Fed. Cir. 2014).

[222] *In re Innovatio*, 2013 WL 5593609, at *39 ("[T]he profit margin on an accused *product* is not always dispositive for determining a RAND rate.") (emphasis added).

[223] *Id.* at *38.

[224] Whether (and to what extent) they would have succeeded in doing so is an empirical question.

[225] *In re Innovatio*, 2013 WL 5593609, at *39.

We are not entirely in agreement. If *all* chipset manufacturers *had* been licensed, then the patent exhaustion doctrine presumably would have applied, and Innovatio's case would have been dismissed on those grounds. The fact that it was not implies that at least some chipset manufacturers were *not* licensed. (We do not know, and Judge Holderman did not say, what fraction of accused devices used licensed chipsets.)

Innovatio bought its patents from Broadcom; Broadcom retained a paid-up license under the patents, and the fact that it did so presumably reduced the price Innovatio paid for the patents.[226] Broadcom did not "pa[y] a royalty for the use of Innovatio's technology" in the sense of paying a running out-of-pocket royalty, which traditional microeconomic theory suggests is the only kind that would affect its going-forward chipset pricing. (A lump sum offset against the purchase price paid by Innovatio does not involve marginal cost.) The manufacturer defendants did not introduce evidence of royalties that may have been paid by Intel or Atheros, but we think it is likely that their licenses were cross-licenses entered into with Broadcom (when Broadcom owned the patents that it later sold to Innovatio) that did not involve any running royalties (though it is possible that they may have involved lump-sum payments).

Broadcom (or another licensed manufacturer) clearly *could* choose to "exert downward price pressure" should another chip manufacturer seek to raise its chip prices in response to royalties, but the relevant question is whether it would be in its economic interest to do so, or whether it would take advantage of others' proposed higher chip prices to increase its own chip prices and thus its per-chip profits. Judge Holderman's tacit implication that a licensee would find it more profitable to do the former rather than the latter is unsubstantiated. Moreover, Judge Holderman did not estimate the effect of any such hypothesized "downward price pressure." Infra-marginal suppliers routinely take advantage of a "pricing umbrella" by keeping their prices higher rather than undercutting their higher-cost rivals. And if other chip manufacturers did elect to exit the chip market in the face of having to pay Innovatio royalties, that would reduce supply and increase prices.

C. Implications of "Royalty Stacking" Argument

Moreover, Judge Holderman's analysis (and in particular his analysis of the "royalty stacking" issue) was not based on Innovatio's patents alone, but on the cumulative effect of potential royalties that might be paid to *all* holders of essential patents. The fact that some chip manufacturers were licensed under the Innovatio patents (in the form of paid-up lump-sum licenses) says nothing about whether they were licensed under the patents of *other* SEP

[226] *Id.* at *30.

holders. Judge Holderman's assertion that "there is no evidence of widespread infringement of 802.11 standard-essential patents" focused only on whether three chip manufacturers were licensed under *Innovatio's* patents; he did not investigate whether they (or other chip manufacturers) were licensed under *others*' "802.11 standard-essential patents."

More significant, where the license would have been from Innovatio to the device manufacturers,[227] rather than from Innovatio to the chipset manufacturers, the chipset manufacturers' prices and profits are almost entirely irrelevant to the benefits that the device manufacturers received from using the patented technology. There is no logical or economic connection between chipset profit margins and the value to a device manufacturer of being able to use the patented technology. There would be a connection only if all of the value of being able to use the patented technology, at all levels in the "value chain," had been captured at the chipset level. Chipset prices and profits are driven by competition at the chipset level, which is driven by such factors as Moore's Law. As Judge Holderman noted, chipset prices have fallen steadily and dramatically over time, from an average of $37 per chip in 1997 to $3.05 per chip in 2013.[228] We think that it is highly unlikely that the value *to device manufacturers* of being able to use Innovatio's (or others') patented cellular technology has fallen so dramatically over time. Judge Holderman asserted:

> Considering the profit of the chip manufacturer on the chip, *rather than* the profit margins of the Manufacturers on the accused products, *is appropriate* because a RAND licensor such as Innovatio *cannot discriminate* between licensees on the basis of their position in the market. Thus, the RAND rate that the court determines here *should be* the same RAND rate that Innovatio could charge *to chip manufacturers* on its patent portfolio.[229]

We disagree. Judge Holderman provided no basis for this interpretation of the "nondiscrimination" aspect of RAND. A patent holder that has made a RAND commitment has an obligation to make an "unlimited" number of licenses available, but that does not mean that the patent holder is obliged to license at all levels of the value chain. To our knowledge, no SSO has a policy that states that. Innovatio has *not* licensed its patents at the chipset level,[230] and the Innovatio manufacturer defendants (who *intervened* in the

[227] It is worth recalling that Innovatio originally sought to license (and then sued) not the manufacturers, but the network operators who used unlicensed devices in their systems. It was only after the manufacturers intervened that the case morphed into a dispute between Innovatio and the manufacturers, none of whom was a chipset manufacturer. No chip manufacturer was ever a party to, or an intervenor in, any of the suits involved in the Innovatio case.

[228] *In re Innovatio*, 2013 WL 5593609, at *39–40.

[229] *Id.* at *38 (emphasis added).

[230] Broadcom, a chipset manufacturer, sold a portfolio of patents to Innovatio and retained a paid-up license. Before selling the patents, Broadcom had also cross-licensed a number of other chipset manufacturers, notably Intel and Atheros. Those were licenses that Innovatio inherited, not licenses that Innovatio

suits Innovatio *originally* brought against retailers and others "Network Operators" who were operating Wi-Fi networks at their premises) were not chipset manufacturers. Those who have studied the "nondiscrimination" aspect of the RAND commitment have concluded that it does not require that all licensees receive the same license terms, but merely that "similarly situated" licensees should be treated similarly. Chipset manufacturers and device manufacturers are not "similarly situated." The products they sell, the prices they sell for, and their profit margins are all very different.

D. Comparable Licenses

Similarly, Judge Holderman said that "the court finds that none of Innovatio's proposed comparable licenses are appropriate for determining a royalty rate in the RAND licensing context. Accordingly, there is no credible basis in the record for calculating a RAND royalty on the basis of end-product prices."[231] That statement makes no economic sense. The fact that he rejected Innovatio's proposed comparable licenses does not imply that one cannot use end-product prices (or profit margins) rather than chipset prices (or profit margins). All it means is that the proposed comparables were rejected. That is not an *affirmative* basis for using chipset prices or profit margins rather than device prices or profit margins.[232]

Some of Judge Holderman's criticisms of Mr. Bergey's analysis seem unpersuasive. For example, Mr. Bergey identified "Wi-Fi Feature Factors" for categories of products. Judge Holderman pointed out (correctly) that different products within the various product categories differed, such that applying a single "Feature Factor" to all products in the category would inherently overstate the importance of Innovatio's patents to some products in the category and understate it for other products.[233] The question is whether that observation undercuts the use of a "Feature Factor" approach applied to a relatively small number of product categories. Inherently, such analysis would need to be somewhat simplified, as using a single "Factor" to apply to a group of similar products, which can differ among themselves, does inherently overestimate the factor applicable to some products in the group and underestimate the factor applicable to others. The real concern is

entered into. Innovatio's licensing program was at the end-user "Network Operator" level, not at the device or chipset level.

[231] *In re Innovatio*, 2013 WL 5593609, at *31.

[232] Judge Holderman used data on chipset prices and profit margins, rather than data from "comparable" licenses, to perform his calculations of RAND royalties. He presumably could have used data on device prices and profit margins to perform similar calculations, though those data were not reported in his opinion (and it is not clear whether Innovatio introduced such data into the record).

[233] *In re Innovatio*, 2013 WL 5593609, at *15 (stating that, although access points differed in a number of ways, such as whether they had mounting brackets, Ethernet connections, and software, Mr. Bergey assigned the same "Feature Factor" of 95 percent to all of them).

whether such an approach biases the result (in a statistical sense) one way or another to either overestimate or underestimate damages. Judge Holderman's discussion did not demonstrate the existence of any statistical bias. The real question is whether the approach of grouping products into categories and estimating an average for each category biases the overall result upward or downward. There is no *a priori* reason to believe that it does.

E. Chipset Prices Over Time: Weighted Versus Unweighted Averages

The Innovatio manufacturer defendants' expert proposed that Judge Holderman calculate damages based on the weighted average profit margins of chipsets over the damages period. Because chipset prices fell significantly over time and chipset volumes increased significantly over time, the weighted average selling price and profit margin fell significantly over time. Judge Holderman instead used a simple (non-weighted) average selling price and profit margin,[234] saying that "the parties to a hypothetical negotiation in 1997 would likely settle on approximately that number when determining the appropriate chip price to consider when setting a RAND rate."[235] He said:

> It is *not appropriate*, however, to take a weighted average of the annual ABI Research Report data [on chipset prices and volumes], because the weighted average discounts the chip price significantly because of the disproportionately large number of chips that have been sold in recent years, when the price of a chip was low. The court infers that this significant increase in Wi-Fi chip sales is due to the increased demand for Wi-Fi products resulting from the interoperability of the products due to standardization.[236]

Judge Holderman did not explain or justify his "not appropriate" comment, and we believe that it makes no economic sense. The parties to a hypothetical negotiation would presumably have acknowledged that the standard would become more successful over time, with volumes increasing. They presumably would also have been aware of the long-term downward trend in chip prices, driven by Moore's Law. They presumably would also have recognized the inverse relationship between price and quantity sold (because demand curves are downward sloping) at any given point in time. We agree that a "weighted average discounts the chip price significantly" *relative to* the simple (non-weighted) average that Judge Holderman used, but that is not an affirmative reason for choosing one over the other. Economists routinely use weighted averages, rather than simple (unweighted) averages, because weighted averages more accurately reflect what actually happened, while a

[234] *Id.* at *41.
[235] *Id.*
[236] *Id.* at *40 (emphasis added).

simple average does not. We would agree that using what actually happened takes advantage of the "Book of Wisdom" (though so does the use of actual prices to calculate an unweighted average).[237] In the absence of clear evidence about what *ex ante* expectations were (and given the fact that different entities likely had different expectations back in the day), using a weighted average makes more economic sense than using an unweighted average.

Judge Holderman went on to say, "[t]he court *must*, however, *not consider the effect of standardization* when evaluating the ex ante negotiation in 1997."[238] Again, he provided no explanation or justification for this statement, and it does not make economic sense. Rational negotiators in the hypothetical negotiation would presumably look forward and base their negotiations on their expectations of what is likely to happen in the future, including their expectations about "the effect of standardization." He seemed to suggest that, just as one ostensibly "should not" take account of the value added by the standard in assessing a RAND royalty, one likewise ostensibly "should not" take into account the expected future success of the standard (as affecting the weighted average chip price) in assessing a RAND royalty. That does not make economic sense;[239] the two situations are very different.

F. Comparison with Other Court-Ordered Royalty Rates

Judge Holderman compared his proposed RAND royalty of 9.56 cents per unit with both Judge Robart's proposed RAND royalty (of 3.471 cents per unit) and the 15 cent per-unit royalty set by Judge Davis in *Ericsson* (which was based on the jury's damages award of $10.1 million).[240] He said that, given that he found Innovatio's patents were of "moderate to moderate-to-high" importance to the standard and that Judge Robart found that Motorola's patents were only of minimal value to the standards, "[a] multiplier of about three [between Judge Robart's award and his award] is a reasonable difference between the two royalties to account for the greater importance of Innovatio's patents to the 802.11 standard."[241] He concluded that "the RAND calculations in the Microsoft case confirm the reasonableness of the court's determination of a RAND rate for Innovatio's 802.11 standard-essential

[237] *See* J. Gregory Sidak, *How Relevant Is Justice Cardozo's "Book of Wisdom" to Relevant Damages?*, 17 Colum. Sci. & Tech. L. Rev. 246 (2016).

[238] *In re Innovatio*, 2013 WL 5593609, at *40 (emphasis added).

[239] The difference is significant. Judge Holderman's unweighted average chip price was $14.85, compared with Dr. Leonard's weighted average estimated chip price of $3.99, less than one-quarter of the unweighted average price that Judge Holderman used. Judge Holderman used 12.1 percent as the average profit margin on a Wi-Fi chip, a calculation that involved actual profit margins. He thus "mixed and matched" weighted and unweighted data. *Id.* at *40–41.

[240] *Id.* at *44.

[241] *Id.*

patents."[242] He further noted that "the 15 cents per unit rate in *Ericsson* is close to the court's 9.56 cent RAND rate."[243]

IV. Chief Judge Davis's Decision in *Ericsson v. D-Link*

Unlike Judge Robart's decision in *Motorola v. Microsoft* and Judge Holderman's decision in *In re Innovatio*, both of which came after *bench* trials of the RAND issue, Chief Judge Davis' decision in *Ericsson v. D-Link* came after a jury verdict in Ericsson's favor, in which the jury awarded Ericsson damages totaling $10.1 million against the various defendants. Judge Davis also awarded Ericsson an ongoing royalty of 15 cents per unit on future sales, in lieu of an injunction (which Ericsson did not seek).

Judge Davis' decision has a couple of interesting aspects. One already mentioned is his disagreement with Judge Robart on the "royalty-stacking" issue. Another involves the issue of "where in the value chain should licensing occur?" Judge Davis rejected D-Link's argument that Ericsson had failed to comply with its RAND commitment by not licensing Intel, the chipmaker that supplied chipsets to D-Link, and by not suing Intel for damages after Intel intervened in the case. Further, "Ericsson [had] committed to offer RAND licenses to "fully compliant" products."[244] Judge Davis said:

> Ericsson's objective in licensing only fully compliant products was to isolate a particular level of the supply chain and to license companies at that level. By licensing end-product manufacturers, Ericsson believed it was indirectly licensing chip manufacturers such as Intel. . . . There is no IEEE rule preventing restricted RAND commitments, and other companies have adopted the same "fully compliant" licensing policy as Ericsson.[245]

This appears to us to reject Judge Holderman's opinion (discussed above) that the "nondiscrimination" aspect of RAND meant that what was relevant in assessing RAND royalties was chipset profit margins. If, as Judge Davis implies, licensing at the device level is sufficient to satisfy a RAND commitment, then what would appear to be relevant are device level prices and profits.[246]

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[242] *Id.*

[243] *Id.* at *45.

[244] Ericsson Inc. v. D-Link Sys., Inc., No. 6:10-cv-473, 2013 WL 4046225, at *23 (E.D. Tex. Aug. 6, 2013). After Intel intervened in the suit, Ericsson offered to license Intel at the same $0.50 per-unit royalty that it offered to D-Link. Intel did not respond to Ericsson's proposed draft license.

[245] *Id.*

[246] Not all firms that have made RAND commitments have explicitly clarified their "we license fully compliant products at the device level" policy, as Ericsson appears to have done.

A. The Damages Base: Judge Robart

Judge Robart did not address the question of the appropriate damages base. It is possible that he concluded that the appropriate royalty structure was a cents-per-unit royalty rate, so the royalty base would be the number of units sold and would not vary with the selling price of the infringing items. That said, his comment that "this [RAND] royalty rate would fluctuate little, if at all, based on the end selling price of the product"[247] effectively amounts to a rejection of a percentage-based running royalty based on the selling price of the end-user product, but is more consistent with the idea of a percentage-based running royalty calculated on the selling price of a chipset (though he does not come out and explicitly endorse such an analysis).

Despite his ultimate decision to award a cents-per-unit royalty, Judge Holderman in *Innovatio* did address the question of the appropriate damages base. He concluded that the appropriate damages base was the price of the wireless chipset. He did so based on Innovatio's failure of proof:

> 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. The court therefore has no choice but to look to the Manufacturers' proposed method of calculating a RAND royalty based on the price of a Wi-Fi chip. Accordingly, for purposes of this opinion the court will consider the price of a Wi-Fi chip to be the appropriate RAND royalty base.[248]

Such a "failure of proof" argument is not an affirmative argument in favor of using the chipset price as the royalty base. That said, by choosing a fixed cents-per-unit royalty, the total damages did not depend directly on the prices of Wi-Fi chips, but instead on the per-unit rate and the number of chips sold.

B. Damages Base: Ericsson v. D-Link

In *Ericsson, Inc. v. D-Link Systems, Inc.*, Ericsson had sought a $0.50 per-unit royalty, such that the royalty base would have been the number of infringing units and not the selling price of the units sold. In *Ericsson*, Chief Judge Davis rejected D-Link's argument that Ericsson had failed to comply with its RAND commitment by not initially licensing Intel, the chipmaker that supplied chipsets to D-Link, and by not suing Intel after Intel intervened in

[247] Microsoft v. Motorola, 2013 WL 2111217, at *99 ¶ 617.

[248] *In re* Innovatio IP Ventures, LLC Patent Litig., MDL No. 2303, 2013 WL 5593609, at *12 (N.D. Ill. Oct. 3, 2013).

the case. Judge Davis said that "Ericsson [had] committed to offer RAND licenses to 'fully compliant' products."[249] He added that

> Ericsson's objective in licensing only fully compliant products was to isolate a particular level of the supply chain and to license companies at that level. . . . By licensing end-product manufacturers, Ericsson believed it was indirectly licensing chip manufacturers such as Intel. . . . There is no IEEE rule preventing restricted RAND commitments, and other companies have adopted the same "fully compliant" licensing policy as Ericsson.[250]

Judge Davis thus found that a FRAND commitment did not restrict Ericsson's right to license its SEPs to manufacturers of fully compliant products.

V. The Federal Circuit's Opinion in *Ericsson v. D-Link*

On appeal from Chief Judge Davis' decision, the Federal Circuit for the first time spoke out on FRAND issues.[251] It vacated the district court's damages award and remanded the case for further proceedings. On the entire market value rule (EMVR), it said:

> While a number of our cases have referred to the concept of an entire market value "rule," the legal standard actually has two parts, which are different in character. There is one substantive legal rule, and there is a separate evidentiary principle; the latter assisting in reliably implementing the rule when—in a case involving a percent royalty—the jury is asked to choose a royalty base as the starting point for calculating a reasonable royalty.[252]

Unfortunately, the Federal Circuit did not further specify what the "evidentiary principle" was, nor explain how it is to be applied in practice. Saying that "the point of the evidentiary principle is to help our jury system reliably implement the substantive statutory requirement of apportionment" provides no guidance as to what that "evidentiary principle" *is*. By way of analogy, one can argue that "the point" of the hearsay rule is to assist the jury in coming to an appropriate decision and reject unreliable evidence, but that provides no guidance as to the metes and bounds of the hearsay rule, or how it is to be applied in practice. Similarly, it is one thing to say that "care must be taken to avoid misleading the jury," but that is not in any meaningful sense an "evidentiary principle," as it provides no guidance as to what evidence is

[249] Ericsson Inc. v. D-Link Sys., Inc., No. 6:10-cv-473, 2013 WL 4046225, at *23 (E.D. Tex. Aug. 6, 2013). After Intel intervened in the suit, Ericsson offered to license Intel at the same $0.50 per-unit royalty that it offered to D-Link. Intel did not respond to Ericsson's proposed draft license.

[250] *Id.*

[251] Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201 (Fed. Cir. 2014).

[252] *Id.* at 1226.

and is not admissible. Saying "care must be taken" is all well and good, but it is quite another thing to explain what "evidentiary principle" is needed or desirable to achieve that result. Nor is there any explanation why an "evidentiary principle" is needed, as contrasted (for example) with a jury instruction admonishing the jury of the need to properly apportion. After all, one would expect that the defendant in patent-infringement damages cases would have a strong incentive to urge the jury not to be "misled" into awarding excessive damages.[253]

The Federal Circuit went on to say that "the governing rule is that the ultimate combination of royalty base and royalty rate must reflect the value attributable to the infringing features of the product, and no more."[254] The court said that "[w]hen the accused infringing products have both patented and unpatented features, measuring this value requires a determination of the value added by such features."[255] It observed that an economist could determine the value of the patented feature "in various ways—by careful selection of the royalty base to reflect the value added by the patented feature, where that differentiation is possible; by adjustment of the royalty rate so as to discount the value of a product's non-patented features; or by a combination thereof."[256] The court emphasized that the "[t]he essential requirement is that the ultimate reasonable royalty award must be based on the incremental value that the patented invention adds to the end product."[257]

The Federal Circuit said that "our cases have added to that governing legal rule an important evidentiary principle,"[258] which seeks "to help our jury system reliably implement the substantive statutory requirement of apportionment of royalty damages to the invention's value."[259]The court said that that principle requires that "where a multi-component product is at issue and the patented feature is not the item which imbues the combination of other features with value, care must be taken to avoid misleading the jury by placing undue emphasis on the value of the entire product."[260] The court reasoned that "[i]t is not that an appropriately apportioned royalty award could never be fashioned by starting with the entire market value of a multi-component product—by, for instance, dramatically reducing the royalty rate to be applied in those cases."[261] However, it said "that reliance on the entire market value *might* mislead the jury, who may be less equipped to

[253] *See* Sidak, *Apportionment, FRAND Royalties, and Comparable Licenses After* Ericsson v. D-Link, *supra* note 90.
[254] 773 F.3d at 1226.
[255] *Id.*
[256] *Id.*
[257] *Id.*
[258] *Id.*
[259] *Id.*
[260] *Id*
[261] *Id.*

understand the extent to which the royalty rate would need to do the work in such instances."[262]

With respect to the *Georgia-Pacific* factors, the Federal Circuit said:

> In a case involving RAND-encumbered patents, many of the *Georgia-Pacific* factors simply are not relevant; many are even contrary to RAND principles. . . . In this case, the district court erred by instructing the jury on multiple *Georgia-Pacific* factors that are not relevant, or are misleading, on the record before it, including, at least, factors 4, 5, 8, 9, and 10 of the *Georgia-Pacific* factors. . . . To be clear, we do not hold that there is a modified version of the *Georgia-Pacific* factors that should be used for all RAND-encumbered patents. Indeed, to the extent D-Link argues that the trial court was required to give instructions that mirrored the analysis in *Innovatio* or *Microsoft*, we specifically reject that argument . . . We believe it unwise to create a new set of *Georgia-Pacific*-like factors for all cases involving RAND-encumbered patents. . . . [I]n all cases, a district court must instruct the jury only on factors that are relevant to the specific case at issue. There is no *Georgia-Pacific*-like list of factors that district courts can parrot for every case involving RAND-encumbered patents.[263]

We find this somewhat puzzling. A particular *Georgia-Pacific* factor may or may not be present in a given case; merely listing the *set* of factors that can be considered says nothing about whether a particular factor is or is not present. If the Federal Circuit's logic were carried to its logical implication, it would be judicial error for a district court to render a *Georgia-Pacific* instruction on a given factor in any case where that particular factor were not present. The alternative —mentioning the factor as a conceptual matter, but leaving it up to the jury to determine whether the factual premise underlying the factor is or is not present —would appear to us to be perfectly reasonable. Again, one would expect that the parties would have a strong incentive to point out the presence (or lack thereof) and relevance (or lack thereof) of a particular factor, and to explain why they are (or are not) "contrary to RAND principles."

The Federal Circuit addressed the issue of apportionment. It said that

> When dealing with SEPs, there are two special apportionment issues that arise. First, the patented feature must be apportioned from all of the unpatented features reflected in the standard. Second, the patentee's royalty must be premised on the value of the patented feature, not any value added by the standard's adoption of the patented technology.[264]

[262] *Id.* at 1226–27 (emphasis added).
[263] 773 F.3d at 1230–31, 1235.
[264] *Id.* at 1232.

The court emphasized that "district courts must make clear to the jury that any royalty award must be based on the *incremental value* of the invention, not the value of the standard as a whole *or any increased value the patented feature gains from its inclusion in the standard*."[265] To the extent the Federal Circuit is suggesting that the patent holder should not receive any of the "gains from standardization," we disagree. Basically, the process of setting standards is a collaborative process among innovators and implementers generating "gains from trade," and in our view there is no good reason why patent holders should not obtain a "fair share" of those gains from trade in the form of higher royalties than the technology would command in a different (non-standardization) context. (For the reasons given at length above, we also disagree that an "incremental value" approach is appropriate, at least when "incremental value" is measured relative to other *patented* alternatives.)

The Federal Circuit upheld Judge Davis' decision not to issue an instruction on the issue of royalty stacking.[266] "A jury, moreover, need not be instructed regarding royalty stacking unless there is actual evidence of stacking. The mere fact that thousands of patents are declared to be essential to a standard does not mean that a standard-compliant company will necessarily have to pay a royalty to each SEP holder."[267]

The Federal Circuit also approved the use of various licenses as "comparables," despite the fact that, as the Federal Circuit noted, "licenses are generally negotiated without consideration of the EMVR,"[268] noting:

> Making real world relevant licenses inadmissible on the grounds D-Link urges would often make it impossible for a patentee to resort to market-based evidence. Such evidence is relevant and reliable, however, where the damages testimony regarding those licenses takes into account the very types of apportionment principles contemplated in *Garretson*.[269]

The Federal Circuit further added that, "where expert testimony explains to the jury the need to discount reliance on a given license to account only for the value attributed to the licensed technology . . . the mere fact that licenses

[265] *Id.* at 1235 (emphasis added).
[266] *Id.* at 1234.
[267] *Id.*
[268] *Id.* at 1228.
[269] *Id.*

predicated on the value of a multi-component product are referenced in that analysis . . . is not reversible error."[270]

VI. Conclusion

The recent decisions in *Apple v. Motorola*, *Microsoft v. Motorola*, *In re Innovatio*, and *Ericsson v. D-Link* have offered much-needed guidance on U.S. courts' interpretation of what constitutes FRAND licensing terms in the standard-setting context. In this article, we have discussed the implications of these rulings from the perspective of economics and public policy. The courts have generally relied on modified versions of the criteria used in determining reasonable-royalty patent-infringement damages. Whereas some of these proposed modifications are sensible in our view, others are inconsistent with generally accepted economic principles and are likely to have an adverse effect on incentives to innovate. Some key economic lessons (not all, unfortunately, acknowledged by the courts) are the following.

First, there is no such thing as "the value of the patent itself" independent of context. The "same" patent can command different royalties (and possibly different royalty structures) in different contexts and for different applications.

Second, by participating in the collaborative standards-setting process and making their technology available for use in making standards-compliant products, patent holders have contributed more than simply the *ex ante* value of their technology. Patent holders should be entitled to seek a "fair share" of the gains associated with standardization without being accused of engaging in "holdup."

Third, a policy that restricts holders of SEPs to only receiving the "inherent value" of their technology and that gives them none of the value associated with the standardization process would be inherently biased against innovators and in favor of implementers.

Fourth, there is no basis for concluding that the "incremental value approach" is part of what SSOs consider FRAND.

Fifth, while FRAND requires that similarly situated licensees be treated similarly, it does not follow that a FRAND royalty must be the same at all levels of the value chain. In other words, FRAND royalties may be percentage-based and vary with the selling price of the licensed products.

[270] *Id.*