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Incentives Must Change: Addressing the Unpredictability of Reasonable Royalty Damages

Keywords

Damages (Law); Patent infringement; Third parties (Law); Patent laws & legislation; Patent suits; Royalties (Copyright) -- Lawsuits & claims

INCENTIVES MUST CHANGE: ADDRESSING THE UNPREDICTABILITY OF REASONABLE ROYALTY DAMAGES*

DAN MCMANUS**

ABSTRACT

Current law encourages patentees and defendants in a patent infringement suit to make the most widely varying arguments for reasonable royalty damages. The parties have so much discretion in presenting calculations for reasonable royalty damages that it is not uncommon for the patentee to request damages 80-100 times greater than the infringer's proposed damages. Permitting so much discretion makes it highly unlikely that the resulting damages will be reasonable, and thus fails to achieve the goal of determining a reasonable royalty.

The problem is simple. Patents are difficult to value. When a third party decision-maker, such as a jury, cannot accurately assess value, the decision-maker often splits the difference as a compromise. If a litigating party knows that the decision-maker is simply going to split the difference, then that party has the incentive to argue for damages

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as far away from their opposing party as possible. This tactic allows the party to skew the midpoint of the resulting split to their side as much as possible. This misaligned incentive is the root cause of the unpredictability in reasonable royalty damages and other proposals have failed to address it.

The solution is also simple. The incentive for parties to make the most widely varying damages arguments possible must be replaced with an incentive to make the most reasonable argument for damages. This could be accomplished by requiring the jury to choose the more reasonable of the proposed royalty rates as the basis for determining the reasonable royalty. Using this solution along with some other proposals in the Article, I illustrate how the range of damages argued by the parties in a recent case could have been dramatically reduced from a factor of 100 to a factor of 2.5. When a jury must decide between proposals that are only off by a factor of 2.5 it is much more likely that a “reasonable” royalty will be achieved.

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INTRODUCTION

Although the goal of patent law in the area of damages is to produce no less than a reasonable royalty, the amount of discretion permitted to determine a reasonable royalty during litigation allows for completely unreasonable arguments during litigation. More structure is needed, especially where the patented invention is a component of a product containing numerous patented inventions, and the patentee has not practiced or licensed the patent. Current law actually encourages unreasonable arguments for damages in these cases, and a jury can be given a range of \$5 million to \$1 billion to award damages.¹ Permitting such a large range makes outcomes highly unpredictable and also makes it highly unlikely that a reasonable royalty will be determined.

This research paper seeks to narrow this range of unpredictability by determining the reasons for its existence and then proposing a solution. Part I provides some background on remedies available to patentees in an infringement suit and explains how current law applies to a patentee who has not practiced or licensed the patent. This Part also begins the discussion of how confusing it is to determine a reasonable royalty, especially when the patented invention is only one of many patented components on a product. Part II continues this discussion by examining the 2009 case of *Cornell University v. Hewlett-Packard Co.*,² and how current law encouraged the parties in that case to make unreasonable arguments for the reasonable royalty damages. This Part looks at the expert testimony in that case because this is the only way to fully understand how reasonable royalties are being calculated during litigations. Part III illustrates how current proposals to improve the process of determining reasonable royalties fall short of addressing the main issue causing the unpredictability in determining reasonable

1. See Verdict Summary Report, *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279 (N.D.N.Y. 2009) No. 01-CV-1974, 2008 WL 3166856, at *2 (listing the range of damages given to the jury was \$5,000,000 – 999,999,999).

2. 609 F. Supp. 2d 279 (N.D.N.Y. 2009).

royalties. Part IV addresses the problems raised in Parts I and II as well as the problems that remain after analyzing the proposals discussed in Part III by using a structured approach to determine reasonable royalty damages. The main feature of this structured approach is that the jury is required to use the royalty rate offered by one of the parties as the primary basis in determining the reasonable royalty. This requirement gives the parties incentives to make reasonable arguments at trial, which should result in more settlements and more reasonable royalties. The proposal made here also gives non-practicing patentees incentives to make a good faith attempt to secure licensing in order to avoid reduced damages.

I. PATENT REMEDIES LAW APPLIED TO A NON-PRACTICING PATENTEE

There are two types of remedies for patent infringement: (1) injunctions; and (2) damages.³ Under current law, a patentee who has not practiced or licensed the invention is generally unable to obtain an injunction⁴ or damages from lost profits,⁵ which leaves only damages through determination of a reasonable royalty. Determining reasonable royalty damages can be a highly unpredictable process as shown by how far apart patentees and defendants have argued for damages during litigation.⁶ This unpredictability encourages litigation and prevents settlements. To address this problem, this paper proposes a solution to reduce this range of unpredictability by encouraging parties to make reasonable arguments for damages and also encouraging patentees to license or practice their patents. Because part of the solution encourages non-practicing patentees to practice their patents,⁷ the following

3. 35 U.S.C. §§ 283-284 (2006).

4. See Benjamin Petersen, *Injunctive Relief in the Post-eBay World*, 23 BERKELEY TECH. L.J. 193, 194 (2008) (discussing the strong correlation between a patentee's failing to practice a patent and denial of an injunction after the U.S. Supreme Court rejected use of bright line rules to find injunctions in *eBay, Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006)).

5. A non-practicing patentee cannot obtain lost profits because the non-practicing patentee cannot meet the market demand. See *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978) (requiring that a patentee have marketing capacity to exploit demand for an invention).

6. See, e.g., *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1320-21 (Fed. Cir. 2011) (showing how the expert witness for Uniloc USA was arguing for reasonable royalty damages of \$565 million while the expert witness for Microsoft was arguing for damages of only \$7 million); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1323 (Fed. Cir. 2009) (showing how the expert witness for Lucent argued for a reasonable royalty of \$562 million while Microsoft argued for a reasonable royalty of only \$6.5 million); Verdict Summary Report, *supra* note 1, at *2 (listing the range of damages given to the jury was \$5,000,000 – 999,999,999).

7. It is recognized that it is unrealistic for most non-practicing patentees to start

discussion on all the different remedies available to patentees (including injunctions, lost profits, and reasonable royalties) is relevant.

A. *Injunctions*

Under current law, a non-practicing patentee will likely have difficulty obtaining an injunction in an infringement suit.⁸ Injunctions are a strong expression of a patentee's right to exclude others from use of the patent. Courts may grant a patentee injunctive relief in accordance with principles of equity.⁹ Historically, once a court found a patent valid and infringed, an injunction was almost automatic.¹⁰ In 2006 the Supreme Court rejected use of an automatic injunction rule and held that under well-established principles of equity, courts should use the traditional four-factor test to determine whether to grant an injunction.¹¹ These factors include: (1) whether the patentee has suffered an irreparable injury; (2) whether other remedies are inadequate to compensate for the infringement; (3) whether the balance of hardships in granting the injunction favors the patentee; and (4) whether the public interest would be disserved by an injunction.¹²

The non-practicing patentee will likely have trouble prevailing under the traditional four-factor test. This is mainly because damages should be adequate to compensate the non-practicing patentee under factor two, and the balance of hardships appears to favor the infringer who may have to stop production of the infringing product under factor three.¹³ Unsurprisingly, a denial of injunctions after *eBay* has been strongly correlated with a patentee's failure to practice the patent.¹⁴ Consequently, under current law a non-practicing

practicing their invention, but there may still be limited instances where this could occur.

8. See Petersen, *supra* note 4, at 194 (discussing the strong correlation between a patentee's failing to practice a patent and denial of an injunction after the U.S. Supreme Court rejected use of bright line rules to find injunctions in *eBay, Inc.*, 547 U.S. 388 (2006)).

9. 35 U.S.C. § 284 (2006).

10. See *eBay*, 547 U.S. at 395 (Roberts, J., concurring) (explaining that "[f]rom at least the early 19th century courts have granted injunctive relief upon a finding in the vast majority of patent cases").

11. *eBay*, 547 U.S. at 392.

12. *Id.*

13. Factors one and four also seem to favor the infringer because the non-practicing patentee will not typically experience an irreparable injury and the public may be disserved if the injunction completely removes the patented invention from the marketplace.

14. Petersen, *supra* note 4, at 194.

patentee will typically only be able to seek damages.

B. Damages

Although courts may award damages for patent infringement under different theories, a non-practicing patentee may only seek damages for a reasonable royalty. In a suit for patent infringement, a prevailing plaintiff is awarded damages “adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer.”¹⁵ Damages can be an awarded for: (1) lost profits; (2) an established royalty; or (3) a reasonable royalty.¹⁶ Furthermore, the method of assessing and computing damages under 35 U.S.C. § 284 is within the discretion of the court.¹⁷ Thus, different methods to determine damages are available, and the courts are not necessarily limited by the methods previously used. This wide discretion is a major factor contributing to the unpredictability of determining patent damages.

1. Damages for Lost Profits: Available Only to a Practicing Patentee

If a patentee meets the requirements for a lost profits analysis, then lost profits are used to determine damages if they exceed a reasonable royalty.¹⁸ However, lost profits only apply if the patentee can meet a four-part test: including that the patentee can manufacture and market the invention to meet consumer demand.¹⁹ Since a non-practicing patentee is not a manufacturer and cannot meet the consumer demand, a lost profits analysis does not apply. The benefit of a lost profits determination is that the damages are more predictable than a reasonable royalty because the patentee can point to specific products where profits were lost. The downside is that lost profits are difficult to prove and some practicing patentees

15. 35 U.S.C. § 284 (2006).

16. *See Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1554 (Fed. Cir. 1995) (noting that a patentee is entitled to a reasonable royalty if lost profits cannot be proved and that an established royalty can be used to prove a reasonable royalty).

17. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1310 (Fed. Cir. 2009) (citing *State Indus., Inc. v. Mor-Flo Indus., Inc.* 883 F.2d 1573, 1576-77 (Fed. Cir. 1989)).

18. *See Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1157 (6th Cir.

1978) (“When actual damages, e.g., lost profits, cannot be proved, the patent owner is entitled to a reasonable royalty.”).

19. *See Rite-Hite Corp.*, 56 F.3d at 1545 (citing *Panduit Corp.*, 575 F.2d at 1156) (noting the four-factor Panduit test used to determine if a patentee is entitled to lost profits damages).

prefer seeking a reasonable royalty.²⁰ As discussed below, a reasonable royalty analysis looks at royalties for comparable patents, and what is comparable is subject to considerable discretion.

2. Damages for Established Royalties: Unavailable to a Non-Licensing Patentee

Traditionally, a patentee may recover under an established royalty when the patentee has consistently licensed others to engage in conduct comparable to that of the defendant at a uniform royalty.²¹ However, when a non-practicing patentee has not licensed to anyone, there is no established royalty that can be used. Established royalties are more predictable than reasonable royalties because the patentee can point to specific licenses that license the patent in question. However, established royalties do not necessarily make the determination of the damages easy to predict because there can be numerous differences between the infringing product and the licensed products. Also, an established royalty may only serve as the starting point for determining the reasonable royalty under the hypothetical negotiation method discussed in the next section.²²

3. Damages for Reasonable Royalties: Available to All Patentees

There are two accepted approaches used to determine a reasonable royalty: (1) the analytical method; and (2) the hypothetical negotiation.²³ The analytical method focuses on the infringer's projections of profit for the infringing product.²⁴ Therefore, the analytical method would only apply if the infringer had documents showing projections related to the patented components and the documents could be obtained publicly or

20. See Aron Levko, Chris Barry, Vincent Torres & Robert Marvin, PATENT LITIGATION TRENDS AND THE INCREASING IMPACT OF NONPRACTICING ENTITIES 11 (2009) [hereinafter Levko et al.], available at <http://www.pwc.com/us/en/forensic-services/publications/assets/2009-patent-litigation-study.pdf> (noting that practicing patentees often do not want to disclose proprietary cost and profit information that would be required to be disclosed if they argued for lost profits).

21. Practising Law Institute, *Contemporary Issues in Patent Royalty Damages*, PATENT LAW CENTER BLOG (Oct. 13, 2010, 7:00 PM) <http://patentlawcenter.pli.edu/2010/10/13/contemporary-issues-in-patent-royalty-damages/>.

22. See *Bose Corp. v. JBL, Inc.*, 112 F. Supp. 2d 138, 165 (Fed. Cir. 2001) (explaining that a court first looks to see if there is an established royalty rate when determining a reasonable royalty rate).

23. See *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed. Cir. 2009) (stating that there are several methods to determine a reasonable royalty, but then only mentioning the analytical method and the hypothetical negotiation).

24. *Id.*

through discovery. The analytical method is rarely used likely because such projections are usually not available.

Consequently, a non-practicing patentee who has not licensed the patent is usually left to argue for damages under the hypothetical negotiation approach, which is highly unpredictable, as mentioned above.²⁵ The hypothetical negotiation is the more common approach to finding a reasonable royalty.²⁶ “The hypothetical negotiation or the ‘willing licensor-willing licensee’ approach, attempts to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before infringement began.”²⁷ To determine the reasonable royalty that would have been agreed upon at the hypothetical negotiation, the jury or court often looks to fifteen factors initially laid out in the *Georgia Pacific* case from 1970.²⁸ However, using these fifteen factors does not lead to determining patent damages with any amount of certainty.²⁹ Juries are given little guidance on how to use the

25. See cases cited *supra* note 6 (discussing three reasonable royalty cases where the plaintiff and defendant were arguing for patent damages differing by greater than \$500 million).

26. *Lucent Techs., Inc.*, 580 F.3d at 1324.

27. *Id.* (citing *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970)).

28. *Georgia-Pacific Corp.*, 318 F. Supp. at 1120. The *Georgia Pacific* analysis includes fifteen factors that are to be considered by a fact finder when determining the amount of a reasonable royalty. *Id.* These factors include: (1) royalties received by the patentee for prior licensing of the patent in suit; (2) rates paid by the licensee for the use of other patents similar to the patent in suit; (3) the nature and scope of the license; is it exclusive or non-exclusive or restricted in scope; (4) the licensor’s established policy of maintaining its patent monopoly by not licensing others to use the patent; (5) the commercial relationship between the licensor and licensee, such as, whether they are competitors or inventor and promoter; (6) the effect of the patented element in promoting the sales of other products of the licensee and the value of the invention to the licensor; (7) the duration of the patent term and the term of the license; (8) the established profitability of the product made under the patent; (9) the utility and advantages of the patented product over old modes or devices; (10) the nature of the patented invention and the benefits to those who have used it; (11) the extent to which the infringer has made use of the invention; (12) the portion of the profit or selling price that is customary in the business; (13) the portion of the realizable profit that can be attributed to the patented elements as distinguished from the non-patented elements; (14) the opinion testimony of qualified experts; and (15) the amount that the licensor and a licensee would have agreed upon at the time the infringement began if both had reasonably and voluntarily trying to reach an agreement. *Id.*

29. See Defendant Hewlett-Packard Company’s Proposed Final Jury Instructions, *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279 (N.D.N.Y. 2009) No. 01-CV-1974, 2008 WL 2166594, at *2 (noting the proposed jury instructions from the defendant merely list the factors and say that no one factor is dispositive); see also Merrit J. Hasbrouck, *Protecting the Gates of Reasonable Royalty: A Damages Framework for Patent Infringement Cases*, 11 J. MARSHALL REV. INTELL. PROP. L. 192, 196 (2011) (“There is a general consensus that current law provides juries with

factors.³⁰ The recent over ten-fold disparity between damages awarded by judges and by juries amplifies the unpredictability of reasonable royalty damages.³¹

Overall, the *Georgia Pacific* factors seem like a black box to the reader of a court opinion because the reader can often only see the output from the black box, which is the reasonable royalty damages amount. For example in *Cornell*, the input to the black box is hidden because, without reading the expert testimony, the reader cannot even tell what royalty rates were presented to the jury in the first place.³² The inner-workings of the black box—or how the jury applies the fifteen *Georgia Pacific* factors—also remain a mystery if one only reads the opinion. To provide some level of clarity, Part III of this paper illustrates how an expert witness in *Cornell* suggested the *Georgia Pacific* factors should be applied when the patentee does not practice the patent and there is no established royalty.

C. Apportionment and the Entire Market Value Rule: Damages on Products Containing Patented Components

Whether apportionment or the entire market value rule (EMVR) applies adds another layer of complexity to determining patent damages because courts have not been clear on when or how to apply these rules.³³ If an infringing product contains many patented and unpatented components, then assessing damages on only one patented component can be a very complex task. The general rule is that the patentee must give evidence to apportion the defendant's profits and the patentee's damages between the single patented component and the other features of the product.³⁴ The EMVR is an exception to this apportionment requirement.³⁵ “The EMVR allows a

insufficient information for determining a reasonable royalty.”).

30. See Hasbrouck, *supra* note 29, at 196 (noting that “[o]ften juries are given little guidance in calculating a reasonable royalty amount and are forced to use a confusing list of fifteen *Georgia-Pacific* factors with the expectation that they will calculate a fair damages award”).

31. See Levko et al., *supra* note 20, at 10 (noting how jury awards for patent damages since 2000 have been more than ten times greater than bench awards).

32. See generally *Cornell*, 609 F. Supp. 2d 279.

33. See, e.g., *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1320-21 (Fed. Cir. 2011) (explaining how the lower court initially allowed the plaintiff's expert witness to argue that damages for a patent, which did not drive any demand for Microsoft Windows or Microsoft Office, should be based on the \$19 billion entire market value of revenue from Microsoft Windows and Microsoft Office, followed by the same court instructing the jury not to consider the \$19 billion when making their determination).

34. *Id.* at 1318.

35. *Id.*

patentee to assess damages based on the entire market value of the accused product only where the patented feature creates the basis for customer demand or substantially creates the value of the component parts.”³⁶ Thus, if the patentee can show that either all or a substantial amount of the demand for a product is due to the single patented component, then the patentee may set the royalty base equal to the entire market value of the product.³⁷ The patentee can then apply the royalty rate to this—often much larger—royalty base to collect a much larger reasonable royalty.³⁸

It is unclear how the apportionment and the EMVR specifically fit in to the *Georgia Pacific* factors.³⁹ Analyzing the *Cornell* case in Part II below shows that a non-practicing patentee could argue for application of the EMVR as part of the determination of reasonable royalty damages. This analysis helps to understand how the EMVR can be used in conjunction with the *Georgia Pacific* factors and how this affects the amount of damages. Before moving to Part II, the following section discusses a few EMVR cases to give a clearer picture of when the EMVR should be applied.

D. How Courts Have Applied the Entire Market Value Rule

There are a number of cases, mostly from the Federal Circuit, that address infringing products containing patented components and the use of the EMVR. The cases fit into three categories: (1) the patented component is clearly not the cause for any market demand; (2) the patented component clearly is the cause for market demand; and (3) the patented component likely is the cause for some, but not all of the market demand.

Category one cases, where the patented component is clearly not the cause for market demand, typically pertain to products that contain a multitude of components in areas such as software and electronics. In *Lucent Technologies, Inc.*, the Federal Circuit denied the use of the EMVR because the patented invention formed such a small portion of the overall product.⁴⁰ The patented invention in

36. *Id.*

37. It remains to be seen what level of demand will trigger “substantial demand” and enable application of the EMVR.

38. *See infra* Part II.B, C.

39. *See* Christopher B. Seaman, *Reconsidering the Georgia-Pacific Standard for Reasonable Royalty Patent Damages*, 2010 BYU L. REV. 1661, 1699 n.204 (2010) (claiming that although the *Georgia Pacific* factors do not expressly include the EMVR, factors eight, ten, eleven, and thirteen require some of the same considerations as the EMVR).

40. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1337 (Fed. Cir. 2009).

Lucent was the date-picker function used in software, such as Microsoft Outlook, where a user can enter information by clicking an object on the screen instead of typing the information on the keyboard.⁴¹ The Federal Circuit held that there was insufficient evidence that this single date-picking feature drove any consumer demand.⁴² Similarly, in *Uniloc USA, Inc. v. Microsoft Corp.*, the Federal Circuit again denied use of the EMVR.⁴³ In *Uniloc*, the patented invention was a software registration system where users must register a product key to activate the software.⁴⁴ The Federal Circuit denied the use of the EMVR because allowing consumers to register their software to prevent piracy obviously did not drive any consumer demand.⁴⁵

Category two cases, where the patented component clearly is the cause for market demand, typically pertain to products where the patented component is the one new improvement over long-established prior art. In *Leesona Corp. v. United States*,⁴⁶ the Court of Claims awarded damages based on the entire value of a portable, rechargeable battery system.⁴⁷ The patented component was clearly the cause for market demand because the seller of the infringing batteries could only meet the government specifications for the battery by using the plaintiff's patented invention.⁴⁸ These types of cases are rare in today's world because products typically contain numerous patented inventions and the market demand could often be due to other factors such as marketing or the reputation of the seller.

Category three cases, where the patented component likely is the cause for some, but not all, of the market demand is where application of the EMVR becomes more complex. Such components are often found in products sold in the computer and electronics industries. In *Bose Corp. v. JBL, Inc.*,⁴⁹ the Federal Circuit affirmed application of the EMVR because the patented elliptical port tube was integral to the overall performance of the speakers and contributed substantially to the market demand for the products

41. *Id.* at 1308.

42. *Id.* at 1337-38.

43. *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1321 (Fed. Cir. 2011).

44. *Id.* at 1296.

45. *Id.* at 1320. Despite the court's ruling, it does seem that *Uniloc's* invention did drive substantial demand because many users likely only bought the software because they could not simply install an illegal copy.

46. 599 F.2d 958 (Ct. Cl. 1979).

47. *Id.* at 974-75.

48. *Id.* at 975.

49. 274 F.3d 1354, 1361 (Fed. Cir. 2001).

incorporating the port tube.⁵⁰ Importantly, the court noted that the defendant's marketing executive acknowledged that improved bass performance was a requirement to manufacture the infringing device.⁵¹ In *Cornell University v. Hewlett-Packard*, discussed in detail below, Judge Rader of the Federal Circuit—sitting by designation in the district court—rejected application of the EMVR to the servers and workstations that HP sold.⁵² This rejection occurred despite evidence that the patented component contributed to the overall performance.⁵³ Thus, a contribution to the overall performance of a product seems to be a requirement to apply the EMVR to that product, but it remains unclear what degree of that contribution will be deemed sufficiently “substantial” to apply the EMVR. Because of the complexity of determining reasonable royalty damages and because the patented invention in *Cornell* is typical of many of today's products, this case is investigated further to see specifically how the reasonable royalty damages were determined in that case.

II. CALCULATION OF REASONABLE ROYALTIES IN THE CORNELL UNIVERSITY V. HEWLETT-PACKARD CASE

The actual calculation of a reasonable royalty requires determination of two separate quantities: (1) a royalty base, which is the revenue pool implicated by the infringement; and (2) a royalty rate, which is the percentage of that revenue pool adequate to compensate the plaintiff for that infringement.⁵⁴ As discussed below, the *Georgia Pacific* factors are often used to determine the royalty rate and royalty base. The royalty base and royalty rate are then multiplied together to find the reasonable royalty.⁵⁵ However, the reasonable royalty calculations offered by Hewlett-Packard's expert witness in *Cornell* show that the formula in the preceding sentence could be altered.⁵⁶ Although a precise method for determining a reasonable royalty eludes us, the background, expert witness testimony, and the eventual resulting damages from *Cornell* provide

50. *Id.* at 1361.

51. *Id.*

52. *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279, 287 (N.D.N.Y. 2009).

53. *Id.* at 283.

54. *Id.* at 286.

55. *See* District Court Ruling to partially exclude expert testimony of Plaintiff Cornell Univ., *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279 (N.D.N.Y. 2009) No. 01-CV-1974, 2008 WL 2222189, at *1 (noting that once the royalty rate and the royalty base have been set, then the calculation of a reasonable royalty is “straightforward multiplication exercise”).

56. *See infra* notes 62-70 and accompanying text.

an example of the wide discretion permitted in calculating a reasonable royalty under current law.

A. Background of the Cornell University v. Hewlett-Packard case

Cornell University's invention, the '115 patent, allows processors to complete multiple, non-dependent instructions per clock cycle.⁵⁷ Physically, the '115 patent claims an invention that is a component of an instruction reorder buffer (IRB).⁵⁸ The IRB is a component of a processor, and the processor a component of a CPU brick.⁵⁹ The CPU brick is a component of the infringing servers and workstations that Hewlett-Packard (HP) sold.⁶⁰ Although the majority of the infringement was from the server and workstation sales, HP also sold a much smaller number of stand-alone processors that also infringed.⁶¹

B. Hewlett-Packard's Method of Calculating a Reasonable Royalty

To calculate the reasonable royalty, HP's expert witness used three factors: a royalty rate; a royalty base; and a cost percentage.⁶² There is no evidence that this different method of calculating a reasonable royalty (i.e., using a cost percentage) was rejected by the court. HP used a standard eight percent royalty rate for all of its calculations.⁶³ HP did the calculations using a roughly \$5.7 billion royalty base⁶⁴ for the processors and a roughly \$23 billion royalty base for the CPU bricks.⁶⁵ The cost percentage factor was set by dividing the cost of the infringing circuitry die area over the total cost of a processor.⁶⁶ For one processor model in the \$5.7 billion processor royalty base, HP's expert witness determined the following: (a) the total die cost was \$353; (b) the accused circuitry was 3.2% of the total die area; (c) the

57. *Cornell*, 609 F. Supp. 2d at 283. The full patent number for the Cornell invention is U.S. Patent Number 4,807,115.

58. *Id.*

59. *Id.*

60. *Id.*

61. *Id.*

62. Expert Witness Testimony for Defendant Hewlett-Packard Co. at 12, *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279 (N.D.N.Y. 2009) No. 01-CV-1974, 2001 WL 36251280.

63. *Id.* It is unclear why HP used the eight percent for all of its calculations, but is likely that HP was using eight percent because HP's reasonable royalty calculation depended more heavily on how much physical area that the invention took up on the chip.

64. *Id.* at 10. Although HP argued for a \$5.7 billion processor royalty base, the court determined that it should be \$6.7 billion.

65. *Id.*

66. *Id.* at 16.

total processor cost was \$600; and (d) the cost percentage of the infringing circuitry was found to be 1.89%.⁶⁷ Due to varying cost percentages on different models of processors, HP's expert witness calculated an overall reasonable royalty of \$5.3 – 7.15 million.⁶⁸ When HP's expert witness ran the calculations for the \$23 billion CPU brick royalty base, the reasonable royalty was calculated to be \$7.67 million.⁶⁹ Thus, HP basically claimed that although the \$23 billion royalty base is three to four times larger, the cost percentage is three to four times smaller because the invention is a smaller portion of the larger CPU brick royalty base. It is noteworthy that the *Georgia Pacific* factors are not even mentioned in these calculations performed by HP's expert witness.⁷⁰

C. Cornell University's Method of Calculating a Reasonable Royalty

Cornell's expert witness used the customary path to calculate the reasonable royalty by multiplying the royalty rate by the royalty base.⁷¹ A royalty database was used to take an average of around twenty-three comparable royalty rates in the semiconductor chip and integrated circuit industries.⁷² The median royalty rate of the comparable royalties was three percent, so this was used as the starting point for the hypothetical negotiation.⁷³

This three percent starting point was then adjusted by the *Georgia Pacific* factors.⁷⁴ Factor one did not apply⁷⁵ because although Cornell

67. *Id.* 1.89% was calculated from the following. Die cost of the accused circuitry is $\$353 * 3.2\% = \11.30 . Cost percentage of the infringing circuitry relative to the total processor cost is $\$11.30/\$600 = 1.89\%$.

68. *Id.* There was a range because HP was also going to argue that there was an implied license from IBM on some of the processors. If the 1.89% was used for the whole \$5.7 billion royalty base, then the reasonable royalty would have been \$8.6 million ($\$5.7 \text{ billion} * 8\% * 1.89\% = \8.6 million).

69. *Id.* at 21.

70. *Id.* Since the jurors are instructed to use the *Georgia Pacific* factors, this may be one reason why the jury awarded the plaintiff damages of \$184 million instead of the roughly \$5-7 million HP was seeking. See *Cornell*, 609 F. Supp. 2d at 282 (noting that the jury returned damages of \$184 million).

71. Expert Witness Testimony for Plaintiff Cornell Univ., *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279 (N.D.N.Y. 2009) No. 01-CV-1974, 2008 WL 7928076.

72. See *id.* at 46-51 (noting that a database known as RoyaltySource was used to compile thirty-six different patent licenses and then the thirty-six was reduced to twenty-three because the defendant objected to thirteen of the royalty rates that resulted from litigation or that were not from arm's length negotiations).

73. *Id.* at 48-49, 52-53. This section discusses crucial pieces of information that were only available in the expert testimony and not in any of the leading court opinions on reasonable royalty damages, which is why the expert testimony was critical to understanding how reasonable royalties are actually being determined.

74. See *supra* note 28 for a list of all fifteen of the *Georgia Pacific* factors.

had licensed the invention to Intel, Cornell may not have been receiving royalties.⁷⁶ Factor two looked at three royalties paid by HP, and since the average of these three royalties was lower than three percent, this was counted as a negative factor.⁷⁷ Factors four and five were viewed as negative factors because Cornell was not practicing its invention and did not want to keep the patent for a competitive edge.⁷⁸ Factor seven was viewed as a “modest” negative factor because the patent term was about halfway over.⁷⁹ Factor eight was viewed as a strong positive factor because of the profitability of the HP products containing the invention.⁸⁰ Factors nine, ten, and eleven were all viewed as strongly positive factors because those factors all related to the advantages of the invention, and this invention had the demonstrated advantage of making the processors faster.⁸¹ Factor thirteen was viewed as an important negative factor because Cornell admitted that there was no doubt that HP’s brand name, reputation, and other technical features in the product contributed to the success of the infringing products.⁸² A few other factors were not mentioned. Cornell’s expert witness looked at the four positive factors and the five negative factors and concluded that this creates a “negative tilt,” which should result in the three percent royalty rate being lowered to 2.5%.⁸³ The process described here is possibly similar to how a jury uses the *Georgia Pacific* factors. Negative factors cancel out positive factors for the most part, and any remaining factors adjust the starting point by some kind of guess, which was 0.5% here.

Cornell’s expert originally wanted to argue that the appropriate royalty base should be the revenue from the servers and workstations for two reasons.⁸⁴ First, the twenty-three licensing agreements and the three HP licensing agreements were structured on sales of entire systems like a server or workstation.⁸⁵ Second, the server and

75. Expert Witness Testimony for Plaintiff Cornell Univ., *supra* note 71, at 53.

76. *See* Cornell Univ. v. Hewlett-Packard Co., 609 F. Supp. 2d 270, 291 (N.D.N.Y. 2009) (noting that Cornell had expressly granted Intel a license, but not mentioning whether there was a royalty associated with the licensing agreement).

77. *See* Expert Witness Testimony for Plaintiff Cornell Univ., *supra* note 71, at 53 (noting that there were only three available licenses because the rest of HP’s licenses were cross licenses where no money was changing hands).

78. *Id.* at 55-56.

79. *Id.* at 56.

80. *Id.* at 57.

81. *Id.*

82. *Id.* at 58.

83. *Id.* at 59.

84. *Id.* at 60.

85. *Id.*

workstations sales were the only sales that represented a true market.⁸⁶ However, after a Daubert hearing, Judge Rader precluded Cornell from arguing that the royalty base should be the servers and workstations because Cornell could not draw any connection between the market for the servers and workstations and the patented invention.⁸⁷

Cornell's expert witness ended up arguing that the \$23 billion of estimated revenue from the CPU bricks could be used as an alternative royalty base, but that this should be the minimum royalty base used.⁸⁸ Applying the \$23 billion royalty base to the 2.5% royalty rate yielded a minimum reasonable royalty of \$575 million.⁸⁹

D. The Holding in Cornell

The jury awarded Cornell \$184 million in damages after applying a royalty rate of 0.8% to the CPU brick royalty base of \$23 billion.⁹⁰ It is unclear how the jury determined the royalty rate to be 0.8%.⁹¹ HP moved for judgment as a matter of law that the \$23 billion royalty base was wrong.⁹² In response, Judge Rader concluded the damages were grossly excessive due to the jury's use of the \$23 billion royalty base.⁹³ He determined that the \$6.7 billion processor royalty base was proper, but did not adjust the royalty rate.⁹⁴ The potential for juries to use a grossly excessive royalty base adds to the unpredictability of reasonable royalty damages. This contributes to litigation and appeals while preventing settlements.

Although Judge Rader did make it clear that the evidence did not support use of the EMVR to the \$23 billion royalty base of the CPU bricks,⁹⁵ the holding in effect incorrectly applies the EMVR to the

86. *Id.*

87. *See* District Court Ruling to partially exclude expert testimony of Plaintiff Cornell Univ., *supra* note 55 at *3 (concluding that Cornell only showed that consumers opted for better performance and that the invention here was one of several components that added to performance, and that this was insufficient to justify using the server and workstation revenue as the royalty base).

88. Expert Witness Testimony for Plaintiff Cornell Univ., *supra* note 71, at 65.

89. *Id.*

90. Cornell Univ. v. Hewlett-Packard Co., 609 F. Supp. 2d 270, 282 (N.D.N.Y. 2009).

91. *See supra* note 70. The *Georgia Pacific* factors were in the jury instructions. The jury probably started with a comparable royalty rate, listed the positive and negative factors, and then made some kind of guess to adjust the starting point royalty rate based on the excess of positive factors over negative factors or vice versa.

92. *Cornell*, 609 F. Supp. 2d at 282.

93. *Id.* at 292.

94. *Id.* Judge Rader held that the substantial evidence did support the royalty rate of 0.8%. *Id.* at 293.

95. *Id.* at 292. (citing Cornell Univ. v. Hewlett Packard Co., 609 F. Supp. 2d 279

\$6.7 billion processor royalty base. Judge Rader rejected application of the EMVR to the \$23 billion CPU brick royalty base because (1) the patented invention was only one of several components that contributed to performance of the CPU brick and (2) because Cornell did not offer any demand curves to show the relationship between the patented invention and demand for HP's products containing the patented invention.⁹⁶

However, there were also no demand curves for the processors. This makes it unclear why apportionment of the \$6.7 billion royalty base was not required. It is likely because HP's brief for judgment as a matter of law after the trial only argued for lowering the royalty base to the \$6.7 billion processor royalty base.⁹⁷ After lowering the royalty base to \$6.7 billion, Judge Rader likely determined the damages were no longer grossly excessive. However, this does not seem sufficient to completely bypass what is supposed to be an apportionment requirement. In the end, the resulting damages seem as arbitrary as throwing a dart somewhere between a high and low number, and the damages would likely come out significantly different if the same case were tried again.

E. The Takeaway from Cornell

The main takeaway from *Cornell* is that the plaintiffs should continue to aim as high as possible and the defendants should continue to aim as low as possible, regardless if there is a lack of logic to their arguments. For example, despite stopping the trial to conduct a Daubert hearing, in which the court excluded the \$36 billion server and workstation royalty base because it was not supported by any substantial evidence, the court then decided to allow other theories to calculate damages that had just as questionable evidentiary support.⁹⁸ The jury showed this "aim as high as possible" approach was at least temporarily successful when the jury used this \$23 billion royalty base for its calculations.⁹⁹ If Cornell did not have enough evidence to argue that the proper royalty base was the servers and workstations, then how did Cornell have enough evidence to argue that the CPU bricks should be the proper royalty

(N.D.N.Y. 2009) No. 01-CV-1974, 2008 WL 2222189).

96. *Id.* at 284.

97. *See* Reply Brief for Defendant Hewlett-Packard Co. in Support of Judgment as a Matter Of Law that Proper Royalty Base was the Processor Sales, *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279 (N.D.N.Y. 2009) No. 501-CV-1974, 2008 WL 4345825 at *8-9.

98. *Cornell*, 609 F. Supp. 2d at 283-284.

99. *Id.* at 282.

base when there was no evidence specific to the CPU bricks?¹⁰⁰

As for HP aiming as low as possible with its questionable royalty calculation, there did not appear to be any evidence that any patentees were licensing their inventions for royalty rates that depended on what percentage of the semiconductor chip their invention physically covered.¹⁰¹ One could conclude from common sense that the value of an invention should not depend on the physical size or manufacturing cost. Many valuable inventions are quite inexpensive to produce once the process to manufacture them is known.¹⁰² HP's cost percentage theory allowed HP to argue the damages should be as low as \$5.3 million on the \$5.7 billion processor royalty base,¹⁰³ which gives an effective royalty rate of 0.093%.¹⁰⁴ This scheme was HP's successful attempt at aiming as low as possible. It is clear that it was successful because HP only challenged the royalty base and not the royalty rate used by the jury when HP filed its post-verdict motion for judgment as a matter of law on the damages.¹⁰⁵

The second takeaway from *Cornell* is that the jury's method of using the *Georgia Pacific* factors likely only amounts to picking some royalty rate in between the rates proposed by the parties. How did the jury arrive at the 0.8% royalty rate? Cornell's expert conceded that the royalty rate should be adjusted down to 2.5% from its three percent starting point due to more negative factors than positive factors,¹⁰⁶ so this likely set the upper limit for the jury. As noted in the paragraph directly above, HP's expert witness presented that the damages should be as low as \$5.3 million, which gave an effective royalty rate of 0.093%.¹⁰⁷ In the end, the jury likely did the best they

100. The CPU bricks were not sold, so there was no market for them to connect any demand. *Id.* at 287.

101. Cornell's expert witness noted that these types of cost-based deals are only used for development agreements—where a seller outsources its manufacturing—and not where an independent patentee is negotiating with a licensee. Expert Witness Testimony for Plaintiff Cornell Univ., *supra* note 71, at 34.

102. For an extreme example, consider an invention that is reduced to software code. Development costs for software may be high, but the cost of copying or “manufacturing” the code is very low.

103. Expert Witness Testimony for Defendant Hewlett-Packard Co., *supra* note 62, at 18. Although HP argued for a \$5.7 billion processor royalty base, it ended up being \$6.7 billion. *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279, 292 (N.D.N.Y. 2009).

104. Royalty Rate = Royalty Damages/Royalty Base.

105. See Reply Brief for Defendant Hewlett-Packard Co., *supra* note 97, at 7 (showing how HP only argued that the royalty base used by the jury was wrong, but not that the royalty rate used by the jury was wrong).

106. Expert Witness Testimony for Plaintiff Cornell Univ., *supra* note 71, at 59.

107. See *supra* notes 103-104 and accompanying text.

could to split the difference of 2.5% and 0.093% and landed at 0.8%. If juries largely end up splitting the difference, then parties are justified in aiming as high and as low as possible with their arguments, which, as stated above, is the main takeaway from the case.

The third takeaway from *Cornell* is that the opinion creates as many questions as answers for application of the EMVR. Does Judge Rader's holding mean that Cornell provided enough evidence to support applying the EMVR to the \$6.7 billion processor royalty base, or does the opinion just mean that the damages were not grossly excessive after the royalty base was lowered from \$23 billion to \$6.7 billion? If the evidence did support the application of the EMVR, then what was that specific evidence? If the evidence did not support application of the EMVR, then why was apportionment of the royalty base not required? Judge Rader's opinion discloses that this issue was never even settled.

For example, in this case, application of entire market value rule *might* enable Cornell to obtain royalties not only on the claimed features of the IRB but also on sales of processors which includes features beyond the scope of the claimed invention.¹⁰⁸

This does show that Cornell would have at least had a decent chance at applying the EMVR to the processor royalty base.

The argument could be made that the *Cornell* opinion did possibly manage to lower the upper limit that plaintiffs will likely argue for cases, where the patented component is only one of many factors that contribute to market demand. This is because judges will likely begin to require substantial support before such evidence is presented to the jury. On the other hand, if defendants continue to argue for the lowest possible royalty with questionable theories, such as calculations based on the physical size of the invention, then it may still be in the plaintiff's best interest to match that with arguments for the highest possible royalty. This is because as the trial ends, the high and low are presented to the jury, who is left to wrestle with the *Georgia Pacific* factors to split the difference. Due to the complexity of applying reasonable royalty rules and the illogical arguments allowed in the *Cornell* case and similar cases,¹⁰⁹ more structure is needed in

108. *Cornell Univ.*, 609 F. Supp. at 286 (emphasis added).

109. *See, e.g., Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1318, 1319 (Fed. Cir. 2011) (explaining how the lower court initially allowed the plaintiff's expert witness to argue that damages for a patent, which did not drive any demand for Microsoft

determining reasonable royalties. Before moving on to discussing the solution this Article proposes, it is worth examining some of the other proposals that have been made to address the problems in determining reasonable royalty damages.

III. CURRENT PROPOSALS IMPROVE THE DETERMINATION OF REASONABLE ROYALTY DAMAGES, BUT FAIL TO PROVIDE A SOLUTION

Numerous verdicts exceeding \$100 million in reasonable royalty cases have made the proper determination of reasonable royalties a popular topic.¹¹⁰ As discussed in this Part, various reasonable royalty articles have been written offering different proposals to improve the process. Two approaches,¹¹¹ the “Gatekeeper Approach”¹¹² and the

Windows or Microsoft Office, should be based on the \$19 billion entire market value of revenue from Microsoft Windows and Microsoft Office); *Lucent Techs., Inc. v. Gateway Inc.*, 580 F.3d 1301, 1337 (Fed. Cir. 2009) (showing how Lucent was able to present that damages for its date-picker patent should be based off the entire market value of Microsoft Outlook when Lucent did not present any evidence that the patent drove any substantial amount of demand).

110. See Christopher B. Seaman, *Reconsidering the Georgia-Pacific Standard for Reasonable Royalty Patent Damages*, 2010 B.Y.U.L. REV. 1661, 1663-65 (2010) (listing ten different verdicts for reasonable royalty damages in excess of \$100 million between the years of 2007 through 2009).

111. The next two paragraphs introduce the Gatekeeper Approach and the Structured Georgia Pacific Approach. Other proposals have been made, but those approaches likely have limited application or do not appear to clearly improve the process. See, e.g., Seaman, *supra* note 39, at 1667 (proposing that a reasonable royalty for patent infringement should not exceed the accused infringer’s expected costs of adopting an acceptable non-infringing substitute). The key issue is determining if an acceptable non-infringing substitute exists. Using the cost of a non-infringing substitute as a method to calculate a reasonable royalty does appear to be much better than using the *Georgia Pacific* factors when the non-infringing substitute is a true substitute. See, e.g., *id.* at 1714 (citing *Riles v. Shell Exploration & Prod. Co.*, 298 F.3d 1302 (Fed. Cir. 2002)) (describing how the Federal Circuit vacated a reasonable royalty damages award for the infringement of a method to anchor an oil rig because the patentee’s expert witness did not consider how much it would have cost the infringer to use a non-infringing alternative to anchor the same oil rig). This may be a proper analysis when the patent is a method of anchoring an oil rig and there is an alternative non-infringing method that accomplishes the same result (i.e., a true substitute). It may be more difficult to apply this theory to many of today’s products that can contain a multitude of patented components. See, e.g., Seaman, *supra* note 39, at 1717 (describing how this same theory could be used to determine a reasonable royalty for an iPhone 4 by assuming it could be substituted with earlier versions of the iPhone). A comparison between products containing a multitude of patents, such as cell phones, does not seem to help to value one patent on the infringing cell phone, which is what would need to be done in a reasonable royalty case. Using a license of a non-infringing substitute for the infringing patent would help though, but this is essentially what expert witnesses already do when making claims about comparable licenses. See *supra* notes 72-73 and accompanying text (noting that Cornell’s expert witness used a royalty database to take an average of around twenty-three comparable royalty rates). Despite that this essentially already exists, it does seem obvious that more weight should be given to a license for

“Structured Georgia Pacific Approach”,¹¹³ have identified clear areas for improving the determination of a reasonable royalty. However, these two approaches fall short of the solution that is needed.

One clear area of improvement is prohibiting patentees from presenting evidence on royalty bases or royalty rates that have no evidentiary support. To accomplish this, various articles have advocated for stronger rules requiring or encouraging judges to act as gatekeepers (the “Gatekeeper Approach”) by using Daubert hearings in order to exclude or limit damages evidence that lacks support, such as questionable royalty bases.¹¹⁴ In *Cornell*, Judge Rader acted as a gatekeeper by using a Daubert hearing to prevent the plaintiff from arguing that the \$36 billion in revenue from the server sales should be the proper royalty base.¹¹⁵ Using a Daubert hearing to screen out unreasonable royalty bases can substantially improve the determination of a reasonable royalty by considerably reducing the upper limit of what the plaintiff can credibly request for damages. Similar benefits would be achieved through excluding royalty rates that have no evidentiary support.¹¹⁶ This significantly and appropriately narrows the range of damages that the opposing parties can request and thus improves the reasonable royalty determination.

On the other hand, this is not a solution to determine reasonable royalties because it likely only results in removing the arguments that clearly lack support.¹¹⁷ If the court does limit evidence through

a non-infringing substitute than simply a comparable license, but the big question is if that license exists. Thus, this approach seems to have limited application to cases such as the oil rig patent, or it does not seem to make much of an improvement in cases such as valuing a patent on a cell phone.

112. See *infra* notes 114-18 and accompanying text.

113. See *infra* notes 119-23 and accompanying text.

114. See, e.g., Hasbrouck, *supra* note 29, at 215 (stating that Congress should require courts to conduct thorough Daubert hearings in reasonable royalty cases and noting that although judges are currently permitted to exclude evidence in Daubert hearings, actual exclusions are rare); Bo Zeng, Lucent v. Gateway: *Putting the Reasonable Back into Reasonable Royalties*, 26 BERKELEY TECH. L.J. 329, 358-360 (2011) (discussing how Daubert hearings are rarely conducted despite numerous cases where the parties should have challenged the admissibility of the expert testimony).

115. See *Cornell Univ. v. Hewlett-Packard Co.*, 609 F.Supp.2d 279, 287 (N.D.N.Y. 2009) (discussing how the court conducted a Daubert hearing to exclude the server royalty base).

116. See, e.g., Hasbrouck, *supra* note 29, at 214 (stating that only royalty rates for comparable licenses should be allowed to be presented by the parties in a reasonable royalty case).

117. See, e.g., *Cornell*, 609 F. Supp. 2d at 284 (showing how the court conducted a Daubert hearing to exclude the server royalty base that clearly lacked support, but then allowed Cornell to use the CPU brick revenue estimates as the royalty base,

Daubert hearings, the parties will likely react by making the most widely varying arguments still available to them. For example, after the court conducted a Daubert hearing in *Cornell* to exclude the server royalty base, Cornell simply responded by using the CPU brick sales as the royalty base¹¹⁸ even though that evidentiary support was as weak as the support for using the server sales as the royalty base. Despite this shortcoming, this improvement should be utilized in any reform made to determine reasonable royalties. Consequently, this Gatekeeper Approach is included in the proposal this Article makes for determining a reasonable royalty discussed below in Part IV.

Another area needing improvement is the lack of direction given to juries on applying the *Georgia Pacific* factors. Today's juries are simply given a list of the fifteen *Georgia Pacific* factors and instructed to apply the factors to the evidence without any other direction.¹¹⁹ One proposal recognizes this problem and recommends improving the determination of a reasonable royalty by requiring a structured approach to using the *Georgia Pacific* factors (the "Structured Georgia Pacific Approach").¹²⁰ This Structured *Georgia Pacific* Approach proposes that a reasonable royalty can be determined by placing *Georgia Pacific* factors one through thirteen¹²¹ into four separate categories and using each category and its factors to answer one of four relevant questions.¹²² It proposes that the expert witnesses

which also lacked support).

118. *Cornell*, 609 F. Supp. 2d at 284.

119. See, e.g., Final Jury Instructions at 55-56, *Apple Inc. v. Samsung Electronics Co., Ltd.*, No. 11-CV-01846-LHK (N.D. Cal. Aug. 12, 2012), 2012 WL 3568795 (showing that jury instruction forty-one out of eighty-four simply lists all fifteen *Georgia Pacific* factors and that instruction forty-one simply ends with "[i]t is up to you, based on the evidence, to decide what type of royalty is appropriate in this case"). No other direction on how to use the *Georgia Pacific* factors is given. *Id.*

120. See Daralyn J. Durie & Mark A. Lemley, *A Structured Approach to Calculating Reasonable Royalties*, 14 LEWIS & CLARK L. REV. 627, 636-643 (2010) (suggesting that juries are overwhelmed by simply being handed the list of *Georgia Pacific* factors and that juries clearly need some direction on how to use the factors since some of the factors may be "irrelevant, overlapping, or even contradictory").

121. See *id.* at 643 (explaining that factors fourteen and fifteen are "not really factors to be weighed at all"). Factor fourteen, the opinion testimony of qualified experts is simply the source of most of the evidence to be used on the other factors. *Id.* Factor fifteen, which describes the hypothetical negotiation between a willing licensor and willing licensee, "represents the ultimate question all of the other factors are trying to establish." *Id.*

122. See *id.* at 635 (listing the four relevant questions to be considered). The relevant questions are: "(1) whether the patentee in fact produces a product in the market; (2) the contribution made by the patented technology compared to the next best alternative; (3) the number and importance of other inputs necessary to make that technology work; and (4) evidence of how the market has actually valued the patent to the extent it differs from the outcome of (1), (2), and (3)." *Id.*

should be limited to presenting evidence that answers these four questions instead of being able to explain what the output of applying the *Georgia Pacific* factors should be.¹²³ This approach further recommends the use of special verdict forms, so there can be meaningful judicial review of the jury's findings on damages.¹²⁴

The advantages of this Structured *Georgia Pacific* Approach include: (1) the transformation of the confusing list of factors into a series of four straightforward questions; (2) the transparency that is provided by using a structured approach and special verdict forms; and (3) the potential for meaningful judicial review that is possible with the new-found transparency.¹²⁵ The benefits of this approach are clear and the changes, such as clearer jury instructions and use of special verdict forms, do not appear difficult to implement. Thus, this approach should be undertaken as a minimum to improve the determination of reasonable royalty damages when applying the *Georgia Pacific* factors. The problem with this approach is that it only takes effect after the parties attempt to argue for damages as far apart as possible, and the Structured *Georgia Pacific* Approach may not be enough to produce a reasonable royalty if future parties remain as successful as parties have been in the past in presenting extremely large ranges to the jury.¹²⁶

Although the Gatekeeper Approach and the Structured *Georgia Pacific* Approach would both improve the process of determining a reasonable royalty, both fail to address the main problem, which makes reasonable royalty determination so unpredictable. This problem is simple. Patents are difficult to value.¹²⁷ When a third party decision-maker, such as a jury, cannot accurately assess value, the decision-maker often splits the difference as a compromise. If a litigating party knows that the decision-maker is simply going to split the difference, then that party has the incentive to argue for damages as far away from their opposing party as possible.¹²⁸ This tactic allows

123. *Id.* at 643. See *supra* note 81 and accompanying text for an example where Cornell's expert witness explained that the output of applying the *Georgia Pacific* factors should be a royalty rate of 2.5%.

124. Durie & Lemley, *supra* note 120, at 643.

125. See *id.* at 642-44 (explaining the advantages of the proposed structured approach).

126. See cases cited *supra* note 6 and accompanying text (listing three cases having a range of damages given to the jury of at least \$500 million).

127. See *id.* (noting three cases having a range of damages given to the jury of at least \$500 million, which certainly implies that the patents in those cases were difficult to value).

128. See Durie & Lemley, *supra* note 120, at 628-29 (noting that the plaintiff has incentive to "shoot for the moon" when the jury has "virtual carte blanche to pick a

the party to skew the midpoint of the resulting split to their side as much as possible. This misaligned incentive is the root cause of the unpredictability in patent damages and it must be addressed.

The solution is also simple. The incentive for parties to make the most widely varying damages arguments possible must be replaced with an incentive to make the most reasonable argument for damages. This could be accomplished by requiring the jury to choose the more reasonable of the proposed royalty rates as the basis for determining the reasonable royalty. In Part IV, this new incentive is used with some other proposals, including the Gatekeeper Approach, to illustrate how the range of damages argued by the parties in *Cornell* could have been dramatically reduced from a factor of 100 to a factor of 2.5.

IV. ADDRESSING REASONABLE ROYALTY UNCERTAINTY BY REQUIRING MORE STRUCTURE AND CHANGING INCENTIVES

To address the current unpredictability in determining reasonable royalty damages, this article proposes a new structured approach. This structure is needed to reduce the incentives opposing parties have to make the most widely varying arguments for damages possible, and to give non-practicing patentees incentives to make a good faith attempt to license their patent. A six-step procedure is proposed to accomplish these goals. Overall, the reasonable royalty will be calculated by multiplying a royalty base by a royalty rate.

A. Setting the Royalty Base: Evidence Required for the Entire Market Value Rule

In step one, the royalty base is determined, and it is generally limited to the revenue from smallest salable component containing the patented invention unless the patentee can show the EMVR is applicable to a larger component or product. To show the EMVR is applicable, the patentee must present evidence from market surveys or make it abundantly clear that demand was due to the patented component. The surveys must conclusively show that the entire market value of the product or component is attributed to the patented invention.

In the absence of market surveys, the patentee must have strong evidence to make it abundantly clear that the patented component drove demand. This strong evidence will likely only be met in cases

such as *Leesona*,¹²⁹ where the patented component was the only way to meet the buyer's specifications, or in cases such as *Bose*,¹³⁰ where the evidence is so strong, even the defendant admits the patented component is integral to the performance of the overall product.

Furthermore, in jury cases, courts should be required to conduct Daubert hearings to screen out royalty bases and royalty rates that lack evidentiary support (i.e., the Gatekeeper Approach).¹³¹ Proposals for stronger rules to require or encourage the use of Daubert hearings are discussed in numerous articles.¹³² As stated above parties should only be able to argue for application of the EMVR by presenting evidence from market surveys or by making it abundantly clear that demand was due to the patented component. If Daubert hearings were required using these rules, this would limit the occurrences of arguments for application of the EMVR when there is no evidence to support it.

The rules from this step would have prevented Cornell from arguing that the royalty base should have been the \$23 billion CPU brick royalty base because there were no market surveys or any evidence that would make it abundantly clear that the demand was due to Cornell's patented component. Consequently, Cornell would have been left with a royalty base of the smallest salable component, the \$6.7 billion processor royalty base. As you can see, this requirement alone would have reduced the range of damages by more than a third of what they were without the requirement.¹³³ Applying step one, the range of damages argued by the parties, which started at \$5.7 million to \$575 million,¹³⁴ is now reduced to \$5.7 million to \$167.5 million.¹³⁵ Thus, we are on our way to making reasonable royalty damages more predictable.

129. *Leesona Corp. v. United States*, 599 F.2d 958 (Ct. Cl. 1979). *See supra*, Part I.D (discussing "category two" cases where the patented component is clearly the cause for market demand).

130. *Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1361 (Fed. Cir. 2001). *See supra* Part I.D (discussing "category three" cases where the patented component is likely the cause for some of the market demand).

131. *See Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279, 287 (discussing how the court conducted a Daubert hearing to exclude the server royalty base and then implied that the CPU brick royalty base should have also been excluded).

132. *See supra* note 114 and accompanying text.

133. \$23 billion is 3.43 times larger than 6.7 billion. And since there is a direct relationship between royalty base and royalty damages under the procedure proposed here, the range of damages are cut by more than a third.

134. *See supra* Part II.B-C (showing the original arguments for damages offered by HP and Cornell).

135. HP's calculation is unaffected by step one, but Cornell's reasonable royalty now has an upper limit of \$6.7 billion * 2.5% = \$167.5 million.

B. Setting the Royalty Rate: Reasonableness Required

In step two, the parties are required to present evidence on what they believe the royalty rate should be by providing examples of royalty rates for licensing of similar patents or any existing exemplar licenses of the same patent. The parties cannot start by picking a random rate out of thin air as HP did by starting with a “standard eight percent,” and then apply that random number to a new theory, such as cost percentage¹³⁶ to create an effective royalty rate of 0.093%.¹³⁷ The parties are required to make reasonable adjustments to their royalty rate using the *Georgia Pacific* factors.

Also, parties must include in their explanation of a similar royalty rate, the number of patents on the product that was the royalty base for that similar royalty rate.¹³⁸ This normalizes the royalty rates because applying a three percent royalty rate on a product containing ten patents to a different product containing 100 patents is not really comparable. The defendant will have the burden to show the number of patents on the product or component that was determined to be the royalty base in step one. The defendant is given this burden because, as the manufacturer or seller of the infringing product or component, it should have superior knowledge as to the number of patents on that product or component. Additionally, the defendant also has the incentive to identify a larger number of patents on that product or component.

In step three, the jury must pick either the plaintiff’s royalty rate or the defendant’s royalty rate as a starting point. The jury may not simply pick some middle ground. This requirement replaces the incentive for the parties to argue as high and low as possible with an incentive to make an argument that is more reasonable than the opposing party. The jury is required to consider the *Georgia Pacific* factors to determine which party’s royalty rate is more reasonable. This incentive for reasonableness should greatly narrow the range of

136. See *supra* Part II.B (discussing HP’s cost percentage theory, which concludes that the value of a patent on a processor should be based on the ratio of the cost of the infringing circuitry die area over the cost of the whole processor).

137. See *supra* Part II.E (explaining how reasonable royalty damages of \$5.3 million on a \$5.7 billion processor royalty base gives an effective royalty rate of 0.093%).

138. If obtaining data on the number of patents used on similar products proves too costly, then it is possible that some industry averages could be applied. For example, if an expert witness in a case similar to *Cornell* was presenting evidence on a royalty rate applied to a processor used on a Dell server, but the number of patents used in the design of the Dell server was unknown, then the expert witness could present evidence on the average number of patents used on server processors, which were similar to the processor on the Dell server.

reasonable royalties presented. For example in *Lucent*, it is unlikely Lucent would have taken the risk to make arguments for its damages using license agreements that were not “in any way similar to the technology litigated.”¹³⁹ Similarly, in *Cornell*, HP probably would not have felt comfortable making arguments as unreasonable as claiming the value of an invention should be determined by its physical size.¹⁴⁰

Requiring the jury to pick the most reasonable royalty rate is similar to what is known as final-offer arbitration or “baseball arbitration,” due to its use in resolving salary disputes in Major League Baseball (MLB).¹⁴¹ Final-offer arbitration requires the arbitrator to choose the offer of one of the parties involved in the arbitration, whereas conventional arbitration allows the arbitrator to choose the settlement amount.¹⁴² Although patent damages seem quite different from a MLB salary, both share one main problem, the fear that the decision-maker will simply split the difference between the parties’ positions.¹⁴³ This problem results in the parties taking extreme positions and refusing to settle.¹⁴⁴ Final-offer arbitration addresses this problem by giving the parties an incentive to make a reasonable argument because the arbitrator must only pick one of the offers.¹⁴⁵ Due to the extreme ranges for damages given to juries in *Cornell* and similar cases, one can only assume that the jury is simply splitting the difference, and that the parties arguing patent damages also need this incentive to make reasonable arguments.¹⁴⁶ Step three provides this incentive, and it could have made a significant difference in *Cornell*.

The incentive to make a reasonable argument in *Cornell* would have likely forced HP to argue for a royalty rate of approximately one

139. See *Lucent Techs., Inc. v. Gateway Inc.*, 580 F.3d 1301, 1329 (Fed. Cir. 2009) (noting that the license agreements that Lucent was using to make its reasonable royalty damages arguments were not comparable to Lucent’s date-picker patent).

140. See Expert Witness Testimony for Defendant Hewlett-Packard Co., *supra* note 62, at 14-15 (discussing HP’s cost percentage theory, which concludes that the value of a patent on a processor should be based on the ratio of the cost of the infringing circuitry die area over the cost of the whole processor). See also *supra* Part III.B (explaining some of the details of HP’s cost percentage theory).

141. See Benjamin A Trulis, *Final-Offer “Baseball” Arbitration: Contexts, Mechanics & Applications*, 20 SETON HALL J. SPORTS & ENT. L. 85, 86 (2010) (noting that the most discussed use of final-offer arbitration is its application in resolving MLB disputes).

142. *Id.* at 186.

143. See *id.* at 88 (noting that final-offer arbitration was developed to counteract the fear that the arbitrator will simply “split the difference”).

144. *Id.* at 88.

145. *Id.* at 89.

146. See cases cited *supra* note 6 and accompanying text (listing three cases having a range of damages given to the jury of at least \$500 million).

percent. This is despite the fact that HP asked for an effective royalty rate of 0.093% based on its cost percentage factor theory.¹⁴⁷ It is evident that HP considered a royalty rate of approximately one percent to be reasonable because HP did not even challenge the 0.8% royalty rate returned by the jury in its post-verdict motion for judgment as a matter of law on the damages.¹⁴⁸ Therefore, if HP started its damages argument with what HP actually considered a reasonable royalty rate, approximately one percent, the range of damages to be argued by the two parties would have been narrowed even further. Assuming Cornell considered its 2.5% royalty rate reasonable,¹⁴⁹ and using the \$6.7 billion royalty base determined in step one, the range of damages would have started off at \$67 million to \$167.5 million.¹⁵⁰

With these three steps, the range of damages has been reduced from approximately \$570 million to approximately \$100 million. More importantly, Cornell's requested damages are now only 2.5 times HP's proposed damages as opposed to the actual argument in court, where Cornell's requested damages were over 100 times greater than HP's proposed damages.¹⁵¹ Consequently, the parties are now only off by a multiple, where it is believable that they would have actually negotiated with each other before the infringement.

This belief is important because the hypothetical negotiation is supposed to simulate how a willing licensor and willing licensee would behave if an actual negotiation occurred. Willing licensors and willing licensees make reasonable arguments during actual

147. See *supra* Part II.E (explaining how reasonable royalty damages of \$5.3 million on a \$5.7 billion processor royalty base gives an effective royalty rate of 0.093%).

148. See Reply Brief for Defendant Hewlett-Packard Co., *supra* note 97, at *8-9 (showing how HP only argued that the royalty base used by the jury was wrong, but not arguing that the royalty rate used by the jury was wrong). It is also believable that HP considered a royalty rate around one percent or higher to be reasonable because when HP had Cornell remove thirteen of the thirty-six comparable licenses Cornell was proposing, the average of the remaining proposed comparable royalty rates, which started at around three percent, actually increased. See Expert Witness Testimony for Plaintiff Cornell Univ., *supra* note 71 (noting Cornell's exclusion of thirteen of its thirty-six proposed comparable royalty rates after HP's objection to a number of the proposed comparable licenses).

149. This may be a big assumption. The first two royalty bases attempted by Cornell ended up being rejected by the court, so there is no reason to assume that their first attempt for arguing a royalty rate was reasonable. See *supra* Part III.C (discussing how the court ultimately rejected Cornell's attempts to use the server revenue or CPU brick revenue as a royalty base).

150. $6.7 \text{ billion} * 1\% = \67 million & $\$6.7 \text{ billion} * 2.5\% = \167.5 billion .

151. See *supra* Part III.B-C (showing that HP originally offered damages of \$ 5.7 million while Cornell requested damages of \$575 million).

licensing negotiations because they do not want to risk losing a potentially valuable royalty or license. Parties who believe their opposing party's price is off by a factor of 100 would never negotiate, meaning there would not be a willing licensor or willing licensee, and the purpose of the hypothetical negotiation would be lost. On the other hand, where proposed prices or royalties are only off by a multiple of 2.5, it is much more believable that the parties would be willing to negotiate and agree to a price. This comes much closer to achieving the purpose of the hypothetical negotiation.

If the Structured *Georgia Pacific* Approach¹⁵² were used instead of this step, then the jury would still be faced with applying the *Georgia Pacific* factors to a range of damages, where it is not believable that the parties would have actually negotiated. To take *Cornell* as an example, even if the \$23 billion CPU brick royalty base was properly screened out, Cornell would have still been requesting damages of \$167.5 million, which is approximately twenty-nine times greater than the \$5.7 million that HP was offering. It is likely that the requirements of the Structured *Georgia Pacific* Approach would have reduced the range of damages in *Cornell* noticeably below a factor of twenty-nine,¹⁵³ but it is also unlikely that the range would have approached a factor of 2.5. This is because the Structured *Georgia Pacific* Approach—despite its increased structure—still allows the jury to arrive at any dollar amount in between the damages presented by the parties. With this option still on the table, the parties still have an incentive to argue as far away as possible from their opponent, although certainly in a more reasonable way than what currently occurs during litigation.

In step four, the jury adjusts the chosen royalty rate starting point from step three by using *Georgia Pacific* factors three through fifteen. If the jury agrees with how the chosen party used the *Georgia Pacific* factors, then no adjustment is needed. If the jury disagrees, then they can raise or reduce the royalty rate by as much as twenty percent of the chosen royalty rate.¹⁵⁴ For example, if the jury in *Cornell* had chosen Cornell's 2.5% royalty rate, then the jury would only be able to adjust the royalty by 0.5%. This twenty percent

152. See *supra* notes 119-26 and accompanying text.

153. For example, the Structured *Georgia Pacific* Approach requires the parties to present evidence on the different *Georgia Pacific* factors, which would have likely screened out HP's cost percentage theory.

154. While choosing twenty percent as the limit is somewhat arbitrary, this number should probably not be increased above thirty-three percent due to all of the criticism that exists for using the *Georgia Pacific* factors as the main method for determining reasonable royalty damages.

limitation reflects the reality that applying the *Georgia Pacific* factors to widely varying expert testimony is a confusing and imprecise process while recognizing that the *Georgia Pacific* factors are still relevant and should be permitted to have some effect on resulting damages.

This limited uncertainty of twenty percent is much more acceptable than the current method of just directing the jury to look at all the evidence and the *Georgia Pacific* factors with no structure to determine the reasonable royalty.¹⁵⁵ Retaining use of the *Georgia Pacific* factors as part of the reasonable royalty determination will also give parties the incentive to use all the relevant *Georgia Pacific* factors when making their arguments to the jury. If a party fails to discuss an unfavorable factor, then the jury may penalize them for the omission. Further improvement to this step could be obtained by incorporating some of the features from the Structured *Georgia Pacific* Approach, such as providing clearer jury instructions that would transform the confusing list into a series of four straightforward questions, and requiring the use of special verdict forms that would make the jury's determination transparent and allow for meaningful judicial review.¹⁵⁶

C. Calculating the Reasonable Running Royalty: No Lump Sums

In step five, the jury calculates the reasonable royalty damages by multiplying the royalty base from step one by the royalty rate from step four. Notably, the procedure proposed here is only calculating running royalties, and does not allow for calculating amounts that would have been paid for a lump-sum license. Many of the reasons for using a lump-sum license are rendered unnecessary when the amount of infringing sales is already known. Some reasons for using a lump-sum license include: (1) removing the patentee's administrative burden to monitor the use of the invention; (2) prevent the licensee from misreporting usage of the invention; (3) allowing the licensor to remove the risk that the licensee does not use the invention; and (4) allowing the licensee to take the risk that the product using the invention will be wildly successful.¹⁵⁷ These

155. See, e.g., Final Jury Instructions, *supra* note 119, at 55-56 (showing that jury instruction forty-one out of eighty-four simply lists all fifteen *Georgia Pacific* factors and that instruction forty-one simply ends with “[i]t is up to you, based on the evidence, to decide what type of royalty is appropriate in this case”). No other direction on how to use the *Georgia Pacific* factors is given. *Id.*

156. See *supra* notes 124-25 and accompanying text (discussing the benefits of the Structured *Georgia Pacific* Approach).

157. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1326 (Fed. Cir. 2009).

reasons are all moot by the time the infringement case appears in court.

It is understood that the goal of the hypothetical negotiation is to determine the license that the parties would have agreed to had they successfully negotiated an agreement just before infringement began. In theory, it would be nice if courts could accurately recreate every bit of information necessary to accurately determine the license the parties would have agreed to just before the infringement began, but this seems to be more of a fantasy than a real possibility.¹⁵⁸ For the sake of being practical and avoiding the interjection of the extra uncertainty that a lump-sum license brings, it is recommended to calculate the damages by applying the actual known sales of the infringing product to a running royalty.¹⁵⁹ Limited exceptions to this general rule could allow for a lump-sum calculation to be used if it is abundantly clear that a lump-sum license would have been chosen by both of the parties.¹⁶⁰

D. Adjusting the Reasonable Royalty: Incentives to License

In step six, the jury lowers damages if a non-practicing patentee never licensed the patent and never made a good faith attempt to license the patent.¹⁶¹ If no good faith attempt was made, then the reasonable royalty damages from step five are lowered by: (1) twenty-five percent if no such attempt is made within one year following

158. The large ranges for damages in numerous reasonable royalty cases shows that when the parties have the opportunity to make widely varying arguments for damages, they will do so. *See* case cited *supra* note 6 (discussing three reasonable royalty cases where the plaintiff and defendant were arguing for patent damages differing by greater than \$500 million). A lump-sum license offers the parties another opportunity to make widely varying arguments while a running royalty calculation based on actual sales removes this extra area of uncertainty.

159. There also seems to be more risk that a judicially determined lump-sum license would be more unfair than a judicially determined running royalty. For example, if the steps proposed by this Article are used, then the royalty base and royalty rate should be within a reasonable range, which should result in damages that are also within a reasonable range. On the other hand, a lump-sum damages award would be based on the parties estimates of how many products using the invention will be sold after the infringement begins. This estimate seems like a variable that would be easy to manipulate. Using a judicially determined lump-sum license, it would be possible for these sales estimates to be substantially different from the sales that actually occurred. Also, these “pretend” estimates were likely never made before the infringement began since the parties did not negotiate with each other.

160. For example, if both of the parties had a history of licensing almost exclusively with lump-sum licenses, then a lump-sum license analysis could be made. Under this approach, exclusive use of lump-sum licenses by only one of the parties would not be sufficient.

161. If the patentee practiced the invention, then no adjustment would be made here.

grant of the patent; (2) fifty percent if no such attempt is made within three years following grant of the patent; and (3) seventy-five percent if no such attempt is made within five years following grant of the patent. Reductions of damages under this rule are stopped as soon as the patentee files the case claiming infringement.¹⁶² A grant of a patent often takes around three years.¹⁶³ If the patentee uses a provisional application, then this time can be extended another year.¹⁶⁴ This means a patentee can have roughly five years¹⁶⁵ to make a good faith attempt to license the patent, so a patentee is not exactly being rushed under this rule.

A good faith attempt is met if the patentee negotiated with a licensee capable of producing a significant amount of product¹⁶⁶ containing the patented invention, and the patentee shows documentation or the licensee testifies that the licensee was willing to license, but that the parties could not agree on the royalty. If the licensee cannot come within fifty percent of the rate offered by the patentee, then such a negotiation cannot be used as evidence of a good faith negotiation. On the other hand, if the patentee attempted to negotiate with the alleged infringer, then the patentee shows good faith if the rate offered by the infringer in the negotiation or the royalty rate determined in step four is within thirty-three percent of the rate offered by the patentee.¹⁶⁷

Step six reduces the incentive for a non-practicing patentee to hold on to a patent and wait for infringement.¹⁶⁸ The main purpose of this

162. For example, if the patentee filed for infringement 1.5 years after being granted the patent, but the jury does not assess damages until 3.5 years after grant of the patent, then the jury looks at the 1.5 years and only reduces damages by twenty-five percent if no good faith attempt to license was made.

163. See U.S. Patent and Trademark Office, Performance and Accountability Report Fiscal Year 2011 14 (2011) available at <http://www.uspto.gov/about/stratplan/ar/index.jsp> (noting that the average pendency of patent applications at the USPTO was 33.7 months in fiscal 2011).

164. See 35 U.S.C. § 119(e)(1) (2006).

165. It is five years because there is three years for the approximate average time it takes to grant a patent plus one for the provisional application, plus one for the one year after the grant of the patent before the adjustment under this rule takes effect.

166. A significant amount could be an amount necessary to serve ten percent of the U.S. national market for that product.

167. The patentee has a lower bar here to make it riskier for infringers to refuse to negotiate. Setting the numbers at fifty percent and thirty-three percent are only a starting point and other percentages may ultimately strike a better balance.

168. Non-practicing patentees often wait many years to file infringement suits. See Michael Risch, *Patent Troll Myths*, 20 SETON HALL L. REV. 457, 490-91 (2012) (noting in a study of highly litigious non-practicing entities (NPE) that the average time a NPE waited before filing infringement was 8.3 years, but also noting that a good portion of this delay appeared to be due to the inventor/initial assignee and not necessarily due to the NPEs studied in the analysis). Possibly some of the NPEs

step is to encourage a non-practicing patentee to license their patents for two reasons.¹⁶⁹ First, the government grants patents to encourage innovation.¹⁷⁰ Innovation should be encouraged so that new and useful products are brought to the marketplace to enhance the lives of the public.¹⁷¹ Innovation should not be encouraged for the purpose of allowing patent trolls to hide until they see an opportunity to sue for highly unpredictable infringement damages. Currently, our patent system has created a situation where non-practicing patentees, including patent trolls, have been able to obtain twice the amount of damages than their practicing counterparts.¹⁷² Thus, our patent system encourages those who are not bringing products to market more than those who are bringing new products to the market. This frustrates the goal of patent law. Step six counteracts this disparity and makes it significantly more risky for the non-practicing patentee to simply hold onto the patent and wait for infringement.

The second reason to encourage licensing is so that a royalty rate from a real negotiation could be used if an infringement case arises. Once non-practicing patentees see that it is risky to simply hold onto their patents without licensing, these patentees will make more of an effort to license their patents. If the patentee succeeds in licensing, then this rate will be some of the strongest evidence of the royalty rate at which the infringer would have licensed the invention. If the patentee fails to license the invention, but makes a good faith attempt to license the patent, then this is still strong evidence of the royalty at

made a good faith effort to license, but many probably did not, so a stronger incentive to license is needed.

169. It is unlikely that this step would encourage many patentees to start practicing the patent themselves. For example, most university professors who obtain patents prefer to continue their research as opposed to quitting their jobs to start a company. Similarly, a patent troll does not have any intention to bring products to market through practicing or licensing. Tina M. Nguyen, *Lowering the Fare: Reducing the Patent Troll's Ability to Tax the Patent System*, 22 FED. CIRCUIT B.J. 101, 105 (2012).

170. The U.S. Constitution encourages innovation by promoting “the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries. U.S. CONST. art. I, § 8, cl. 8.

171. See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150-51 (1989) (“The federal patent system thus embodies a carefully crafted bargain for encouraging the creation and disclosure of new, useful, and nonobvious advances in technology and design in return for the exclusive *right to practice* the invention for a period of years.”) (emphasis added).

172. See *Levko et al.*, *supra* note 20, 5 (noting how damage awards for non-practicing entities have been more than double the damages awarded to practicing entities since 1995).

which the infringer may have licensed the patent. Presumably, the infringer would have also determined the patentee's price was too high, but it is likely that the parties who failed to reach an agreement were negotiating somewhere in the range of a reasonable royalty, and not separated by a factor 100 as was the case in *Cornell*.

Another benefit of step six is that regardless of when the non-practicing/non-licensing patentee addresses the infringement, step six reduces the amount of damages this patentee can demand. If this non-practicing/non-licensing patentee addresses the infringement within one year of receiving the patent, then step six does not reduce the royalty rate or royalty base, but the total amount of damages is reduced because fewer infringing products will have been sold. On the other hand, if the patentee makes no attempt for five years, then step six drastically cuts the damages by seventy-five percent. This reduces the ultimate range of damages at trial under either scenario and in many cases may prevent trial. For example, after five years, the patentee's proposed damages would need to be well over four times the defendant's proposed damages because four (i.e., the patentee's proposed damages) reduced by seventy-five percent (i.e., the defendant's proposed damages) is one. It is also noteworthy that if the infringement begins five years after the grant of the patent and the non-practicing patentee, who made no attempt to license, files immediately, the damages are still cut by seventy-five percent. If the damages were not cut until infringement began, certain patent trolls would still take the risk to wait for infringement. Again, waiting for infringement is not the goal of our patent system.

Some might argue that step six encourages infringement, but the infringer will still be taking a significant risk by deliberately infringing. First, the infringer would have no idea whether or not the patentee ever made a good faith attempt to license the patent. If the patentee did make a good faith attempt, the damages would not be reduced at all. Furthermore, the jury could still determine that the defendant willfully infringed, which creates a risk of treble damages.¹⁷³

CONCLUSION

Ultimately, the structured approach proposed here would need to be legislatively enacted. Notably, the recently enacted America

173. See 35 U.S.C. § 284 (2006) (allowing the court to assess damages of up to three times the amount found).

Invents Act¹⁷⁴ did not make any changes to how reasonably royalties are calculated.¹⁷⁵ Legislative enactment would overrule the vast discretion courts currently have to hear any method to determine reasonable royalty damages.¹⁷⁶ Legislative enactment would also obviate the need for courts to strike down illogical rules one at a time, such as how the twenty-five percent rule was recently struck down in *Uniloc*.¹⁷⁷

As discussed above, if steps one through five of the proposed rules were applied to the *Cornell* case, the plaintiff could have at most argued for damages that were 2.5 times the damages of the defendant.¹⁷⁸ This is an enormous improvement over the actual litigation, where the plaintiff argued for damages that were 100 times greater than the damages argued by the defendant.¹⁷⁹ This reduction by a factor of forty was accomplished with two simple rules. First, patentees can only argue for application of the EMVR if they have strong supporting evidence, such as surveys. Second, the jury is required to pick the most reasonable royalty rate offered by the parties. This step accepts the reality that patents are difficult to value and that an incentive to make reasonable arguments for reasonable royalty damages is needed to prevent the parties from making the most widely varying arguments possible. Additionally, if Cornell had not licensed the patent, then the range of damages would have been reduced even further in step six. This last step discourages non-practicing patentees from choosing to wait for infringement instead of attempting to license their patents. This final step also helps to align the laws for determining reasonable royalty damages with the overall policy of patent law, which is to encourage innovation in order to bring innovations to the public. With these six steps, the

174. Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011).

175. See Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part I of II*, 21 FED. CIRCUIT B.J. 435, 439, 445 (2011) (noting that although earlier versions of the America Invents Act (AIA) contained provisions reforming reasonable royalty determinations, amendments to the AIA made in March of 2011 removed the last provisions that would affect the award of damages).

176. See *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1310 (Fed. Cir. 2009) (stating broadly that the method of computing patent damages is within the discretion of the court).

177. See *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1317 (Fed. Cir. 2011) (rejecting use of the twenty-five percent rule because this rule of thumb fails to associate royalty rates used in prior licenses to the particular hypothetical negotiation at issue).

178. See *supra* Part IV.B (explaining how the range of damages in Cornell would have been \$67 million to \$167.5 million if steps one through three of the proposed steps were applied).

179. See *supra* Part II.B-C (showing the original arguments for damages offered by HP and Cornell).

highly unpredictable process of determining a reasonable royalty can be replaced with a new structured approach that can actually produce a royalty that is reasonable.