The Sedona Conference Working Group Series

The Sedona Conference

Commentary on Patent Reasonable Royalty Determinations

A Project of The Sedona Conference
Working Group on Patent Damages and Remedies (WG9)

December 2016 Edition

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DECEMBER 2016 EDITION

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Preface

Welcome to the December 2016 Edition of The Sedona Conference Commentary on Patent Reasonable Royalty Determinations, a project of The Sedona Conference Working Group on Patent Damages and Remedies (WG9). This is one of a series of working group commentaries published by The Sedona Conference, a 501(c)(3) research and educational institute dedicated to the advanced study of law and policy in the areas of antitrust law, complex litigation, and intellectual property rights. The mission of The Sedona Conference is to move the law forward in a reasoned and just way.

The mission of WG9, formed in November 2010, is "to create guidelines that will help to clarify and guide the evolution of patent damages and remedies considerations to encourage patent damages and remedies law to remain current with the evolving nature of patents and patent ownership." The Working Group consists of members representing all stakeholders in patent litigation.

The original WG9 Commentary on Patent Damages and Remedies was published for public comment in June 2014, and was the focus of the dialogue at The Sedona Conference's 14th Annual Conference on Patent Litigation in Del Mar, CA, in October 2013 and The Sedona Conference's WG9 Meeting in New Orleans, LA, in November 2014. The content of that original WG9 Commentary is being split into two stand-alone Commentaries—this WG9 Commentary on Reasonable Royalty Determinations, and a second entitled WG9 Commentary on Case Management of Patent Damages and Remedies Issues to be published in final/post-public comment form by Q2 2017.

The Commentary represents the collective efforts of many individual contributors. On behalf of The Sedona Conference, I thank all who reviewed the original WG9 Commentary public comment publication and contributed to what collectively amounted to an extensive set of comments, including Patrick M. Arenz, Marta Beckwith, Michael Brody, Tina M. Chappell, Monte Cooper, David Long, and James W. Morando. I further thank everyone involved for their time and attention during the drafting and editing process of this December 2016 Edition, in particular Andrea Weiss Jeffries, Gary M. Hoffman, R. Eric Hutz, Rachel Krevans, and John A. Scott. The Working Group was also privileged to have the benefit of the review and candid comments by the Honorable Barbara M.G. Lynn. Fully considering and engaging in the level of dialogue necessary to incorporate where appropriate as per WG9-consensus the extensive public comments received was an exhaustive process carried out over two-and-a-half years. We and the entire patent litigation community are truly in their debt. In addition, I thank volunteers Fernando Esponda and Christopher Robinson for their special assistance and contributions to this effort.

I also thank the original WG9 members who brought to publication the public comment version of the original WG9 Commentary, including: Donald R. Banowit, Michael L. Brody, Jan M. Conlin, John M. Desmarais, Andrea Weiss Jeffries, Rachel Krevans, James W. Morando, Tamir Packin, and Edward G. Poplawski; and the Honorable James F. Holderman, the Honorable Susan Illston, and the Honorable Barbara M.G. Lynn, who all served as the Judicial Review Panel for this Commentary; as well as the Honorable Cathy Ann Bencivengo, the Honorable James L. Robart, and the Honorable Ronald M. Whyte, who also reviewed and commented on the draft.

The statements in this Commentary are solely those of the non-judicial members of the Working Group; they do not represent any judicial endorsement of the recommended practices.

Working Group Series output is first published in draft form and widely distributed for review, critique, and comment, including in-depth analysis at Sedona-sponsored conferences. Following this period of peer review, the draft publication is reviewed and revised by the Working Group and members of the Working Group Steering Committee, taking into consideration what is learned during the public comment period. Please send comments to comments@sedonaconference.org, or fax them to 602-258-2499. The Sedona Conference hopes and anticipates that the output of its Working Groups will evolve into authoritative statements of law, both as it is and as it should be.

Craig W. Weinlein
Executive Director
The Sedona Conference
December 2016

Foreword

PriceWaterhouseCoopers LLP recently noted that the median damages award in patent cases over the last 10 years has ranged from a low of $2.0 million to a high of $17.0 million, with a median award in 2015 being $10.2 million. These median values don't tell the full story however: Eight-figure and nine-figure patent damages jury verdicts have made headlines in recent years, as have stories of patent plaintiffs seeking to use the high costs of patent litigation to extract litigation settlements. This disparity in approach towards and outcomes of patent cases illustrates the need for a stable patent damages law, for both patent holder and defendant alike. Yet, patent damages law remains one of the most complex, unpredictable, and rapidly evolving areas of the law, notwithstanding issuance of the widely-used *Georgia-Pacific* hypothetical negotiation framework for calculating reasonable royalties some 40 years ago. Indeed, in many cases, the parties' expectations with respect to patent damages differ by orders of magnitude. Such divergent views of patent damages can make resolving cases short of trial much more difficult. Moreover, even a jury verdict may not add sufficient clarity or certainty to allow the parties to resolve remaining disputes—many jury verdicts regarding patent damages are being overturned by the Court of Appeals for the Federal Circuit or even by district courts in posttrial rulings.

Accordingly, beginning in 2012, Working Group 9 (WG9) undertook an effort to add clarity and predictability to the area of patent remedies, specifically to the reasonable royalty paradigm itself, as well as to issues relating to case management of patent damages and remedies issues. Participants in, and observers of, the Working Group included a diverse group of attorneys, including inside counsel for patent holders (including non-practicing entities), inside counsel for practicing entities who often find themselves as defendants in patent litigation, and outside counsel representing patentees and accused infringers. The Working Group also included expert witnesses who are regularly tasked with writing expert reports assessing patent damages. Members of the federal judiciary participated as observers.

The efforts of the Working Group initially culminated in a single draft white paper, entitled *Commentary on Patent Damages and Remedies*, spanning several topics. That initial Commentary was published for public comment in June 2014, and its various parts were discussed in Sedona Conference Midyear and Annual Meetings in the 2014–2016 time frame. All comments were collected and evaluated; many were discussed at length. Each section of the Commentary was reconsidered in light of the comments received, and revisions were made to reflect the advanced thinking that resulted from the public community dialogue. After this process, WG9 divided the original Commentary into two separate papers. This paper, entitled *Commentary on Patent Reasonable Royalty Determinations*, addresses the history of the reasonable royalty and discusses Principles and Best Practices to be considered in evaluating reasonable royalty damages. The second paper, entitled *Commentary on Case Management of Patent Damages and Remedies Issues* (forthcoming) covers Principles and Best Practices for addressing and managing patent damages and remedies issues as they arise at various stages of litigation.

With regard to the issues addressed in this Commentary, the Working Group began its undertaking by focusing on the statutory mandate that damages should be "adequate to compensate for infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer." With this in mind, the Working Group evaluated the *Georgia-Pacific* hypothetical negotiation framework for calculating damages. One aspect of the Working Group's work involved a lively dialogue about departing from the *Georgia-Pacific* prospective or *ex ante* approach of a hypothetical negotiation set at the time just prior to first infringement in favor of a "Retrospective" or "*Ex Post*" approach that would (1) set the date of the hypothetical negotiation at the time of trial, allowing for consideration of all relevant facts and circumstances relating to the actual use of the patented technology by the accused infringer throughout the period of infringement, and (2) incorporate measures to factor out any "lock-in," "switching," or "patent-holdup" costs that have traditionally been excluded from the reasonable royalty analysis by framing the hypothetical negotiation in *ex ante* terms. Although no consensus was reached, the dialogue was nevertheless beneficial for its illumination of the advantages and disadvantages of different approaches, which are set forth herein. The Working Group is hopeful that the dialogue about alternative frameworks for the hypothetical negotiation will continue.

A second aspect of the Working Group's work involved consideration of the evidentiary factors involved in the reasonable royalty analysis, including: apportionment; the entire market value rule; the comparability of licenses and how settlement agreements should be scrutinized in the hypothetical negotiation analysis; noninfringing alternatives to the patented technology; "switching" costs; "lock-in" costs; and "patent holdup" and "royalty stacking" effects. This final version of the Commentary provides a proposed set of Principles and Best Practices in these areas that, after consideration of public commentary, the Working Group believes will move the law forward in a reasoned and just way.

This Commentary does not attempt to address all the issues that arise in the context of remedies for patent infringement. It does not address lost profit damages or the requirement that the parties to a hypothetical negotiation must assume that the patents-at-issue are valid and infringed. Nor does it deal with enhanced damages, such as those potentially available after a finding of willful patent infringement. Furthermore, it does not address the effects of obligations to license patents on fair, reasonable, and non-discriminatory (FRAND) terms in infringement suits involving standard-essential patents (SEPs), which is being addressed in a separate Commentary currently being drafted by another team of WG9. The intent of this paper is to focus on Principles and Best Practices in the area of reasonable royalty determinations that may be applied consistently across most cases, in an attempt to bring some coherence to this area of law.

Andrea Weiss Jeffries
Gary H. Hoffman
Chair and Vice-chair, Working Group 9 Steering Committee

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I. The Law of Reasonable Royalty Determinations

The Constitution grants Congress the power "to promote the Progress of Science and the Useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[1] Congress has exercised that power by granting courts the authority to award compensatory damages for infringement and injunctions prohibiting future infringement.[2]

A. STATUTORY BASIS FOR THE REASONABLE ROYALTY

Patent infringement damages have their current statutory basis in Section 284 of the Patent Act, which provides:

> Upon finding for the claimant the court shall award the claimant 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*, together with interest and costs as fixed by the court.
>
> . . .
>
> The court may receive expert testimony as an aid to the determination of damages or of what royalty would be reasonable under the circumstances.

In *GM Corp. v. Devex Corp.*, the United States Supreme Court explained that the patent damages statute is intended to provide full compensation to the patentee:

> In 1946 Congress excluded consideration of the infringer's gain by eliminating the recovery of his profits, the determination of which had often required protracted litigation. At the same time, Congress sought to ensure that the patent owner would in fact receive full compensation for "any damages" he suffered as a result of the infringement. Accordingly, Congress expressly provided in § 284 that the court "shall award the claimant damages *adequate to compensate* for the infringement."[3]

The Supreme Court further explained the purpose of the patent damages statute in *Aro Mfg. Co. v. Convertible Top Replacement Co.*:

> The question to be asked in determining damages is "how much had the Patent Holder and Licensee suffered by the infringement. And that question [is] primarily: had the Infringer not infringed, what would Patent Holder-Licensee have made?"[4]

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1 U.S. CONST. art. I, § 8, cl. 8.

2 *See, e.g.*, 35 U.S.C. §§ 283–284.

3 GM Corp. v. Devex Corp., 461 U.S. 648, 654–55 (1983) (internal citations omitted).

4 Aro Mfg. Co. v. Convertible Top Replacement Co., 377 U.S. 476, 506–07 (1964) (internal citations omitted).

The Federal Circuit elaborated on this principle in *Fromson v. Western Litho Plate & Supply Co.*:

> As used in Section 284, 'reasonable royalty' is [a] handy shorthand for damages. As the statute provides, the royalty is 'for the use made of the invention by the infringer.' Thus the calculation is not a mere academic exercise in setting some percentage figure as a 'royalty.' The determination remains one of damages to the injured party. . . .

The *Fromson* court went on to explain the difficulties of determining a reasonable royalty:

> Determining a fair and reasonable royalty is often, as it was here, a difficult judicial chore, seeming often to involve more the talents of a conjurer than those of a judge. Lacking adequate evidence of an established royalty, the court was left with the judge-created methodology described as "hypothetical negotiations between willing licensor and willing licensee."
>
> . . .
>
> Like all methodologies based on a hypothetical, there will be an element of uncertainty; yet, a court is not at liberty, in conducting the methodology, to abandon entirely the statutory standard of damages "adequate to compensate" for the infringement. The royalty arrived at must be "reasonable" under all the circumstances; i.e., it must be at least a close approximation of what would be "adequate to compensate" for the "use made of the invention by the infringer." 35 U.S.C. § 284.[5]

In practice, damages awards today typically are based on two general forms of damages: (1) lost profits of the patentee or (2) a reasonable royalty based on either an established royalty or the framework of a hypothetical negotiation.

B. TWO LINES OF EARLY SUPREME COURT CASE LAW: ACTUAL HARM TO THE PATENTEE V. ACTUAL VALUE OF THE INVENTION

Early Supreme Court case law for patent infringement damages determinations divided along two lines. The first line of case law interpreted the then-existing patent damages statutes[6] to require either actual harm to the patentee or an established royalty for the patented technology in order to award damages. For example, the Court in one early case held the patentee was entitled to only nominal damages upon a finding of infringement, because the patentee did not prove any established royalty and "[t]here was no question . . . of damages arising from lost sales, or injurious

[5] Fromson v. Western Litho Plate & Supply Co., 853 F.2d 1568, 1574–76 (Fed. Cir. 1998) (internal citations omitted).

[6] Section 14 of the Patent Act of 1836 provided, in part: "[I]t shall be in the power of the court to render judgment for any sum above the amount found by such verdict as the actual damages sustained by the plaintiff, not exceeding three times the amount thereof, according to the circumstances of the case, with costs . . . ."

In 1870, Congress amended the statute to provide that for suits in equity, "the claimant [complainant] shall be entitled to recover, in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby, and the court shall assess the same or cause the same to be assessed under its direction, and the court shall have the same powers to increase the same in its discretion that are given by this act to increase the damages found by verdicts in actions upon the case."

competition, for no machines had been manufactured and put on the market by the patentee."[7] The Court further offered a definition of what constitutes an established reasonable royalty, noting that "it must be paid or secured *before* the infringement complained of; it must be paid by such a number of persons as to indicate a general acquiescence in its reasonableness by those who have occasion to use the invention; and it must be uniform at the places where the licenses are issued."[8]

A few years later, the Supreme Court followed this same approach in *Coupe v. Royer*, pointing to the lower court's error in permitting a jury to award infringement damages without evidence of an established licensing fee or actual harm to the patentee's market. The Court therefore concluded that because there were "no damages of any kind . . . the lower court should have instructed the jury . . . to find nominal damages only."[9]

The second line of case law focused instead on the actual value of the invention to determine an appropriate measure of damages, without regard to any established royalty rate or actual harm to the patentee. For example, the Supreme Court in 1865 affirmed a damages award following a jury instruction permitting examination of "the utility and advantage[s] of the invention over the old modes or devices that had been used for working out similar results," despite a lack of evidence of either harm to the patentee or an established royalty rate.[10] The Court again affirmed this view in 1871, characterizing the damages question as requiring an evaluation of the advantages the defendant derived from using the patented invention over legally available alternatives—not an evaluation of the actual harm suffered by the patentee.[11]

C. THE DEVELOPMENT OF THE REASONABLE ROYALTY ANALYSIS

The second "actual value" line of cases ultimately led to the reasonable royalty analysis that is common today. As the Supreme Court increasingly recognized that damages should be awarded based on the defendant's use of the claimed invention and the value of that use, it developed the reasonable royalty test as a way to measure damages. For example, in *Seymour v. McCormick* in 1853, the Supreme Court noted that an inventor of an improvement to a mill should not be permitted to claim damages arising from lost profits on the entire mill; rather, damages should be measured based solely on the use of the inventor's improvement to the mill.[12] In *Westinghouse Elec. & Mfg. Co. v. Wagner Elec. & Mfg. Co.* in 1912, the Court elaborated on this principle, stating that where a patentee's invention "only created a part of the profits, he is only entitled to recover that part of the net gains."[13] Further, the patentee in such a case must produce evidence of apportionment of the profits between the patented features and the remaining features to distinguish between the

7 Rude v. Westcott, 130 U.S. 152, 167 (1889).

8 *Id.* at 165 (emphasis added).

9 Coupe v. Royer, 155 U.S. 565, 583 (1895).

10 Suffolk Co. v. Hayden, 70 U.S. 315, 320 (1865).

11 Mowry v. Whitney, 81 U.S. 620, 651 (1871).

12 *See* Seymour v. McCormick, 57 U.S. 480, 489 (1853). This view is a precursor to today's entire market value rule, which applies to both lost profits damages and reasonable royalty damages. This rule applies when the invention is one element of a product sold, and states that a patentee is only entitled to damages based on the invention itself (not the entire product), unless the patented element is the basis—or a substantial basis—for demand of the entire product. *See infra* Section III.B.1., Principle No. 3.

13 Westinghouse Elec. & Mfg. Co. v. Wagner Elec. & Mfg. Co., 225 U.S. 604, 615 (1912).

patentee's damages and the defendant's rightful profits.[14] Although the *Westinghouse* Court also stated that the patentee is entitled to all the infringer's profits "when it is impossible to make a mathematical or approximate apportionment,"[15] the Court soon retreated from that view in favor of the reasonable royalty approach.

In *Dowagiac Mfg. v. Minn. Moline Plow* in 1915, the Supreme Court held that "[i]n the absence of [an established] royalty, and in the absence of proof of lost sales or injury by competition," the patentee bore the burden of proving a reasonable royalty.[16] The Court then remanded the case, giving the patentee the opportunity to show the invention's actual value by "proving what would have been a reasonable royalty, considering the nature of the invention, its utility and advantages, and the extent of the use involved."[17]

D. THE *GEORGIA-PACIFIC* HYPOTHETICAL NEGOTIATION FRAMEWORK

While an established royalty may form the basis for a reasonable royalty under the current law, it is rare for such an established royalty to exist because the particular invention or technology at issue may not have been licensed out to other entities in the same factual context. As such, courts have come to use the hypothetical negotiation framework and rely on the numerous evidentiary factors enumerated in a 1970 opinion from the Southern District of New York, *Georgia-Pacific Corp. v. U.S. Plywood Corp.,* to determine what constitutes a reasonable royalty in any given case.[18]

There are fifteen so-called "*Georgia-Pacific*" evidentiary factors:

1. royalties received by the patentee for licensing the patent-in-suit, proving or tending to prove an established royalty;
2. rates paid by the licensee for the use of comparable patents;
3. nature and scope of the license, as exclusive or non-exclusive, or as restricted or non-restricted in terms of territory or with respect to whom the manufactured product may be sold;
4. licensor's established policy and marketing program to maintain his patent monopoly by not licensing or by granting licenses under special conditions designed to preserve that monopoly;

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14 *See id.* Again, this is consistent with the entire market value rule and current principles of apportionment in cases awarding damages based on lost profits. *See infra* Section III.B.1., Principle No. 3 and Section III.B.2., Principle Nos. 4(a)-(b).

15 *Id.* at 620.

16 Dowagiac Mfg. Co. v. Minn. Moline Plow Co., 235 U.S. 641, 649 (1915). However, the Court did not expressly overrule the statements made in *Westinghouse*, which remained good law until the Patent Act amendments in 1946 eliminating the patentee's right to disgorgement of all of the defendant's profits under *Westinghouse*. *See* Erick S. Lee, *Historical Perspectives on Reasonable Royalty Patent Damages and Current Congressional Efforts for Reform*, 13 UCLA J.L. & TECH. 1, 8 (2009) (noting the 1946 amendments' abrogation of the use of an infringer's profits as a basis for measuring damages).

17 *Dowagiac*, 235 U.S. at 648.

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

5. commercial relationship between the licensor and licensee, such as whether they are competitors or whether they are inventor and promoter;
6. effect of selling the patented invention in promoting sales of other products of the licensee, and existing value of the invention to the licensor as a generator of sales of his non-patented items;
7. duration of the patent and the term of the license;
8. established profitability of the product made under the patent, its commercial success, and its current popularity;
9. utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results;
10. nature of the patented invention, character of the commercial embodiment of it as owned and produced by the licensor, and benefits to users of the invention;
11. extent to which the infringer has made use of the invention, and any evidence probative of the value of that use;
12. portion of the profit or selling price that may be customary in the industry to allow for the use of the invention or similar inventions;
13. portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer;
14. opinion testimony of qualified experts; and
15. amount that a prudent licensor and a prudent licensee would have agreed upon at the time the infringement began, if both had been reasonably and voluntarily trying to reach an agreement.[19]

The reasonable royalty framework addressed in this Commentary relates to damages determinations in patent infringement actions that do not involve, either primarily or exclusively, standard-essential patents (SEPs) or FRAND obligations.[20]

E. CURRENT STATE OF THE LAW REGARDING THE DETERMINATION OF A REASONABLE ROYALTY

While the *Georgia-Pacific* hypothetical negotiation framework and evidentiary factors have been used for many years, and remain well-accepted principles for calculating reasonable royalty damages today, application of these principles leaves significant room for interpretation, and even manipulation, by one or both sides in litigation. It remains the primary responsibility of the trial court to assure that damages presented are tied to the facts of the case at hand. In recent years the Federal Circuit has issued many important decisions to guide litigants and the courts in evaluating appropriate methods and considerations in assessing a reasonable royalty, including providing

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19 *Id.*

20 In the forthcoming *WG9 Commentary on Standard-Essential Patents and FRAND Issues*, to be published for public comment in the coming months, the Working Group will recommend Principles and Best Practices specific to the Standard-Essential Patent and FRAND contexts.

guidance on: (1) the use of evidence that postdates the date of the hypothetical negotiation; (2) the application of the entire market value rule and apportionment; (3) the use of comparable licenses in proving a reasonable royalty rate; and (4) the disavowal of certain "rules of thumb" for reasonable royalty determinations that had been applied in certain lines of earlier case law. The district courts too, following this guidance, have begun to take an active role in assessing damages methodologies, to ensure that damages claims and verdicts are based on acceptable methodologies and sound evidence.

1. Use of Evidence Postdating the Hypothetical Negotiation

While current law creates a prospective or *ex ante* framework for the hypothetical negotiation by viewing it as taking place just prior to the date of first infringement, many courts have found that such a "prospective" framework nevertheless permits consideration, at least in some circumstances, of "events and facts that occurred [after the hypothetical negotiation] that could not have been known to or predicted by the hypothesized negotiators."[21] This "look ahead" is commonly referred to as using a "book of wisdom," after Justice Cardozo's description of it in *Sinclair Refining Co. v. Jenkins Petroleum Process Co.*: "[I]f years have gone by before the evidence is offered[, e]xperience is then available to correct uncertain prophecy. Here is a book of wisdom that courts may not neglect."[22] Under this principle, the parties to the hypothetical negotiation are assumed to have access to a "book of wisdom" that contains certain information about relevant events that will occur in the future.

This "Status Quo"/"Book of Wisdom" Model, however, itself inherently gives rise to the challenge of determining what types of evidence postdating the hypothetical negotiation should be included or excluded as part of such a "book of wisdom," and how to do so on any sort of principled grounds. These challenges led several WG9 members to advance a new "Retrospective" Model, which would move the date of the hypothetical negotiation from the date of first infringement to the date of trial, thereby allowing consideration of *all* future facts bearing on patent value and eliminating any need for the book of wisdom concept altogether. From the extensive comments received to the publication for public comment of the WG9 Commentary on Patent Damages and Remedies (June 2014), however, it became clear that the Retrospective Model could not be brought to WG9-wide consensus, and it is now presented here as one of the three alternative models for consideration during reasonable royalty determinations.

For a detailed discussion framing the three alternative approaches to the reasonable royalty determination with respect to the use of evidence postdating the hypothetical negotiation—(1) the "Status Quo"/"Book of Wisdom" Model; (2) the "Prospective-Only" or "Strict *Ex Ante*" Model; and (3) a new "Retrospective" Model—and assessing the pros and cons of each, *see infra* Section II (Approaches to the Reasonable Royalty Paradigm).

2. Entire Market Value Rule and Apportionment

Typically, a patentee can recover damages only on the portion of the defendant's revenues that is specifically attributable to the patented feature. An exception to this rule is the "entire market value rule" (EMVR). "The entire market value rule allows for the recovery of damages based on the value

[21] Fromson v. Western Litho Plate & Supply Co., 853 F.2d 1568, 1575 (Fed. Cir. 1988).

[22] Sinclair Refining Co. v. Jenkins Petroleum Process Co., 289 U.S. 689, 698 (1933) (Cardozo, J.).

of an entire apparatus containing several features, when the feature patented constitutes the basis for customer demand."[23] In other words, "[a] patentee may 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."[24] "In the absence of such a showing, principles of apportionment apply."[25] Apportionment requires "evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features."[26]

The Federal Circuit has paid increasing attention to the application of the entire market value rule. In *Lucent*, for example, the Federal Circuit held that Lucent (the patent holder) failed to meet its burden of proving the applicability of the entire market value rule for two reasons.[27]

First, Lucent had failed to show that the patented invention provided "the basis—or even a substantial basis—of the consumer demand for Outlook," a necessary condition for application of the entire market value rule. Rather, the evidence demonstrated that the infringing date-picker tool was "but a very small component of a much larger software program" and that the vast majority of Outlook's features did not infringe. "Indeed, Lucent's damages expert conceded that there was no 'evidence that anybody anywhere at any time ever bought Outlook . . . because it had a date picker.'"[28]

Second, Lucent's licensing expert used an approach inconsistent with the entire market value rule. The expert had initially formed an opinion that the parties would have agreed to a 1% royalty rate applied to the entire price of a computer containing Outlook. After the district court excluded this testimony on a motion *in limine*, the expert used a reduced royalty base, i.e., the price of the Outlook software program (and not the entire computer), but increased his proposed royalty rate to 8%. The Federal Circuit held that the expert's approach was improper because the expert "tried to reach the damages number he would have obtained had he used the price of the entire computer as a royalty base."[29] In addition, the court noted that "there was no evidence that Microsoft had ever agreed to pay an 8% royalty on an analogous patent."[30]

In *LaserDynamics, Inc. v. Quanta Computer, Inc.*, the Federal Circuit emphasized that the patented feature must be the motivating factor for the purchase of the product, not merely a "valuable" or "important" feature, for the entire market value rule to apply.[31] The Federal Circuit also explained that "the requirement to prove that the patented feature drives demand for the entire product may not be avoided by the use of a very small royalty rate" because the disclosure of revenue numbers

23 TWM Mfg. Co. v. Dura Corp., 789 F.2d 895, 901 (Fed. Cir. 1986).

24 Versata Software, Inc. v. SAP Am., Inc., 717 F.3d 1255, 1268 (Fed. Cir. 2013).

25 VirnetX, Inc. v. Cisco Sys., 767 F.3d 1308, 1326 (Fed. Cir. 2014).

26 *Id.* (citing Garretson v. Clark, 111 U.S. 120, 121 (1884)).

27 Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1337–38 (Fed. Cir. 2009).

28 *Id.* at 1337–38.

29 *Id.* at 1338.

30 *Id.*

31 *See* LaserDynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 68 (Fed. Cir. 2012).

associated with a complete product as opposed to a patented component "cannot help but skew the damages horizon for the jury, regardless of the contribution of the patented component to this revenue."[32] The court "reaffirm[ed] that in any case involving multi-component products, patentees may not calculate damages based on sales of the entire product, as opposed to the smallest salable patent-practicing unit, without showing that the demand for the entire product is attributable to the patented feature."[33]

In *VirnetX, Inc. v. Cisco Sys.*, the Federal Circuit further expanded on the entire market value rule, holding that principles of apportionment applied even in cases where the patent holder used the "smallest salable unit containing the patented feature" to calculate a royalty base.[34] Although the *VirnetX* court acknowledged that the "smallest salable unit approach was intended to produce a royalty base much more closely tied to the claimed invention than the entire market value of the accused products," the court warned that this approach might not be sufficient to satisfy principles of apportionment in all cases.[35] The *VirnetX* court emphasized that "[w]here the smallest salable unit is, in fact, a multi-component product containing several noninfringing features with no relation to the patented feature . . . , the patentee must do more to estimate what portion of the value of that product is attributable to the patented technology."[36] In other words, the patent holder must "take care to seek only those damages attributable to the infringing features" of a multi-component product."[37] "To hold otherwise," the *VirnetX* court said, "would permit the entire market value exception to swallow the rule of apportionment."[38]

The Federal Circuit subsequently pointed out in *Ericsson, Inc. v. D-Link Sys., Inc.* that the legal standard for the entire market value rule "actually has two parts, which are distinct in character. There is one substantive legal rule, and there is a separate evidentiary principle; the latter assisting in reliably implementing the rule when—in a case involving a per unit royalty—the jury is asked to choose a royalty base as the starting point for calculating a reasonable royalty award."[39] The substantive legal rule requires that the "ultimate reasonable royalty award must be based on the incremental value that the patented invention adds to the end product for whatever combination royalty rate and royalty base is used."[40] The evidentiary principle concerns selection of the royalty base where a multi-component product is at issue "to avoid misleading the jury by placing undue emphasis on the value of the entire product," which risks "skew[ing] the damages horizon for the jury."[41] Thus, damages may be calculated by reference to the entire value of the end product where such value is "properly and legally attributable to the patented feature."[42] Otherwise, however,

32 *Id.* at 67 (citing Uniloc USA, Inc. v. Microsoft Corp., 632 F.3d 1292, 1320 (Fed. Cir. 2011)).

33 *Id.*

34 VirnetX, Inc. v. Cisco Sys., 767 F.3d 1308, 1327 (Fed. Cir. 2014).

35 *Id.* at 1327.

36 *Id.*

37 *Id.*

38 *Id.* at 1327–28.

39 Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1226 (Fed. Cir. 2014).

40 Ericsson, 773 F.3d at 1226.

41 *Id.*

42 *Id.*

"courts must insist on a more realistic starting point for the royalty calculations by juries—often, the smallest salable unit and, at times, even less."[43]

For a detailed discussion of WG9's Principles and Best Practice recommendations concerning the entire market value rule and apportionment, *see infra* Section III.B.1. (Determining the Royalty Base—The Entire Market Value Rule (EMVR)) and Section III.B.2. (Determining the Royalty Base—Apportionment Where the Entire Market Value Rule Does Not Apply).

3. Comparability of Licenses

In many instances, the parties to patent litigation have entered into one or more license agreements involving the patent(s)-in-suit or related patents or other technology. The courts look to licenses deemed "comparable" as real-world evidence of the commercial market for the patent(s)-in-suit. Indeed, some of the *Georgia-Pacific* evidentiary factors call for the consideration of licenses relating to the patents-in-suit or comparable technology in the same field of use or in analogous fields of use. For example, the first *Georgia-Pacific* factor calls for consideration of "[t]he royalties received by the patentee for the licensing of the patent-in-suit, proving or tending to prove an established royalty."[44] The second *Georgia-Pacific* factor calls for the consideration of "the rates paid by the licensee for the use of other patents comparable to the patent-in-suit."[45] The twelfth *Georgia-Pacific* factor calls for the consideration of "[t]he portion of the profit or of the selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions."[46] And, even beyond *Georgia-Pacific*, courts view prior arms-length licenses to the patent(s)-in-suit as highly influential in determining a reasonable royalty, especially when they did not involve the settlement of litigation.

Some former or existing license agreements of the litigants, however, may not be relevant to the reasonable royalty analysis in a given patent litigation. If these other agreements include significantly different or a greater number of patents, or they grant significantly different rights than those contemplated by the hypothetical license, they will likely not be useful to inform the reasonable royalty analysis unless those differences can be itemized and valued, so the actual license can be brought closer (theoretically) to the hypothetical license. Stated differently, a comparison is not valuable if it is apples-to-oranges, rather than apples-to-apples, or at least close to apples-to-apples.

Accordingly, the Federal Circuit has repeatedly cautioned district courts to exercise "vigilance" when considering whether a past license is comparable to the technologies and economic circumstances of the hypothetical negotiators, and has shown a willingness to exclude from consideration, in assessing a reasonable royalty, license agreements that are not "sufficiently comparable" to either the patented technology or the economic circumstances of the hypothetical negotiation.[47] Recently, in *VirnetX, Inc. v. Cisco Systems*, the Federal Circuit stated:

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43 *Id.*

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

45 *Id.*

46 *Id.*

47 VirnetX, Inc. v. Cisco Sys., 767 F.3d 1308, 1330 (Fed. Cir. 2014).

> [I]n attempting to establish a reasonable royalty, the licenses relied on by the patentee in proving damages [must be] sufficiently comparable to the hypothetical license at issue in suit. When relying on licenses to prove a reasonable royalty, alleging a loose or vague comparability between different technologies or licenses does not suffice. However, we have never required identity of circumstances; on the contrary, we have long acknowledged that any reasonable royalty analysis necessarily involves an element of approximation and uncertainty. Thus, we have cautioned that district courts performing reasonable royalty calculations [must] exercise vigilance when considering past licenses to technologies other than the patent in suit, and must account for differences in the technologies and economic circumstances of the contracting parties.[48]

In *VirnetX,* the Federal Circuit held that a district court did not abuse its discretion in permitting a damages expert to rely on six challenged licenses where four of them "related to the actual patents-in-suit, while the others were drawn to related technology,"[49] because all the differences between the license agreements and the hypothetical license at issue "were presented to the jury, allowing the jury to fully evaluate the relevance of the licenses."[50] Under those circumstances, exclusion of the challenged licenses was not required.[51]

In *Lucent*, the Federal Circuit considered multiple factors regarding the licenses' comparability to the hypothetical license, including the similarity and importance of the technology licensed, the price of the licensed product, the complexity of the royalty rate, and the structure of payment (i.e., lump sum royalty payments as opposed to running royalty payments).[52] The Federal Circuit held that Lucent bore the burden to establish at trial that the licenses offered under *Georgia-Pacific* factor 2 ("[t]he rates paid by the licensee for the use of other patents comparable to the patent in suit") were "sufficiently comparable" to the hypothetical license at issue to support the jury's award.[53] Ultimately, the court concluded that the evidence presented at trial was not sufficient to satisfy Lucent's burden to show that the licenses were sufficiently comparable in order to support the damages award.[54]

The *Lucent* decision does not forbid the use of license agreements that differ, even substantially, from the hypothetical license, including differences between the technology covered in the licenses as compared to the patents-in-suit, or differences in the royalty structure (e.g., lump sum versus running royalty), but it does highlight the importance of having the damages expert witness conduct a rigorous comparison of the various terms of the real-world licenses to the hypothetical licenses to justify use of dissimilar real-life license agreements.[55]

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48 *Id.* (internal citations and quotations omitted).

49 *Id.*

50 *Id.*

51 *Id.*

52 *Id.* at 1327–31 (addressing each of eight real-life licenses presented by Lucent's damages expert to the jury).

53 Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1325–31 (Fed. Cir. 2009).

54 *Id.* at 1332.

55 *See*, *e.g.*, *id.* at 1330 ("As we noted above, certain fundamental differences exist between lump sum agreements and running royalty agreements. This is not to say that a running royalty license agreement cannot be relevant to a lump sum damages award, and vice versa. For a jury to use a running royalty agreement as a basis to award lump sum

The Federal Circuit also addressed comparability of license agreements in *Ericsson, Inc. v. D-Link Sys.*;[56] *VirnetX, Inc. v. Cisco Sys.*;[57] *ResQNet.com, Inc. v. Lansa, Inc.*;[58] *Wordtech Sys., Inc. v. Integrated Network Solutions, Inc.*;[59] and *CSIRO v. Cisco Sys.*[60] These decisions highlight the importance of evaluating and comparing the circumstances and considerations of a potentially comparable license agreement to the facts and circumstances of the hypothetical negotiation for the patent(s)-in-suit, including, but not limited to, demonstrating a link between the invention involved in a potentially comparable license agreement to the claimed invention in the patent(s)-in-suit. For example, in *Ericsson*, the Federal Circuit allowed the use of licenses that were negotiated without consideration of the entire market value rule (as is often the case) because the damages testimony supporting those licenses "explain[ed] to the jury the need to discount reliance on a given license to account only for the value attributed to the licensed technology."[61] The court observed that "allegedly comparable licenses may cover more patents than are at issue in the action, include cross-licensing terms, cover foreign intellectual property rights, or . . . be calculated as some percentage of the value of a multi-component product."[62] The Federal Circuit noted, however, that in such cases the district court should "give a cautionary instruction regarding the limited purposes for which such testimony is proffered if the accused infringer requests the instruction. The court should also ensure that the instructions fully explain the need to apportion the ultimate royalty award to the incremental value of the patented feature from the overall product."[63] Likewise, in *ResQNet.com*, the Federal Circuit criticized an expert's reliance on license agreements that included payments for add-ons, such as marketing and other services, unrelated to the licensed technology while "not provid[ing] any link between [these] licenses and the first factor of the *Georgia-Pacific* analysis [i.e., the royalties received for licensing the specific patents-in-suit]."[64]

Courts, however, have not yet provided a definitive, comprehensive outline stating what criteria must be evaluated to determine if a license agreement is properly "comparable." Indeed, a one-size-fits-all list may be impossible and the components of any such list, like the *Georgia-Pacific* factors, may not all be appropriate for the facts of a given case. Accordingly, district court decisions historically have varied in their approaches. Some have articulated a standard similar to that of the Federal

damages, however, some basis for comparison must exist in the evidence presented to the jury. In the present case, the jury had almost no testimony with which to recalculate in a meaningful way the value of any of the running royalty agreements to arrive at the lump sum damages award.").

56 Ericsson, Inc. v. D-Link Sys., 773 F.3d 1201, 1227 (Fed. Cir. 2014).

57 VirnetX, Inc. v. Cisco Sys., 767 F.3d 1308, 1330 (Fed. Cir. 2014).

58 ResQNet.com, Inc. v. Lansa, Inc., 594 F.3d 860 (Fed. Cir. 2010).

59 Wordtech Sys., Inc. v. Integrated Network Solutions, Inc., 609 F.3d 1308, 1320 (Fed. Cir. 2010).

60 Commonwealth Scientific and Industrial Research Organisation (CSIRO) v. Cisco Systems, Inc., 809 F.3d 1295, 1301–03 (Fed. Cir. 2015) (holding that "requir[ing] all damages models to begin with the smallest salable patent-practicing unit" was "untenable" because that "conflicts with our prior approvals of methodology that values the asserted patent based on comparable licenses").

61 *Ericsson*, 773 F.3d at 1227–28.

62 *Id.* at 1227.

63 *Id.* at 1228.

64 *ResQNet.com*, 594 F.3d at 870–71.

Circuit in *ResQNet*.[65] Other district courts have been less strict in analyzing what constitutes a comparable license.[66]

Some courts have openly struggled with the best way to use license agreements to calculate damages. The Eastern District of Virginia, for example, noted in one case that "[a]ll five licenses [it considered in a case] contained various restrictive limitations as well as the rights to use the patents. Each license also reflected the result of different perceived litigation strength[s] and weaknesses based on litigation developments," including verdicts, a hung jury, and the early-state settlements.[67] The court concluded:

> [Because] each of the five licenses reflects unique considerations which defy quantification . . . [we] cannot envision a reasonable, reliable way to use those five licenses to arrive at an ongoing royalty . . . .
>
> [Furthermore,] the [c]ourt harbors serious doubt as to whether it has any authority to incorporate the various intangible provisions included in the prior licenses.[68]

For a detailed discussion of WG9's Principles and recommendations concerning the comparability of licenses, *see infra* Section III.C.1. (Determining the Royalty Rate—Comparability of Licenses).

4. Disavowal of Rules of Thumb

The Federal Circuit has issued at least two recent decisions criticizing the use of certain "rules of thumb" in certain lines of case law in calculating reasonable royalty damages on the ground that they were not sufficiently tied to the facts of a case.

First, in *Uniloc USA, Inc. v. Microsoft Corp.*, the Federal Circuit disavowed the use of the so-called "25 percent rule of thumb."[69] For many years, patent holders had used the "25% rule of thumb" as a starting point in the reasonable royalty analysis by assuming that the parties to a hypothetical

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65 *See*, *e.g.*, IP Innovation LLC v. Red Hat, Inc., 705 F. Supp. 2d 687, 691 (E.D. Tex. 2010); Fenner Investments, Ltd. v. Hewlett-Packard Co., No. 6:08-cv-273, 2010 U.S. Dist. LEXIS 101384, at *5 (E.D. Tex. Apr. 16, 2010); Ricoh Co., Ltd., v. Quanta Computer, Inc., No. 06-cv-462-bbc, 2010 U.S. Dist. LEXIS 27301, at *26–27 (W.D. Wis. Mar. 23, 2010). Some district courts have used comparable licenses to set a ceiling on what the accused infringer would have been willing to pay in a hypothetical negotiation. *See, e.g.,* Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233, at *280–82 (W.D. Wash. Apr. 25, 2013) (concluding that a particular license that covered not only patents but also design information related to the accused functionality constituted a "high ceiling" of what the defendant would agree to pay for a license to the asserted patents).

66 *See*, *e.g.*, Saffran v. Johnson & Johnson, No. 2:07-CV-451 (TJW), 2011 U.S. Dist. LEXIS 34858, at *31–32 (E.D. Tex. Mar. 31, 2011) (holding, in a case involving a patented stent, that licenses were sufficiently comparable when they related to a drug delivered by the stent, or to a method of drug delivery that was similar to the method employed by the patented product); Finjan Software, Ltd. v. Secure Computing Corp., No. 06-CV-0369 (GMS), 2009 U.S. Dist. LEXIS 72825, at *41 (D. Del. Aug. 18, 2009), *rev'd on other grounds*, 626 F.3d 1197 (Fed. Cir. 2010) (upholding a jury award of over $9 million for the infringement of three of the patentee's patents even though a third party (Microsoft) had paid only $8 million to license the patentee's entire patent portfolio).

67 ePlus, Inc. v. Lawson Software, Inc., No. 3:09-cv-620, 2011 U.S. Dist. LEXIS 54957, at *46 (E.D. Va. May 23, 2011).

68 *Id.* at *46, 47 n.9.

69 Uniloc USA, Inc. v. Microsoft Corp., 632 F.3d 1292, 1315 (Fed. Cir. 2011).

negotiation would have agreed to a 25% royalty. The *Uniloc* court rejected that rule of thumb as a "fundamentally flawed tool for determining a baseline royalty rate in a hypothetical negotiation . . . because it fails to tie a reasonable royalty base to the facts of the case at issue."[70] There, the patentee presented no evidence that a 25%/75% split was standard practice in its license negotiations, nor did it attempt to show that the contribution of the patented invention to the accused products justified a 25% royalty.

Second, in *VirnetX, Inc. v. Cisco Systems*, the Federal Circuit rejected a patent holder's reliance on the "Nash Bargaining Solution," which assumes that parties begin a hypothetical negotiation by splitting the accused infringer's incremental profits 50-50. The Federal Circuit rejected the Nash Bargaining Solution as an "inappropriate 'rule of thumb'" because the expert did not show "that the premises of the theorem actually appl[ied] to the facts of the case at hand."[71] The Federal Circuit went on to say that "even if an expert could identify all of the factors that would cause negotiating parties to deviate from the 50-50 baseline in a particular case," application of the Nash Bargaining Solution might still create a significant risk of "inappropriately skewing the jury's verdict" because it "provides a baseline from which juries might hesitate to stray, even if the evidence supported a radically different split."[72]

F. THE POSSIBILITY OF ALTERNATIVE APPROACHES TO THE HYPOTHETICAL NEGOTIATION FRAMEWORK

A number of recent Federal Circuit cases have emphasized that application of the *Georgia-Pacific* hypothetical negotiation framework—along with its associated evidentiary factors—represent only one of several permissible ways of calculating reasonable royalty damages, and may not be appropriate (at least not without modification) in all situations.

In *Lucent Techs., Inc. v. Gateway, Inc.*, for example, the Federal Circuit stated that litigants "routinely adopt several approaches for calculating a reasonable royalty," including (1) the analytical method, which focuses on the infringer's anticipated profit from sales of the infringing product; and (2) the "more common" hypothetical negotiation approach contemplated in *Georgia-Pacific*.[73]

Likewise, in *Apple Inc. v. Motorola, Inc.*, the Federal Circuit stated that "estimating a 'reasonable royalty' is not an exact science," that "the record may support a range of 'reasonable' royalties, rather than a single value," and that "there may be more than one reliable method for estimating a reasonable royalty."[74] The Federal Circuit emphasized that "[a]ll approaches have certain strengths and weaknesses and, depending upon the facts, one or all may produce admissible testimony in a single case," and observed that advantages of one approach did not render another inadmissible.[75]

In *Ericsson, Inc. v. D-Link Sys.*, the Federal Circuit stressed that it had "never described the *Georgia-Pacific* factors as a talisman for royalty rate calculations," and cautioned trial courts that they "must

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70 *Id.*

71 *Id.* at 1332.

72 *Id.* at 1333.

73 Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1324 (Fed. Cir. 2009).

74 Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1315 (Fed. Cir. 2014).

75 *Id.*

carefully consider the evidence presented in the case when crafting an appropriate jury instruction" and "should avoid rote reference to any particular damages formula."[76]

The district courts, too, have recognized alternative frameworks. In *Lucent Techs. v. Microsoft*, for example, the Southern District of California allowed evidence based on a "business realities negotiation theory," pursuant to which the patent holder presented expert testimony regarding how negotiations are conducted in the "real-world."[77] Under the expert's theory, the parties enter the negotiation with their "respective walk away approaches" and ultimately "meet in the middle."[78] Although the defendant argued that the expert's approach was not appropriately grounded in the facts of the case, disputing the expert's use of several methodologies to support his conclusions,[79] the court found that the business realities negotiation theory was based on reliable principles and methods, noting that"[l]itigants routinely adopt several approaches for calculating a reasonable royalty."[80]

Recognition by the district courts and especially by the Federal Circuit that the *Georgia-Pacific* hypothetical negotiation framework is only one permissible approach to the determination of a reasonable royalty paves the way for consideration of new alternative approaches.

76 Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1231–32 (Fed. Cir. 2014). Although *Ericsson* involved RAND-encumbered patents, the court's general statements regarding the *Georgia-Pacific* framework are instructive beyond RAND matters. *See also* WhitServe, LLC v. Computer Packages, Inc., 694 F.3d 10 (Fed. Cir. 2012) ("We do not require that witnesses use any or all of the *Georgia-Pacific* factors when testifying about damages in patent cases.").

77 Lucent Techs., Inc. v. Microsoft Corp., No. 07-CV-2000, 2011 WL 7664416, at *16 (S.D. Cal. June 16, 2011).

78 *Id.*

79 *Id.*

80 *Id.*

II. Approaches to the Reasonable Royalty Paradigm

This section explores three different methodologies for fulfilling the statutory mandate of a reasonable royalty within the hypothetical negotiation construct: (1) the "Status Quo"/"Book of Wisdom" Model; (2) the "Prospective-Only" or "Strict *Ex Ante*" Model; and (3) a new "Retrospective" Model. The section further sets forth Principles and Best Practices consistent with controlling Federal Circuit precedent for the application of various evidentiary factors relevant to the reasonable royalty analysis.

<u>Principle No. 1</u> – The reasonable royalty in patent infringement matters should fairly compensate the patent holder for the use made by the infringer of the patented invention based on the evidence presented.

The overarching Principle developed by the Working Group for reasonable royalty determinations in patent infringement matters is that the reasonable royalty should fairly compensate the patent holder for the actual use made by the infringer of the patented invention based on the record of the case at hand. Under this Principle, this determination is made by considering what fully informed, willing, and reasonable persons in the position of the patent owner (or owners throughout the relevant period) and the infringer would agree upon as a fair price for the use of the patented invention, taking into account appropriate facts and circumstances occurring during the relevant time period, while factoring out any switching costs, lock-in costs, patent-holdup costs, or other similar costs that are supported by evidence presented by a party that are attributable to the circumstances of use of the patented technology rather than to the value of the technology itself.

The Working Group discussed three approaches to the reasonable royalty paradigm:

1. The "Status Quo"/"Book of Wisdom" Model—a hypothetical negotiation taking place at the time of first infringement using only facts available at that time, except for certain future facts that may be taken into account under the "book of wisdom" concept;
2. A "Prospective-Only" or "Strict *Ex Ante*" Model—a hypothetical negotiation taking place at the time of first infringement, using only facts known at that time (and thus eliminating altogether the book of wisdom concept); and
3. A new "Retrospective" or "*Ex Post*" Model—a hypothetical negotiation taking place at the time of trial using all facts available from the time of first infringement through the time of trial (and thus eliminating any need for the application of the book of wisdom concept).

The Working Group engaged in an extended dialogue regarding the advantages and disadvantages of each paradigm in carrying out the central purpose of the patent damages statute to award 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."[81] Below is a discussion of those advantages and

[81] 35 U.S.C. § 284.

disadvantages, along with a detailed explanation of how the new Retrospective Model discussed by the Working Group might be used for calculating reasonable royalty damages.

A. THE STATUS QUO/BOOK OF WISDOM MODEL

The current legal paradigm—i.e., the Status Quo Model—focuses the hypothetical negotiation inquiry on the date immediately before the infringement began, while allowing for certain future facts to be taken into account. This "look ahead" is commonly referred to as using a "book of wisdom" after Justice Cardozo's description of it in *Sinclair Refining Co. v. Jenkins Petroleum Process Co.*: "[I]f years have gone by before the evidence is offered[, e]xperience is then available to correct uncertain prophecy. Here is a book of wisdom that courts may not neglect."[82] Under this model, the parties to the hypothetical negotiation are assumed to have access to a "book of wisdom" that contains certain information about relevant events that will occur in the future. Thus, current law creates a Prospective or *Ex Ante* framework for the hypothetical negotiation by viewing it as taking place just prior to the date of first infringement, but at the same time, under some circumstances, permitting consideration of "events and facts that occurred [after the hypothetical negotiation] that could not have been known to or predicted by the hypothesized negotiators."[83]

One advantage of a prospective approach is that by setting the date of the hypothetical negotiation at a time before the accused infringer adopted the patented technology, it allows a reasonable royalty to be set (in most cases) without reference to any switching costs, lock-in costs, patent-holdup costs, or other costs associated solely with (1) removing patented technology after its initial adoption (as opposed to those costs associated with foregoing the benefits of the patented technology itself) or (2) the adoption of the patented technology by a standard-setting organization, governmental body, or similar market-shaping force.

For example, requiring a manufacturer to switch from using a patented subcomponent to a non-patented subcomponent might entail costs, delays, and inefficiencies unrelated to the technical merits of the subcomponents themselves (e.g., the manufacturer might need to change its supply relationships, modify its manufacturing processes, or abandon any sunk costs—i.e., costs that have already been incurred and cannot be recovered—it invested in the patented components). Similarly, requiring a consumer to switch from using a patented feature to a non-patented feature may impose learning costs on the consumer, leading to frustration, negative publicity, and ultimately a decrease in consumer demand—again, for reasons unrelated to the technical merits of the patented and unpatented features themselves. Generally speaking, these kinds of costs are unrelated to the invention's contribution to the art, and incorporating them into a reasonable royalty award may lead to a damages award that overcompensates the patent holder for the "value" of its invention. Focusing the hypothetical negotiation inquiry on the date immediately before the infringement began is one way to factor these costs out of the analysis in most cases because, from the hypothetical licensee's perspective, those costs can still be avoided—at that time, the hypothetical licensee has not yet invested any sunk costs in the patented technology, its customers have not

82 Sinclair Refining Co. v. Jenkins Petroleum Process Co., 289 U.S. 689, 698 (1933) (Cardozo, J.).

83 Fromson v. Western Litho Plate & Supply Co., 853 F.2d 1568, 1575 (Fed. Cir. 1988).

grown accustomed to the patented technology, and the patented technology has not yet been adopted as a standard in the industry.[84]

One disadvantage of a prospective approach is that, in some cases, it may result in the setting of a reasonable royalty based on incomplete or inaccurate predictions about the success of the patented technology at a fixed point in time before the accused infringer adopted that technology. In cases involving undeveloped technology, for example, there may be insufficient information at the time of infringement for the hypothetical negotiators to arrive at a meaningful *ex ante* reasonable royalty. Moreover, real-world events that occur after the date of first infringement may prove that the parties' *ex ante* expectations were overly optimistic or overly pessimistic. Reliance on *ex ante* predictions in these situations may result in an award of damages that does not accurately reflect the value of "the use made of the invention by the infringer."[85]

As discussed above, the book of wisdom attempts to correct for this problem by allowing the trier-of-fact to consider certain facts and circumstances postdating the infringement to evaluate the reasonableness of the royalty amount.[86] In practice, however, the book of wisdom has not always provided clear guidance as to the nature and extent to which future facts and circumstances may be taken into account.

Application of the book of wisdom appears to be less controversial in cases involving *incomplete* prophecy—as, for example, in cases where the pre-infringement evidence is so scant that the patent holder might not be able to recreate how the hypothetical negotiators would have prospectively valued the patent as of the date of first infringement. In those cases, refusing to allow the patent holder to use post-infringement evidence to fill in the evidentiary "gaps" might be contrary to the purpose of the patent damages statute to provide adequate compensation to the patent holder, as well as perhaps to basic notions of justice and fairness.

A more complicated issue is presented in cases involving *inaccurate* prophecy—as, for example, in cases where one or both parties had settled expectations at the time of first infringement about the success of the accused products or the value of the patent but, for whatever reason, those

84 In some cases, setting the date just prior to the date of first infringement will not, in fact, avoid lock-in or holdup costs. For example, it is possible that a particular technology within the scope of the patent had become an industry standard just prior to first infringement by the infringer. In such cases, additional steps would need to be taken to factor out lock-in and holdup costs that were not already avoided by setting the date of the hypothetical negotiation at the time just prior to first infringement. *See* Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1234 (Fed. Cir. 2014) (holding that when presented with evidence that the patent holder has demanded patent-holdup costs following adoption of a standard, the district court should address those costs "by instructing the jury on patent hold-up or, perhaps, setting the hypothetical negotiation date before the adoption of the standard"). For related commentary on this issue, *see* Norman Siebrasse & Thomas F. Cotter, *A New Framework to Determining Reasonable Royalties in Patent Litigation*, University of Minnesota Law School, Legal Studies Research Paper No. 14-45 (2015).

85 35 U.S.C. § 284; *see also* Aqua Shield v. Inter Pool Cover Team, 774 F.3d 766, 770 (Fed. Cir. 2014) ("The 'value of what was taken'—the value of the use of the patented technology—measures the royalty.").

86 *See Sinclair Refining*, 289 U.S. at 698–99 (the "book of wisdom" serves as a kind of corrective lens that uses the benefit of hindsight to "correct uncertain prophecy"); *Fromson*, 853 F.2d at 1575 ("The [hypothetical negotiation] methodology encompasses fantasy and flexibility; fantasy because it requires a court to imagine what warring parties would have agreed to as willing negotiators; flexibility because it speaks of negotiations as of the time infringement began, yet permits and often requires a court to look to events and facts that occurred thereafter and that could not have been known to or predicted by the hypothesized negotiators.").

predictions turned out to be incorrect. In those cases, courts and commentators struggle with how best to apply the book of wisdom.

For example, in *Interactive Pictures Corp. v. Infinite Pictures, Inc.*, the Federal Circuit upheld a $1 million reasonable royalty award that had been based on the accused infringer's pre-infringement sales projections—projections that, the accused infringer argued, were "outdated" and "optimistic" in light of subsequent events.[87] The Federal Circuit held that the accused infringer's pre-infringement projections were not "outdated" because they were created two months before the date of first infringement, and dismissed the argument that those projections were unfairly "optimistic" by stating that "[t]he fact that the [accused infringer] did not subsequently meet those projections [was] *irrelevant to [its] state of mind at the time of the hypothetical negotiation*."[88]

Similarly, in *Integra Lifesciences I, LTD. v. Merck KGaA*, the Federal Circuit overturned a $15 million reasonable royalty award that was based on expert testimony of a hypothetical negotiation taking place in 1995 because "the record [did] not clearly indicate whether 1994 or 1995 [was] the proper date for the first infringement."[89] In the court's view, this made a significant difference because in 1994 the accused infringer did not expect to receive FDA approval to market the accused products, whereas in 1995 it did. The court held that evidence of how the parties would have valued the patent in 1995 did not support a reasonable royalty determined under a hypothetical negotiation taking place in 1994 because the increased likelihood of receiving FDA approval in 1995 "changed the risks and expectations of the parties."[90]

Taken together, *Interactive Pictures* and *Integra Lifesciences* appear to support the proposition that post-infringement evidence bearing on a patent's value is *irrelevant* to how the hypothetical negotiators would prospectively value the patent as of the date of first infringement in cases where the post-infringement evidence is in conflict with the parties' pre-infringement expectations. These cases, therefore, appear to support a narrow application of the book of wisdom—i.e., one that closes the book of wisdom to those who wish to use it to correct "inaccurate" prophesy.

By contrast, in *Harris Corp. v. Ericsson Inc.*, the Federal Circuit appeared to adopt a more liberal and expansive view of the book of wisdom.[91] There, the patent holder had presented two different reasonable royalty rates to the jury—a 1.75% rate that applied on January 1, 1992, the date of first infringement, and a second 0.5% "renewal" rate beginning on January 1, 1997, that took into consideration changed economic circumstances after the initial hypothetical negotiation. The district court had concluded that the prospective nature of the hypothetical negotiation did not "preclud[e] the modification of the royalty rate over time by subsequent events."[92] The Federal Circuit agreed, stating that "[t]he court correctly understood [Federal Circuit precedent] as mandating consideration

87 Interactive Pictures Corp. v. Infinite Pictures, Inc., 274 F.3d 1371, 1384–85 (Fed. Cir. 2001).

88 *Id.* at 1385 (emphasis added).

89 Integra Lifesciences I, LTD. v. Merck KGaA, 331 F.3d 860, 870 (Fed. Cir. 2003).

90 *Id.*

91 Harris Corp. v. Ericsson Inc., 417 F.3d 1241, 1257–58 (Fed. Cir. 2005).

92 *Id.* at 1247.

of a hypothetical negotiation on the date of first infringement but not automatically excluding evidence of subsequent events."[93]

Also applying an expansive view of the application of the book of wisdom, in analyzing *Georgia-Pacific* factor 11 in *Lucent*—"[t]he extent to which the infringer has made use of the invention; and any evidence probative of the value of that use"—the Federal Circuit relied on the "book of wisdom" to reject Microsoft's argument that information about consumers' use of the infringing feature was irrelevant because it postdated the time of the hypothetical negotiation.[94] In allowing such post-hypothetical negotiation evidence, the Federal Circuit explained that "neither precedent nor economic logic requires us to ignore information about how often a patented invention has been used by infringers.[95] Nor could they since frequency of expected use and predicted value are related."[96] The court noted that evidence of infringing use postdating the hypothetical negotiation "can, under appropriate circumstances, be helpful to the jury and the court in assessing whether a royalty is reasonable."[97] The court also stated that such evidence may provide information "that the parties would frequently have estimated during the negotiation."[98] Ultimately, the Federal Circuit held that *Georgia-Pacific* factor 11 did not support the jury verdict because "the evidence of record is conspicuously devoid of any data about how often consumers use the patented date-picker invention."[99] Similarly, in *VirnetX, Inc. v. Cisco Systems, Inc.*, the Federal Circuit also applied the book of wisdom, affirming the district court's admission of licenses postdating the hypothetical negotiation by a number of years.[100]

In *Honeywell International, Inc. v. Hamilton Sundstrand Corp.*, the Delaware district court also adopted a liberal and expansive view of the book of wisdom.[101] In that case, both parties had prepared pre-infringement sales projections in 1998 and 1999 relating to the sale of accused auxiliary power units for use in commercial aircraft. The date of the hypothetical negotiation was in 2000.[102] Subsequently, the "unforeseen and tragic events of September 11, 2001" occurred, resulting in a dramatic increase in demand for the accused products.[103] Revised sales projections were made in 2004 and 2005. Use of the revised projections in place of the pre-infringement projections would have increased the patent holder's reasonable royalty calculations by $11 million.[104] Relying on Justice Cardozo's rationale for the book of wisdom in *Sinclair Refining Co.* and the Federal Circuit's adoption of it in *Fromson,* the district court refused to preclude the patent holder from relying on the revised

93 *Id.* at 1257.

94 Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1333 (Fed. Cir. 2009).

95 *Id.*

96 *Id.*

97 *Id.* at 1333–34.

98 *See id.* at 1334.

99 *Id.*

100 VirnetX, Inc. v. Cisco Sys., Inc., 767 F.3d 1308, 1330 (Fed. Cir. 2014).

101 Honeywell Int'l, Inc. v. Hamilton Sundstrand Corp., 378 F. Supp. 2d 459 (D. Del. 2005).

102 *Id.* at 462–463.

103 *Id.* at 463.

104 *Id.*

projections, even though those projections reflected changes in "the risks and expectations of the parties" since the date of first infringement. Distinguishing or declining to follow *Interactive Pictures* and *Integra Lifesciences*, the district court held that "the result dictated by [*Fromson*] [was] the most sensible" because it afforded more flexibility when calculating damages, better discouraged infringement by placing the risk of success on the infringer, and better aligned with the plain language of the patent damages statute by awarding compensation for "the use made of the invention."[105]

Some commentators have argued in favor of the liberal and expansive view of the book of wisdom, pointing out that the narrow view does not always compensate for "the use of the invention," as required by the patent damages statute, because it allows *projected* use of the invention to trump *actual* use in cases where the two differ.[106] In so doing, these commentators argue, the narrow view calculates a form of "expectancy damages" more appropriate in breach of contract cases than in tort cases.[107] These commentators also note that allowing *projected* use to trump *actual* use results, in some cases, in outcomes that do not comport with traditional notions of justice and fairness, because they can result in unfair windfalls for either the patent holder or the accused infringer depending solely on the quality of the pre-infringement projections.[108] When viewed from this perspective, cases like *Honeywell* achieve the correct result by awarding damages that accurately reflect the harm caused by the infringement.[109]

An article written by a Working Group member, now a state court judge, provides an alternative perspective on this issue.[110] After extensively reviewing the relevant case law, this commentator concluded that "the cases establish that the *only* purpose of the book of wisdom is to permit consideration of *ex post* data that constitute inferential evidence of a particular value determined in

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105 *Id.* at 469–70.

106 Rachel Krevans, John Jarosz, Christopher Robinson & Michael Chapman, *Use of Retrospective Model in Computing Reasonable Royalty Damages*, at 12 (presented at The Sedona Conference "All Voices" Meeting, Nov. 4–7, 2014) (on file with The Sedona Conference).

107 *See* Krevans, et al., *supra* note 106, at 5; *see also* John C. Jarosz & Michael J. Chapman, *The Hypothetical Negotiation and Reasonable Royalty Damages: The Tail Wagging the Dog*, 16 STAN. TECH. L. REV. 769, 785–86, 800–01 (2013).

108 *See* Krevans, et al., *supra* note 106, at 5. To illustrate this problem, consider two alternative scenarios based on the same underlying fact pattern: one party—it could be either the patent holder or the accused infringer—has prepared pre-infringement sales projections that are later used by the other party in the royalty base of a reasonable royalty calculation. In the first scenario, the task of preparing the sales projections was entrusted to an optimist that created overly optimistic projections. In the second scenario, the task was entrusted to a pessimist that created overly pessimistic projections. Under a narrow application of the book of wisdom in which post-infringement evidence of actual use is deemed irrelevant to the state of mind of the hypothetical negotiators, the resulting reasonable royalty award will result in a windfall to either the patent holder or the accused infringer depending on the chance events of which party prepared the projections and whether that party entrusted the task to an optimist or a pessimist. For additional commentary on this issue, *see* Michael J. Carrozza, *Are Royalties Reasonable in Patent Infringement Suits? Using Hindsight at the Hypothetical Negotiating Table*, 12 J. MARSHALL REV. INTELL. PROP. L. 242 (2012).

109 *See* Krevans, et al., *supra* note 106, at 15. For additional commentary on this issue, *see* Norman Siebrasse and Thomas F. Cotter, *A New Framework to Determining Reasonable Royalties in Patent Litigation*, University of Minnesota Law School, Legal Studies Research Paper No. 14-45 (2015), at 28–29.

110 Hon. Martha K. Gooding, *Reasonable Royalty Patent Damages: A Proper Reading of The Book of Wisdom*, BLOOMBERG BNA PATENT TRADEMARK & COPYRIGHT LAW DAILY, at 3 (Apr. 21, 2014).

the past."[111] In other words, "the book of wisdom is available in the patent infringement context to shed light on the state of mind of the parties to the hypothetical negotiation, namely what the parties would have considered as they assessed the value of a license under the patent during their hypothetical negotiation."[112] In this commentator's view, "[e]x post data are admissible *only* to fill evidentiary 'gaps' about the parties' valuation of the patent at the time of the hypothetical negotiation; *they may not be used* to contradict pre-hypothetical negotiation evidence that illuminates how the parties would have valued the patent rights."[113] When the book of wisdom case law is viewed from this perspective, cases like *Honeywell* appear to have been wrongly decided, because they allowed post-infringement (*ex post*) information to supplant pre-infringement (*ex ante*) predictions.[114]

Some recent Federal Circuit case law lends support to proponents of the narrow interpretation of the book of wisdom. Following *VirnetX*, in *Aqua Shield v. Inter Pool Cover Team*, the Federal Circuit stated that the "core economic question" of the hypothetical negotiation framework "is what the infringer, in a hypothetical pre-infringement negotiation under hypothetical conditions, would have *anticipated* the profit-making potential of use of the patented technology to be, compared to using noninfringing alternatives."[115] A district court errs, under this precedent, when it treats the infringer's actual profits as a royalty cap because "[t]his treatment incorrectly replaces the hypothetical inquiry into what the parties would have anticipated, looking forward when negotiating, with a backward-looking inquiry into what turned out to have happened."[116]

As the above cases and commentary suggests, and as the Working Group dialogue reflected, the proper interpretation and application of the Status Quo/Book of Wisdom Model is subject to significant debate—at least in cases involving *inaccurate* predictions of a patent's value. Without clear guidance about the proper application of the book of wisdom, the parties and their experts cannot reasonably predict what facts the district court will allow the trier-of-fact to consider at trial. As a result, the experience of those in the Working Group has been that parties on both sides often attempt to "cherry-pick" future facts favorable to their case, while omitting future facts unfavorable to their case, and encourage either the district court or the trier-of-fact to do the same.[117]

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111 *Id.* at 3 (emphasis added).

112 *Id.*

113 *Id.* (emphasis added). Specifically, this author identified "four categories of information that, under proper circumstances, might properly be considered in a patent infringement case: (1) *ex post* information about the infringer's actual usage of the patented invention; (2) *ex post* agreements, including sales and license agreements; (3) *ex post* information about the profits derived by the infringer from the use of the patented invention; and (4) *ex post* information about noninfringing alternatives to the patented invention." *See id.* at 3–4.

114 *Id.* at 13; *see also* D. Christopher Holly, *The Book of Wisdom: How to Bring a Metaphorical Flourish Into the Realm of Economic Reality by Adopting a Market Reconstruction Requirement in the Calculation of a Reasonable Royalty*, 92 J. PAT. & TRADEMARK OFF. SOC'Y 156, 178 (2010) (arguing that the *Honeywell* decision represented a departure from Federal Circuit law).

115 Aqua Shield v. Inter Pool Cover Team, 774 F.3d 766, 770 (Fed. Cir. 2014).

116 *Id.* at 772.

117 *See, e.g.,* Michael J. Carrozza, *Are Royalties Reasonable in Patent Infringement Suits? Using Hindsight at the Hypothetical Negotiating Table*, 12 J. MARSHALL REV. INTELL. PROP. L. 242, 257 (2012) ("Inconsistent holdings, such as *Interactive Pictures* and *Fromson*, supply parties with too much ammunition and allow almost any argument to be made.").

B. THE STRICT PROSPECTIVE-ONLY OR *EX ANTE* MODEL

The Working Group also analyzed a strict Prospective-Only or *Ex Ante* Model. Like the Status Quo Model, a Prospective-Only Model focuses the hypothetical negotiation inquiry on the date immediately before the infringement began, but differs in that it does not allow any consideration of any facts beyond that date.

This model shares the same advantage as the Status Quo Model in factoring out any switching costs, lock-in costs, patent-holdup costs, or other similar costs. This model also has the advantage of eliminating the uncertainty and unpredictability inherent in the current application and interpretation of the book of wisdom. In addition, this model is consistent with current law requiring determination of reasonable royalty damages under a hypothetical negotiation taking place at the time of first infringement. That is, if the hypothetical negotiation is placed at the time of first infringement, then facts not available to the parties at that time should not be taken into account in calculating a reasonable royalty. Allowing such facts to enter into the hypothetical negotiation (via the book of wisdom or otherwise) represents a clear departure from, and perhaps an erosion of, the *ex ante* nature of the hypothetical negotiation framework.

The Working Group recognized, however, that rigid application of the Prospective-Only Model may be at odds with the overriding mandate of the damages statute: to provide adequate compensation to the patent owner for "the use made of the invention" by the infringer. For example, strict application of this model in cases involving undeveloped technology might leave the patent holder without an adequate remedy if the patent holder cannot establish that the hypothetical negotiators' *ex ante* expectations would have supported anything more than a nominal royalty—even if subsequent events proved the patent to be extremely valuable. Even in cases where sufficient evidence exists to establish the *ex ante* expectations of the hypothetical negotiators, a key fact may change so as to cause the patent to be much more valuable or much less valuable than appeared to be the case at the date of first infringement. In such instances, the Prospective-Only Model might not yield damages adequate to compensate the patent owner for the infringement or, conversely, might overcompensate the patent holder and impose an unfair penalty on the infringer. Indeed, it was this potential for unfair results that gave rise to the book of wisdom in the first instance.

C. THE RETROSPECTIVE OR *EX POST* MODEL

The Working Group also developed and extensively analyzed a new Retrospective or *Ex Post* Model. Unlike either the Status Quo or Prospective-Only Models, this model moves the date of the hypothetical negotiation from the date of first infringement to the date of trial, thereby allowing consideration of *all* future facts bearing on patent value and eliminating any need for the application of the book of wisdom. The Retrospective Model embraces the liberal and flexible use of post-infringement evidence in the calculation of a reasonable royalty to ensure that the award is "adequate to compensate" for the infringement.

The Retrospective Model states:

> The royalty shall be determined by considering what (a) fully informed, (b) willing, and (c) reasonable persons (d) in the positions of the patent owner (or owners throughout the period of infringement) and the infringer would agree to at the time of trial as a fair price for the license, (e) taking into account all relevant facts and

circumstances occurring before or during that period, while (f) factoring out any switching costs, lock-in costs, patent-holdup costs, or other similar costs that are not attributable to the value of the patented technology.

The terminology used in the above is defined as follows:

a. "Fully informed" means a licensor and licensee who both know all relevant facts available to them, not just the facts actually known to the individuals at the plaintiff and the defendant entities at the relevant times.

b. "Willing" means the hypothetical negotiators assume that the patent is valid and infringed,[118] and that both parties are willing to enter into a license agreement for the patent-at-issue.[119]

c. "Reasonable persons" means hypothetical negotiators in the place of the actual plaintiff and defendant, applying an objective, not a subjective, determination. The hypothetical negotiators must be assumed to behave like reasonable business people would under the circumstances.

d. "[What] the patent owner or owners throughout the period of infringement and the infringer would agree to" means that the hypothetical reasonable person, who is willing to enter into a license agreement for the patent-at-issue, will bargain in light of the actual circumstances of the patent owner(s) and the defendant(s), and the actual context of the market for the invention and products or processes using the invention at the relevant times.

e. "All relevant facts and circumstances" include the factors listed in *Georgia-Pacific* (to the extent relevant) and any other factors relevant to the particular case being litigated, for example:

    i. the relative bargaining power of the patent owner and the accused infringer throughout the period of infringement, including their positions in the market for the accused processes or products;

    ii. the importance of the accused product or process to the business of the defendant(s);

    iii. the actual financial position of the patent owner(s) and the accused infringer(s) throughout the period of infringement;

    iv. the terms of comparable licenses, if any;

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118 *See* Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1325 (Fed. Cir. 2009) ("The hypothetical negotiation . . . assumes that the asserted patent claims are valid and infringed."). Notably, the Working Group considered whether to modify the assumption inherent in the existing hypothetical negotiation framework that patents subject to a hypothetical negotiation are assumed to be valid and infringed. The Working Group recognizes that this issue raises important concerns. Overturning this assumption, however, would represent a substantial departure from existing law, and is an issue best reserved for future Working Group discussions.

119 *See, e.g.*, Georgia-Pacific Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1121 (S.D.N.Y. 1970) ("In fixing damages on a royalty basis against an infringer, the sum allowed should be reasonable and that which would be accepted by a prudent licensee who wished to obtain a license but was not so compelled and a prudent patentee, who wished to grant a license but was not so compelled.").

v. industry practices in license structures and amounts, for example, whether it is industry practice to pay lump sum royalties, or to pay a set amount per unit rather than a rate-times-a-base price;

vi. if the appropriate license structure is a rate-times-a-base, what is the appropriate base? That is, how much of the value of the accused product or process is attributable to the claimed invention?;

vii. past practice of the patent owner(s) and the defendant(s) in license structure and amounts;

viii. what licenses has the patent owner already given on this technology and will this hypothetical license impair any of them? Are there most favored nations clauses in existing licenses that must be respected? Has the patent owner already given an exclusive license in the field in which the defendant is practicing the invention?;

ix. royalty stacking, if any evidence of same;

x. noninfringing alternative design, or "design around," possibilities throughout the period of infringement, including their cost, technical and commercial feasibility, their time to develop, and the timing of their possible implementation; and

xi. how the royalty under the hypothetical license would fit into an appropriate cost and profit structure for the defendant(s).

f. "Factoring out any switching costs, lock-in costs, patent-holdup costs, or other similar costs" involves ensuring that district courts exercise their gatekeeping responsibility to ensure that damages calculations presented to the trier-of-fact do not include such costs, which are unrelated to the value of the patented technology. It also involves ensuring that juries are adequately instructed about such costs so as to avoid including them in any reasonable royalty award.

In the unusual case in which the relevant factors change materially during the period from the time of first infringement to the time of trial, then two different royalty rates might apply—one to the period before the material change, and one to the period after—rather than one rate for the entire period. For example, if a noninfringing alternative could not have been implemented as of the date of first infringement, but it could have been implemented between then and the time of trial, then it may be appropriate to set two different royalty rates to account for the different economic circumstances before and after the time the noninfringing alternative became "available" to the accused infringer.

One advantage of this model is that it eliminates the uncertainty, unpredictability, and "cherry-picking" inherent in the inconsistent judicial application of the book of wisdom under the Status Quo Model. The Retrospective Model eliminates this confusion by enabling courts to avoid the application of an unclear and largely discretionary judicial standard for the admissibility of post-infringement evidence. At the same time, the Retrospective Model eliminates the potential for unfairness in the Status Quo and Prospective-Only Models caused by rigid reliance on *ex ante* predictions where those predictions, for whatever reason, did not accurately forecast the infringer's actual use of the patented technology or apprehend the actual value of the patent as revealed by events subsequent to the date of first infringement.

Another advantage of the Retrospective Model is that it better aligns with the plain language of the patent damages statute to provide adequate compensation for "the use made of the invention" by the infringer because it allows the trier-of-fact to consider *actual* infringing use, as opposed to only *projected* infringing use. By the same token, the Retrospective Model allows the trier-of-fact to award a reasonable royalty directly related to the actual harm caused by the accused infringer's unauthorized use of the patented invention, instead of the expected harm of the infringement viewed from at a fixed point in time before any infringement has actually occurred. As some commentators have noted, damages based on expected harm measured at the time of first infringement is not consistent with ordinary principles of tort damages, which are based on making a victim whole for an injury proximately caused by a tortfeasor, but instead represent a form of expectancy damages traditionally reserved for measuring harm in a breach of contract case.[120]

Moreover, by allowing the trier-of-fact to consider real-world evidence postdating the date of first infringement, the trier-of-fact may evaluate the *actual* contributions of the patented technology to the success or failure of the accused products in the marketplace, and distinguish them from the *actual* contributions of the accused infringer that should not be credited to the invention (e.g., product marketing, company goodwill, sales effectiveness, the effect of non-patented features or improvements added by the accused infringer, etc.). For example, under the Status Quo or Prospective-Only Models, a patent holder might be undercompensated in a case in which the accused infringer *expects* low sales of the accused products on the date of first infringement based on perceived weaknesses in its own marketing and sales infrastructure, but *actually* sells high numbers of the accused products based on strong customer demand for the patented technology despite those weaknesses. The Retrospective Model corrects for this unfair outcome by allowing full consideration of real-world post-infringement evidence bearing on the *actual* contributions of the patented and non-patented elements on the *actual* success or failure of the accused products. Allowing full consideration of this real-world evidence, therefore, better aligns with principles of apportionment to ensure that a reasonable royalty award reflects the value attributable only to the patented features.[121]

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120 *See* Krevans, et al., *supra* note 106, at 18.

121 One public comment received by the Working Group presented an alternative view on this issue. This comment stated that the Retrospective Model would unfairly punish accused infringers who were successful from the time of first infringement through the time of trial—as, for example, an accused infringer facing significant competition at the time of first infringement who subsequently became the dominant market participant by the time of trial through its superior business acumen. This comment pointed out that such an accused infringer would be better off under the existing Prospective or *Ex Ante* hypothetical negotiation framework because the reasonable royalty would be set at a time when a high degree of competition existed, which would serve to decrease the reasonable royalty rate. This comment, therefore, characterized the *Ex Post* approach in this scenario as "penalizing" the accused infringer for its success in the marketplace—a reason entirely divorced from the value or merits of the asserted patents.

However, under the Retrospective Model, there would be no barrier to the trier-of-fact's consideration of all relevant post-infringement evidence in the hypothetical posed, including consideration of whether the accused infringer's success in the market was attributable to the patented technology or to non-patented factors such as the accused infringer's business acumen. By contrast, it is arguably the narrow application of the book of wisdom under the Status Quo Model that has the potential to "penalize" the accused infringer for reasons entirely divorced from the asserted patents. Consider the opposite hypothetical to the one posed: the accused infringer faces low competition at the time of first infringement and high competition at the time of trial for reasons relating to superior business acumen of other market participants. In that situation, the *Ex Ante* approach would penalize the accused infringer by setting the royalty at a time of low competition and excluding as *irrelevant* evidence of later-

Another advantage of the Retrospective Model is that it avoids uncertainty in identifying "the date of first infringement," which can be difficult to determine in some cases, and is often the subject of dispute. Because patent infringement covers the unauthorized manufacture, use, offer for sale, and sale of infringing products, it may be difficult to determine whether the date of first infringement is the date of first use (i.e., development and testing),[122] the date of first manufacture,[123] the date of first sale,[124] or some other date. The Retrospective Model eliminates this uncertainty by setting the date of the hypothetical negotiation at the time of trial in all cases.

One primary disadvantage of the Retrospective Model is that, by moving the hypothetical negotiation later in time to a date at or near the time of trial, it may lead to a higher (and potentially unfair) royalty due to incorporation of any switching costs, lock-in costs, patent-holdup costs, or other similar costs.[125] To address this concern, the Retrospective Model incorporates a methodology to avoid these costs by (1) requiring district courts to exercise a gatekeeping function to make sure such costs are not included within any reasonable royalty calculations submitted to the trier-of-fact, and by (2) instructing the trier-of-fact about the need to avoid considering these kinds of costs when awarding a reasonable royalty.[126] With that methodology in place, it may be possible to achieve the full purpose of the patent damages statute using the Retrospective Model—adequate compensation to the patent owner based on "the use made of the invention"—without unfairness to either party.[127] However, even with the best intentions, the Retrospective Model may nevertheless favor the

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arising competition that would warrant a lower royalty. Under the Retrospective Model, by contrast, there would be no such rigid legal barrier to the consideration of the later-arising competition by the trier-of-fact.

122 Oracle America, Inc. v. Google Inc., 798 F. Supp. 2d 1111, 1116 (N.D. Cal. 2011) (setting the hypothetical negotiation on the date of first *use*).

123 *Georgia-Pacific*, 318 F. Supp. at 1123 (setting the hypothetical negotiation on the date of first *manufacture*).

124 Medtronic Sofamor Danek USA, Inc. v. Globus Med., Inc., 637 F. Supp. 2d 290, 310 n.26 (E.D. Pa. 2009) (setting the hypothetical negotiation on the date the accused products first became available for use and sale).

125 The "lock-in" effects are drawing significant attention in the context of fair, reasonable, and non-discriminatory (FRAND) licensing because "one of the primary purposes of the [F]RAND commitment is to avoid patent holdup, which occurs when the holder of a standard-essential patent demands excess royalties after standard implementers are already locked into using the standard." *In re* Innovatio IP Ventures, LLC Patent Litig., No. 1:11-CV-9308, 2013 WL 5593609, at *8–9 (N.D. Ill. Oct. 3, 2013); *see* Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217, at *10 (W.D. Wash. Apr. 25, 2013).

126 *See infra* Section III.C.4., Principle No. 8 and accompanying commentary.

127 One can envision an alternative *ex post* model that would accomplish the same result as the Retrospective Model, but without moving the date of the hypothetical negotiation to the date of trial. This alternative *ex post* model would focus the hypothetical negotiation inquiry on the date of first infringement, but allow the trier-of-fact to consult a "wide open" book of wisdom that would allow real-world post-infringement events to inform, modify, or even supplant the parties' pre-infringement expectations as of the date of first infringement. The primary difference between the Retrospective Model and this alternative *ex post* model is in how any switching costs, lock-in costs, patent-holdup costs, and similar costs would be eliminated. In the Retrospective Model, they would be eliminated by tools analytically separate from the hypothetical negotiation framework—as, for example, by district courts precluding damages calculations that incorporate those costs or by instructing juries to award a reasonable royalty without consideration of those costs. In the alternative *ex post* model, the hypothetical framework itself would attempt to exclude these costs by moving the date of the hypothetical negotiation to a point in time when the hypothetical infringer can still avoid those costs. (However, as current case law acknowledges, setting the hypothetical negotiation at the time immediately before the date of first infringement may not eliminate these costs in all cases, thus requiring a district court to issue a jury instruction or set the date of the hypothetical negotiation even earlier than the date of first infringement to factor out those costs when the facts support such measures. *See supra* note 84.).

patentee. To be sure, patent infringement cases tend to be brought against products that are successful in the market. Shifting the hypothetical negotiation date to a time when the market success has been realized, as compared to the time before the product was sold, may advantage the patent owner and lead to overcompensation, because the above-described costs as well as the successful nature of the product at the time of the hypothetical negotiation may be difficult to "back out," and hence may unavoidably infect the analysis.

One criticism of the Retrospective Model received during the public comment period is that it does nothing to simplify the complicated evidentiary considerations imposed under the current fifteen-factor *Georgia-Pacific* inquiry, and may even make the inquiry more complicated in cases where post-infringement events would lead hypothetical negotiators to agree to more than one reasonable royalty rate to account for changed circumstances. These complications, of course, are not unique to the Retrospective Model, as they are also inherent in the Status Quo/Book of Wisdom Model. The Retrospective Model, for example, does not change the *Georgia-Pacific* evidentiary factors, only its framework. In addition, current case law shows that the Status Quo Model can result in two different royalty rates to account for important, post-infringement changes.[128] In the unusual case in which the relevant factors change materially so as to require two different royalty rates, the Retrospective Model merely ensures that the trier-of-fact is not precluded from considering relevant evidence. While it has been suggested that the consideration of post-infringement changes in economic circumstances may result in juror confusion, such evidence lends itself to a chronological presentation that juries tend to understand.

A related criticism of the Retrospective Model received during the public comment period is that setting the hypothetical negotiation at the time of trial is "less realistic" than setting it at the time of first infringement. This comment also criticized the Working Group for not citing any peer-reviewed econometric analyses of how parties actually negotiate for patent rights in the real world—i.e., whether those negotiations typically take place before or after the infringement. It is important to keep in mind, however, that the hypothetical negotiation framework is merely a legal fiction used to estimate patent damages. It is not meant to recreate any one party's actual behavior at a "real" license negotiation. As the Sixth Circuit recognized in *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*:

> Determination of a "reasonable royalty" after infringement, like many devices in the law, rests on a legal fiction. Created in an effort to "compensate" when profits are not provable, the "reasonable royalty" device conjures a "willing" licensor and licensee, who like Ghosts of Christmas Past, are dimly seen as "negotiating" a "license." There is, of course, no actual willingness on either side, and no license to do anything . . . .[129]

Given that the hypothetical negotiation framework itself rests on a legal fiction, modifications to that framework should be judged by how fairly and accurately they fulfill the purpose of the patent

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128 *See, e.g.*, Harris Corp. v. Ericsson Inc., 417 F.3d 1241, 1255 (Fed. Cir. 2005) (concluding that the book of wisdom did not prevent a patent holder from offering two different royalty rates—one based on a hypothetical negotiation taking place on the date of first infringement, and a second "renewal" rate based on a renegotiated hypothetical negotiation taking place five years afterwards in light of changed economic circumstances).

129 Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1159 (6th Cir. 1978).

damages statute, not by how realistically they reproduce the conditions of a "real" license negotiation.

Another criticism of the Retrospective Model received during the public comment period is that it may lead to additional procedural complexities because there may be a need to supplement damages reports after the close of expert discovery to account for relevant evidence arising between then and the time of trial. Courts may resolve that issue by adopting reasonable deadlines close to the time of trial for the exchange of final supplemental damages reports. In some cases, courts may also grant, where appropriate, additional expert deposition time. While this may result in additional litigation costs in some cases, it is believed by those who favor the Retrospective Model that those costs are more than offset by the advantage of having access to relevant evidence that may prevent the imposition of an incomplete or unfair reasonable royalty award.

In the end, the Working Group was unable to reach consensus as to the "best" of the three models considered. In the absence of consensus, the Working Group recommends that the dialogue continue, and that the Retrospective Model and similar *ex post* alternatives to the current Status Quo/Book of Wisdom Model be given serious consideration by the legal community as potential new tools for estimating reasonable royalty damages in patent cases.

III. Principles and Best Practices for Determining the Reasonable Royalty

Regardless of which approach to the reasonable royalty paradigm is adopted—the "Status Quo"/"Book of Wisdom" Model, the "Prospective-Only" or Strict *Ex Ante* Model, or the Retrospective or *Ex Post* Model, certain basic principles apply for determining the appropriate reasonable royalty in each case.

A. STRUCTURE OF THE REASONABLE ROYALTY PAYMENT

Principle No. 2 – Whether the royalty should be structured as a running royalty or a lump sum should be considered explicitly in the reasonable royalty analysis.

It is not a foregone conclusion that every reasonable royalty license must provide for a running royalty (either as, e.g., a percentage of sales revenue or a fixed dollar amount per unit). Circumstances may dictate that a reasonable royalty should be paid as a lump sum.

Though royalties are sometimes calculated on a running basis, there may well be factors that suggest the hypothetical negotiation would have led to a lump sum license or to a combination of a lump sum and a running royalty. Regardless of the conclusion, a party advocating a lump sum or a running royalty or some combination of the two must articulate an acceptable basis for its position, just as it must for any other element of a reasonable royalty calculation.

Significant factors that may support a lump sum or a running royalty include: (1) the licensing history of the industry or one or both of the parties; (2) the extent to which the financial or competitive situation of the parties favors a lump sum payment as opposed to a continuing running royalty, including: (a) the immediate need of either or both of the parties for capital, (b) each party's perception as to the degree of uncertainty associated with the likely future size of the royalty base, (c) either or both of the parties' risk tolerance as to the possibility that the future revenue stream generated by a running royalty may be unexpectedly large or small, (d) the competitive burden that would be placed on a licensee by the ongoing payment of a running royalty or on the licensor by the absence of such a payment, and (e) the relative bargaining power of the parties; and (3) whether the benefits of the licensed technology are of a continuing nature, concern a one-time event (e.g., the period of infringement before implementation of a proposed alternative), or whether the benefits of the technology represent some combination of the two.

With regard to factor (2), issues regarding uncertainty in the market and the risk tolerance of the parties may argue against a lump sum royalty, given that the lump sum structure is often adopted to avoid uncertainty about future sales, and hence, the future royalty stream. The question of uncertainty as it impacts the potential royalty structure should preferably be evaluated in light of all of the information available. Thus, for example, a patented technology that turns out to have greater or fewer sales during the period of infringement than that anticipated on the date of first infringement might be a good candidate for a lump sum analysis for parties who were risk averse on the date of first infringement.

This list is not meant to be exclusive, and other factors may be considered in appropriate cases. Likewise, there may be cases where some of the listed factors are not properly considered. As with any other aspect of the reasonable royalty analysis, whether a lump sum royalty is appropriate will turn on the positions of the parties and the value of the invention at the time of the hypothetical negotiation.

If the reasonable royalty is determined to be a lump sum royalty, the size of the lump sum payment should be calculated bearing in mind the Principles discussed elsewhere in this Commentary. The difference between a running and a lump sum royalty may be nothing more (or less) than the difference between the present value of the anticipated revenue stream associated with the infringement at the time of the hypothetical negotiation and the present value of the actual revenue stream associated with the infringement during the period of infringement. Where the anticipated revenue stream was highly uncertain and the parties would have favored a lump sum, the lump sum might require adjustment up or down from the appropriately apportioned value of the actual revenue in order to adjust for the uncertainty avoided by the lump sum payment.

B. DETERMINING THE ROYALTY BASE

Should a running royalty payment structure be adopted by one or more parties or the court, then the reasonable royalty determination consists of two main steps: (1) determining the royalty base (i.e., the applicable product unit to be used, against which a running royalty rate is to be applied), including whether or not the entire market value rule applies, and if not, how the royalty base is appropriately apportioned between technologies covered by the patent(s)-in-suit and technologies not covered by the patent(s)-in-suit; and (2) determining the royalty rate that corresponds with the value of the use by the accused infringer of the patented technology.[130]

For a discussion of recent federal case law concerning the application of the entire market value rule and apportionment, *see supra* Section I.E.2. (Current State of the Law Regarding the Determination of a Reasonable Royalty—Entire Market Value Rule and Apportionment).

1. The Entire Market Value Rule (EMVR)

Typically, a patentee can recover damages only on the portion of the defendant's revenues that is specifically attributable to the patented feature. An exception to this rule is the "entire market value rule" (EMVR), which allows for the recovery of damages based on the value of an entire apparatus containing several features, only when the feature patented constitutes the basis for customer demand.[131] In other words, "[a] patentee may 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."[132]

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130 *See supra*, Principle 1.

131 *See* TWM Mfg. Co. v. Dura Corp., 789 F.2d 895, 901 (Fed. Cir. 1986); Versata Software, Inc. v. SAP Am., Inc., 717 F.3d 1255, 1268 (Fed. Cir. 2013).

132 *See* Uniloc USA, Inc. v. Microsoft Corp., 632 F.3d 1292, 1318 (Fed. Cir. 2011).

<u>Principle No. 3</u> – In cases involving an accused product with many components, the royalty should not be applied to the entire market value of the accused product unless it is shown that the patented feature or method provides the basis for customer demand for the product or substantially creates the value of the component parts.

Because many infringement cases involve accused products or processes having features unrelated to the patent-in-suit or which are successful, at least in part, for reasons unrelated to the patented feature or method, it is not usually appropriate to apply the royalty to the entire market value of an accused product. When the entire market value rule is not satisfied, principles of apportionment apply, which generally require that "the ultimate combination of royalty base and royalty rate must reflect the value attributable to the infringing features of the product, and no more."[133]

Ultimately, in assessing the application of the EMVR, it is not sufficient merely to establish, whether through expert or documentary evidence, that "but for" that feature or method a consumer would not purchase the product. In most circumstances involving complex products, there are several "but for" features or methods without which there would be no consumer demand. If there is more than one "but for" feature or method, then a royalty should not be applied to the entire market value of an accused product.

<u>Best Practice 1</u> – When determining whether the entire market value rule (EMVR) applies, the basic, underlying functionality of an accused product or process must not be disregarded.

When determining whether a royalty should be applied to the entire market value of the accused product, courts, experts, and parties must guard against the tendency to assume away the basic functionality of an accused product or process. Consider the following example: the asserted patent claims a new method of security for routers. The accused infringer's internal documentation states that consumers would not buy the accused routers if they were not secure. The patent holder conducts a survey asking whether security is important in the decision to purchase a router, and whether security was the basis for the purchase. The respondents universally respond that security is their top priority in deciding which router to purchase, and that they purchased the accused routers because they were secure. For EMVR purposes, the internal documentation and the survey are focused incorrectly—they remove from consideration whether the device in question has all of the various features that provide for basic router functionality in the first place. The proper threshold EMVR question is whether security is the feature—among all product features including the routing features—that drives consumer demand. Security may be very important, but presumably, a consumer would not buy a secure router that did not properly forward data from one network to another.

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133 *See* VirnetX, Inc. v. Cisco Sys., 767 F.3d 1308 (Fed. Cir. 2014); *see also infra* Principle Nos. 4(a)-(b) and accompanying commentary text.

Best Practice 2 – When determining whether the EMVR applies, it is important to consider whether the particular claimed invention was in fact the basis for consumer demand, and not merely one alternative among noninfringing alternatives to achieve a desired solution.

Moreover, when determining whether a royalty should be applied to the entire market value of the accused product, it is important to distinguish the claimed invention from a general characterization of the feature to which the invention pertains. Taking the above example, it is important to determine whether the particular security method claimed in the asserted patent was the basis for consumer demand, as opposed to other noninfringing security methods. That is, did consumers purchase the accused router *because of* the particular security method employed to secure the router's data transmissions? This might be the case, or consumers may have purchased the accused router simply because it was secure, irrespective of the particular security method employed.

Ultimately, it is the responsibility of the court to address whether sufficient evidence could support a jury finding that the patented feature creates the basis for customer demand or substantially creates the value of the component parts before allowing damages calculations relying on the EMVR to be submitted to the jury. If the patent holder cannot create a triable issue of fact as to whether the patented invention creates the basis for customer demand or substantially creates the value of the component parts, then the royalty base must be properly apportioned, and the patentee should not be permitted to rely upon the EMVR or present a royalty based upon the entire market value of the accused products or services.

2. Apportionment Where the Entire Market Value Rule Does Not Apply

<u>Principle No. 4(a)</u> – Where a patent claim is drawn to an individual component of a multi-component product that is found to infringe, and the entire market value rule does not apply, it is necessary to apportion the royalty base between its patented and unpatented features.

Where the EMVR does not apply, it is important to use a royalty base (i.e., the revenue associated with the infringing product) that apportions the value of the product between the patented feature and any non-patented features relating to the accused products.[134] A reasonable royalty should be based on the incremental value the patented invention adds to the overall product or service; i.e., "[t]he portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or

134 *See, e.g.*, *VirnetX*, 767 F.3d at 1326 ("[W]hen claims are drawn to an individual component of a multi-component product, it is the exception, not the rule, that damages may be based upon the value of the multi-component product. Indeed, we recently reaffirmed that '[a] patentee may 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.' In the absence of such a showing, principles of apportionment apply.") (internal citations omitted); *see also* Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1226 (Fed. Cir. 2014) ("As a substantive matter, it is the 'value of what was taken' that measures a 'reasonable royalty' under 35 U.S.C. § 284. What is taken from the owner of a utility patent (for purposes of assessing damages under § 284) is only the patented technology, and so the value to be measured is only the value of the infringing features of an accused product. When the accused infringing products have both patented and unpatented features, measuring this value requires a determination of the value added by such features.") (internal citations and paragraph break omitted).

improvements added by the infringer."[135] Other product features, as well as other factors (e.g., product marketing, the goodwill associated with the entity making or selling the product or service, the sales team, the sales model, and the availability and type of additional products, services, or support available from the entity) may contribute to the revenue of a particular product or service.

In determining how to properly apportion the royalty base, one factor to consider should be the inventive contribution of the patented invention and not how that invention is claimed.[136] The fact that patent claims may be expressed in different formats, and of different scope, may not allow the patent owner to avoid apportionment.[137] A patent, for example, may be claimed as a combination of a known apparatus or method in combination with additional elements or steps that constitute the improvement, or it may be claimed in a format where the improvement is explicitly recited (known as a *Jepson* claim).

At the same time, it should be recognized that the inventive contribution of the patented invention might actually make conventional elements recited in a claim more valuable by virtue of its incorporation into the patented invention. As the Federal Circuit recently stated in *AstraZeneca AB v. Apotex Corp.*, "[W]hile it is important to guard against compensation for more than the added value attributable to an invention, it is improper to assume that a conventional element cannot be rendered more valuable by its use in combination with an invention."[138]

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135 Garretson v. Clark, 111 U.S. 120, 121 (1884) (noting that the patentee "must in every case give evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features"); Georgia-Pacific Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

136 *See, e.g.*, Univ. of Pittsburgh of Commonwealth Sys. of Higher Educ. v. Varian Med. Sys., 561 Fed. App'x. 934, 947, No. 12-1575, 2014 U.S. App. LEXIS 6559, at *35–36 (Fed. Cir. Apr. 10, 2014) (unpublished) ("Varian asserts, nonetheless, that damages should not turn on claim draftsmanship such that the owner of an improvement patent may deliberately add dependent claims directed to unimproved conventional devices to expand the royalty base. We do not disagree. But, *Georgia-Pacific* at 1120, addresses that specific problem by requiring the patentee to provide tangible evidence regarding the relative value of his or her invention in combination with, but distinct from, any conventional elements recited in the claim. A number of the *Georgia-Pacific* factors are directed to that specific point and require the jury to reward the inventor only for the value of his or her innovation. In other words, if the claimed invention only adds an incremental value to the conventional element(s), the damages awarded must also be so limited. But, if the claimed invention adds significant value to the conventional element(s), the damages award may reflect that value.").

137 *See* GPNE Corp. v. Apple, Inc., No. 12-CV-02885-LHK, 2014 U.S. Dist. LEXIS 53234, at *49 (N.D. Cal. Apr. 16, 2014) ("[C]ursory recitation of the entire device in the asserted claims does not foreclose the component that directly implements the invention from being the smallest salable patent-practicing unit for reasonable royalty purposes."); *see also* Egry Register Co. v. Standard Register Co., 23 F.2d 438, 440 (6th Cir. 1928) ("[The patent owner] cannot, by the language which his claims happen to take, transform his invention of an improvement in an existing structure into one of a complete structure, as if it were wholly new, so as to entitle him to profits upon these parts of it which are not in any fair sense his invention.").

138 AstraZeneca AB v. Apotex Corp., 782 F.3d 1324, 1338 (Fed. Cir. 2015).

<u>Principle No. 4(b)</u> – It may be appropriate to consider the smallest salable unit containing the feature or embodying the patented method for use as the apportioned royalty base; however, consideration of further apportionment may be required in assessing the royalty rate to ensure that the royalty reflects only the value of the patented features.

There are a number of potential starting points for determining the appropriate royalty base. In some circumstances, the best starting point may be the smallest salable unit containing or utilizing the patented invention.[139] In other circumstances, the most appropriate starting point may be the incremental difference in value between a product containing or utilizing the patented invention and a similar product that does not include or utilize the patented invention. In yet other circumstances, the right starting point may be the amount paid for the component that includes or utilizes the patented invention.

As indicated by the Federal Circuit in *CSIRO v. Cisco***,** starting points other than the smallest salable unit may also be appropriate depending on the facts of the case.[140] There is more than one reliable method for estimating a reasonable royalty.[141] In *CSIRO*, the Federal Circuit noted that the district court in that case did not apportion from a royalty base at all, but instead used as a starting point the parties' prior negotiations on "the value of the asserted patent 'and no more'" (i.e., not the value of anything outside the patent).[142] In those earlier discussions, the parties negotiated over the value of the patented products at the time.[143] The Federal Circuit found the smallest salable unit principle was inapplicable to the court's methodology, and also noted that the determination of royalties and apportionment is fact specific in each case.[144] The Federal Circuit ruled that "requir[ing] all damages models to begin with the smallest salable patent-practicing unit" was "untenable" because that "conflicts with our prior approvals of methodology that values the asserted patent based on comparable licenses."[145]

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139 *See*, *e.g.*, Cornell Univ. v. Hewlett-Packard Co., 609 F. Supp. 2d 279, 288 (N.D.N.Y. 2009) (Rader, J., sitting by designation).

140 Commonwealth Scientific and Industrial Research Organisation (CSIRO) v. Cisco Systems, Inc., 809 F.3d 1295, 1301–02 (Fed. Cir. 2015) ("Our law also recognizes that, under this apportionment principle, 'there may be more than one reliable method for estimating a reasonable royalty.' This adaptability is necessary because different cases present different facts. And as damages models are fact-dependent, '[a] distinct but integral part of [the admissibility] inquiry is whether the data utilized in the methodology is sufficiently tied to the facts of the case.' In practice, this means that abstract recitations of royalty stacking theory, and qualitative testimony that an invention is valuable—without being anchored to a quantitative market valuation—are insufficiently reliable. '[W]here the data used is not sufficiently tied to the facts of the case,' a damages model cannot meet 'the substantive statutory requirement of apportionment of royalty damages to the invention's value.' Recognizing that each case presents unique facts, we have developed certain principles to aid courts in determining when an expert's apportionment model is reliable. For example, the smallest salable patent-practicing unit principle provides that, where a damages model apportions from a royalty base, the model should use the smallest salable patent-practicing unit as the base.") (internal citations omitted).

141 *Id.*

142 *Id.* at 1303.

143 *Id.*

144 *Id.*

145 *Id.*

Irrespective of which starting point is used for the apportionment analysis, the objective of the court, experts, and parties involved is to apportion the royalty base as closely as possible to reflect the incremental value attributable to the patented invention. Stated differently, the starting point may not be the end point of the analysis. Taking the smallest salable unit as an example, even where the patentee accuses the smallest salable unit, it may be necessary to further apportion below the smallest salable unit starting point wherever the smallest salable unit covers unpatented features or components. As the Federal Circuit stated in *VirnetX, Inc. v. Cisco Sys.*:

> [T]he requirement that a patentee identify damages associated with the smallest salable patent-practicing unit is simply a step toward meeting the requirement of apportionment. Where the smallest salable unit is, in fact, a multi-component product containing several noninfringing features with no relation to the patented feature (as VirnetX claims it was here), the patentee must do more to estimate what portion of the value of that product is attributable to the patented technology.[146]

C. DETERMINING THE ROYALTY RATE

Once the royalty base is determined, the royalty rate must be assessed in order to calculate a running royalty payment structure. In addition to looking to comparable licenses to guide the running royalty rate determination,[147] the Working Group presents below four guiding Principles for royalty rate determinations.

1. Comparability of Licenses

Comparable licenses are important to consider in determining the amount of the payment or the rate of the running royalty. The courts look to licenses deemed "comparable" as real-world evidence of the commercial market for the patent(s)-in-suit. While this remains the case, in recent years, the Federal Circuit has also shown a willingness to exclude from consideration, in assessing a reasonable royalty license, agreements that are not "sufficiently comparable" to either the patented technology or the economic circumstances of the hypothetical negotiation. For a discussion of recent federal case law concerning comparable licenses, *see supra* Section I.E.3. (Current State of the Law Regarding the Determination of a Reasonable Royalty—Comparability of Licenses).

WG9 has developed the following Principle to guide the evaluation of licenses proposed as comparable for reasonable royalty determinations:

Principle No. 5 – Any proposed comparable license offered as "comparable" to the hypothetical license must be evaluated for its similarities to and differences from the hypothetical license.

The Working Group supports a rigorous analysis to determine the comparability of license agreements. Rigorously analyzing and adjusting for any material differences between a benchmark license and the hypothetical license, based upon evidence presented, provides a rational and justifiable basis for determining what royalty would result from the hypothetical negotiation.

146 VirnetX, Inc. v. Cisco Sys., 767 F.3d 1308, 1327 (Fed. Cir. 2014).

147 *See infra,* Principle 5.

This proposed construct of analyzing and adjusting for differences between a benchmark asset and the asset being valued is common practice in valuation analyses, and is analogous to adjusting the estimated value of a parcel of real estate based on the differing characteristics of a comparable, recently-sold parcel. To the extent that both properties are identical with respect to a given characteristic (e.g., square footage), no adjustment to the estimated value is necessary. Conversely, to the extent the properties differ with respect to a given characteristic (e.g., more desirable location), an adjustment to the estimated value may be warranted. Such adjustment for non-quantitative criteria often depends on the experience and opinion of the appraiser.

The factors to be considered in assessing the comparability, and therefore the probative value, of a benchmark license to the hypothetical license will vary, given the unique facts and circumstances of each license. However, as the aforementioned cases demonstrate, based upon the evidence presented, the following license provisions and circumstances should generally be evaluated to assess comparability:

a. cross-license provisions

Unless the potentially comparable license distinguishes or breaks-out the consideration or royalty of the intellectual property of each entity separately, licenses that include cross-license provisions are generally not useful for determination of the reasonable royalty rate. However, depending on the facts and circumstances, licenses that include cross-license provisions may still provide guidance for other damage-related factors, including the appropriate royalty base and royalty structure (e.g., per unit v. running royalty).

b. agreements licensing the patent(s)-in-suit

When a bare patent license (i.e., a one-way license to patents with no cross-license or other technology transfer) to the patent(s)-in-suit in the same field of use as the accused product or service exists, it will usually inform the reasonable royalty. Certain of the market factors, license terms, and technological considerations listed above may be relevant to the determination of the reasonable royalty, such as the bargaining position of the parties and the royalty structure, royalty base, and date, term, scope of the license agreement.

c. agreements licensing patent(s)-in-suit plus additional patents

In contrast, when a license that is not a bare patent license to the patent(s)-in-suit in the same field of use as the accused product or service but rather is a license to the patent(s)-in-suit as part of a more comprehensive license, the license may be relevant to the reasonable royalty inquiry, but the analysis must account for the additional patents when invoking it to value the patented invention.[148] In addition, others in the above-listed license terms, market factors, and considerations may be relevant to the determination of the reasonable royalty.

If the record does not provide guidance as to the licensor's and licensee's perceptions of the value of the patent(s)-in-suit separate from the additional patents in a more comprehensive license, it may not be possible to determine the portion of the consideration or royalty attributable to the patent(s)-

148 Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1228 (Fed. Cir. 2014); Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217, at *94–95 (W.D. Wash. Apr. 25, 2013).

in-suit. Nevertheless, the consideration or royalty in the potentially comparable license may tend to indicate an upper bound to the royalty rate determination in the hypothetical negotiation because the licensee in the hypothetical negotiation would not be granted a subset of the rights included in the potential comparable license. Depending on the facts and circumstances, the potentially comparable license may also provide guidance for other damage-related factors, including the appropriate royalty base and royalty structure.

d. any technology, property, "know-how," or other grant of rights in addition to or instead of patent rights

Similarly, if the potentially comparable license does not distinguish or break-out the consideration or royalty for the patent(s)-in-suit or related technology property separate from other licensed technology, property, "know-how," or other grants of rights in addition to or instead of patent rights, and the record does not provide guidance as to the licensor's and the licensee's perceptions of the relative value of the different licensed technology, etc., it may not be possible to determine the portion of the consideration or royalty attributable to the patent(s)-in-suit.

Again, however, depending on the facts and circumstances of the case, the consideration or royalty in the potentially comparable license may tend to indicate an upper bound to the royalty rate determination in the hypothetical negotiation, as the licensee in the hypothetical negotiation would not be granted the additional rights. Depending on the facts and circumstances, the potentially comparable license may also provide guidance for other damage-related factors including the appropriate royalty base and royalty structure.

e. agreements licensing different patents from the patent(s)-in-suit

Although not usually the case, in some limited cases, a license agreement that does not involve the patents-in-suit may provide useful, analogous information regarding the form of the hypothetical license and potential benchmark royalty rates; however, a rigorous analysis is necessary to (1) determine the relevance of any such license agreements, including comparing and contrasting the technical, economic, and legal circumstances of the license agreement to the hypothetical license and (2) adjust, if possible, for any differences between them to account for certain factors listed above such as different patents from the patent(s)-in-suit, additional licensed property, the relevant product or service, license terms (including the royalty structure, royalty base, and date, term, scope of the license agreement), and other such relevant factors.[149]

To assess comparability, as well as to quantify the relative royalty rates (after a determination that it can be done reliably), it is important to consider: (1) the relative importance of the licensed technology to the accused product or service in the potentially comparable license as compared to the relevant product or service in the hypothetical negotiation, including the importance of the licensed technology to demand, sales, profits, and price of the relevant product or service; (2) the relative benefits offered by the respective technologies; (3) whether the licensed technology is related

149 *Id.* at 1228 (holding that a nonanalogous license agreement may be considered by jury "where expert testimony explains to the jury the need to discount reliance on a given license to account only for the value attributed to the licensed technology.").

to one component or more components of the relevant product or service; and (4) the importance of other technologies included in the relevant product or service.

f. <u>any business relationship between the parties to the patent license agreement that exist outside of the agreement</u>

Even if the potentially comparable license distinguishes or breaks-out the consideration or royalty of the patent(s)-in-suit separately from additional business arrangements between the licensee and licensor, licenses that include or are related to other agreements for additional business arrangements may not be useful for determination of the reasonable royalty rate, as it may not be possible to determine what royalty rate would have been negotiated but for the additional business arrangements. However, depending on the facts and circumstances, license agreements that include additional business arrangements may still provide guidance for other damage-related factors, including the appropriate royalty base and royalty structure.

g. <u>the scope of the patent rights granted</u>

It will likely be appropriate to consider the scope of the potentially comparable license to the scope of the license in the hypothetical negotiation including, for example, consideration of territory (U.S. v. worldwide), exclusivity, rights granted (e.g., make, use, sell, and sublicense), and field of use.

h. <u>the product or service for which the patent(s) were licensed (and whether that differs from the product or service that would be the subject of the hypothetical license)</u>

When the potentially comparable license is related to a different product or service than what is accused in the hypothetical negotiation, it may be necessary to consider and compare the sales, profits, and price of the relevant product or service over the relevant period, the industry and competitive market for the relevant product or service, technological considerations (see below), and the relative importance of the relevant product or service to the overall business of the licensee.

i. <u>the royalty base used in the agreement</u>

Where a license agreement uses a larger royalty base than the one used in the hypothetical negotiation—e.g., where the royalty base in the license is based on the entire market value of a product comprising patented and non-patented elements and the entire market value rule does not apply—it may be necessary to explain how the royalty base in the license should be discounted to account only for the value attributed to the licensed technology.[150]

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150 *Id.* at 1227–28 ("As the testimony at trial established, licenses are generally negotiated without consideration of the EMVR, and this was specifically true with respect to the Ericsson licenses relating to the technology at issue. Making real world, relevant licenses inadmissible on the grounds D-Link urges would often make it impossible for a patentee to resort to license-based evidence. Such evidence is relevant and reliable, however, where the damages testimony regarding those licenses takes into account the very types of apportionment principles contemplated in *Garretson*. In short, where expert testimony explains to the jury the need to discount reliance on a given license to account only for the value attributed to the licensed technology, as it did here, the mere fact that licenses predicated on the value of a multi-component product are referenced in that analysis—and the district court exercises its discretion not to exclude such evidence—is not reversible error.").

j. the relative bargaining positions of the parties

It is appropriate to consider the relative bargaining positions of the licensor and licensee of the potentially comparable license to the bargaining positions of the licensor and licensee in the hypothetical negotiation. Potential relevant factors to consider include market position (e.g., whether the parties are competitors), the bargaining power of each of the parties, any policies the parties have with respect to entering into license agreements for the patent(s)-in-suit, anticipated sales volumes, anticipated profitability, anticipated market share, importance of the accused product or service to the overall business of the licensee, the need the licensee has for the license and the need the licensor has to enter into the license, the business relationships of the parties (e.g., if one party is a supplier of the accused product), and the extent to which royalties were actually paid or obtained under the potentially comparable license.

k. whether the agreement was a bona fide agreement and royalties were actually paid

If the licensor and licensee are related parties, or one party is a supplier of the other party, the royalty rate in the potentially comparable license may not be an "arms-length" or bona fide transaction, and thus not relevant to the hypothetical negotiation.

l. the royalty structure (i.e., whether royalties were to be paid in a lump sum, as a running royalty, or as a hybrid)

It will likely be appropriate to consider the licensing practices of the patent holder, the alleged infringer, and the industry regarding royalty structure to the extent it is different from the royalty structure of the potentially comparable license. Depending on the facts and circumstances, it may be appropriate to convert a lump sum royalty in a potentially comparable license to a running royalty for purposes of application to the hypothetical license if there is evidence of the parties' expected volume of relevant sales. Similarly, it may be appropriate to convert a running royalty into a lump sum royalty where the facts and circumstances suggest that the accused infringer would have agreed to a lump sum royalty.

m. the date and term of the agreement

One may also consider changes in the relevant market of the accused product or service over time if the potentially comparable license was negotiated at a different point in time or for a different length of time than the hypothetical negotiation, including, for example, factors such as price, sales and profitability of the accused product or service, competition, industry standards, regulatory changes, adoption of new technology into the accused product or service, switching costs, lock-in costs, patent-holdup costs, and royalty stacking issues.

n. any assumption (or lack thereof) of validity and infringement

Another consideration is whether the potentially comparable license inherently or explicitly includes an assumption that the licensed patents are valid and infringed. The hypothetical license assumes validity and infringement, whereas license agreements and settlement agreements may be premised on a more uncertain picture of these merits-based issues.[151]

o. litigation factors for litigation settlement agreements

In addition to consideration of the foregoing factors when evaluating a litigation settlement for comparability, it is appropriate to consider the facts and circumstances relating to the litigation itself, including the parties' desire to avoid legal fees or sanctions, the financial condition of the parties, the uncertainty and risk of the litigation, and the legal positions of each party.

Courts have considered both the admissibility and the use of settlement agreements as comparable licenses in patent damages determinations. Some district courts have denied the use of settlement agreements due to potential jury confusion and prejudice.[152] Other district courts have allowed the use of settlement agreements on a case-by-case basis if the settlement agreements are for the patent(s)-in-suit, are the only sufficiently comparable license agreement(s), and resemble agreements negotiated outside of litigation.[153] The Federal Circuit recently cautioned against using litigation settlement agreements in patent damages determinations because they may be "tainted by the coercive environment of patent litigation."[154] The Federal Circuit, however, acknowledged that it has previously allowed their use "under certain limited circumstances," such as when the settlement agreement is "the most reliable license in [the] record" and care is taken "to consider the license in its proper context within the hypothetical negotiation framework to ensure that the reasonable royalty rate reflects 'the economic demand for the claimed technology.'"[155] The Working Group therefore supports an especially rigorous analysis to determine the comparability of settlement agreements and their use at trial.

It should be appreciated, however, that where the presentation of the facts and circumstances of a settlement agreement at trial would significantly increase the time required for the presentation of damages evidence at trial or would be confusing to the jury, it may be appropriate for the court to limit evidence of the settlement agreement at trial. Indeed, in some cases, the discovery of these facts and circumstances may impose a significant burden on one or both parties, such that it may be appropriate for the court to limit or preclude discovery of a settlement agreement during the discovery phase of the case. The scope, admissibility, and discoverability of a patent license agreement must be determined on a case-by-case basis in view of various factors.

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151 However, statements in litigation settlements (or other licenses, for that matter) to the effect that the license does not represent a reasonably negotiated value or that the patentee does not have full knowledge of the extent of infringement should be evaluated further, recognizing that such statements may be motivated by an intention by one or both of the litigants to have the license excluded as a comparable license in later litigation, irrespective of its actual comparability.

152 Fenner Invs. Ltd. v. Hewlett Packard Co., 2010 U.S. Dist. LEXIS 41514, at *10 (E.D. Tex. Apr. 28, 2010); Cornell Univ. v. Hewlett-Packard Co., 2008 U.S. Dist. LEXIS 39343, at *13–14 (N.D.N.Y. May 8, 2008).

153 ResQNet.com, Inc. v. Lansa, Inc., 594 F.3d 860, 872 (Fed. Cir. 2010); ReedHycalog UK, Ltd. v. Diamond Innovations, Inc., 727 F. Supp. 2d 543, 546 (E.D. Tex. 2010).

154 *See* LaserDynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 77 (Fed. Cir. 2012); *see also id.* ("The propriety of using prior settlement agreements to prove the amount of a reasonable royalty is questionable.").

155 *Id.*

The Working Group does not herein express a view on admissibility or discoverability issues, but rather identifies factors to be considered in comparing a settlement agreement to the hypothetical license at issue that may be useful to the threshold determinations of admissibility or discoverability, as well as to the use of settlement agreements in the reasonable royalty analysis in cases where they are admissible.

2. Avoidance of Royalty Rate Stacking

Principle No. 6 – Where an accused product incorporates multiple technologies, once the proper royalty base has been determined, the royalty rate should reflect the relative contribution of the patented invention as compared to the other technologies incorporated into the royalty base.

A product, especially a complex product, can, and often does, embody multiple different patents. For example, many electronic devices, including computers, tablets, and most software, and even certain pharmaceutical products, involve hundreds or even thousands of patents. For example, it is estimated that the 3G CDMA wireless standard involves nearly 1000 different patents and thus 3G wireless handsets often involve large numbers of patents. The presence of royalty stacking, i.e., when multiple patents read on a single product, exacerbates the complexities of calculating a reasonable royalty. Ignoring any evidence of royalty stacking could lead to an overestimation of actual patent damages and to overcompensation of the patent holder,[156] because "[i]f companies are forced to pay royalties to all SEP holders, the royalties will 'stack' on top of each other and may become excessive in the aggregate."[157] The Federal Circuit has also noted in *Integra Lifesciences I, Ltd. v. Merck KGaA*, that "[t]he cumulative effect of such stacking royalties can be substantial" and should play a role in determining patent damages.[158] Accordingly, with respect to a product in which multiple patents are potentially at issue, the reasonable royalty calculus should consider any evidence presented by the parties regarding royalty stacking.

A simple example helps illustrate the issue of royalty stacking. In a product covered by 25 different patents, assuming each to be of equal value, if each patentee were awarded a 5% royalty, more than the entire revenue of the product would be taken just to compensate for intellectual property rights.

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[156] Many commentators consider royalty stacking to be a significant concern. *See, e.g.*, Carl Shapiro, *Injunctions, Hold-Up, and Patent Royalties*, 12 AM. L. & ECON. REV. 280 (2010); Thomas F. Cotter, *Patent Holdup, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. 1151 (2009); Joseph Scott Miller, *Standard Setting, Patents, and Access Lock-In: RAND Licensing and the Theory of the Firm*, 40 IND. L. REV. 351 (2007); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007). However, there are also several studies suggesting that royalty stacking may not be such a serious problem, or at least that its effect is not borne out by empirical studies. For instance, a 2008 article reviewed empirical literature from four separate industries—semiconductor, software, biomedical, and mobile phone—and concluded that royalty stacking was neither common nor costly enough to warrant policy changes at the litigation stage. Rather, the studies suggested that any potential harm was better handled through *ex ante* licensing strategies. *See*, *e.g.,* Damien Geradin et al., *The Complements Problem Within Standard Setting: The Evidence on Royalty Stacking*, 14 B.U. J. SCI. & TECH. L. 144, 145 (2008); *see also* Einer Elhauge, *Do Patent Holdup and Royalty Stacking Lead to Systematically Excessive Royalties?*, 4 J. COMP. L. & ECON. 535 (2008); J. Gregory Sidak, *Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 714 (2008).

[157] Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1209 (Fed. Cir. 2014).

[158] Integra Lifesciences I, Ltd. v. Merck KGaA, 331 F.3d 860, 871–72 (Fed. Cir. 2003), *rev'd on other grounds*.

From an end-results perspective, a royalty stacking-based calculation should arrive at the same conclusion as any other reasonable royalty calculation; namely, a stacking methodology seeks to reasonably attribute the contribution of the patent(s)-in-suit to the overall value of the product at issue. In short, a patent covering a component or feature that does not substantially contribute to the overall value of the product should generally command a lower royalty rate than a patent on the entire product or a patent covering a component or feature that substantially contributes to the value of the entire product.

Evaluating any proffered evidence of stacking is particularly meaningful when assessing comparable licenses. In situations where there is evidence of royalty stacking, analysis of comparable product licenses should consider the contribution of the patent-at-issue to the overall contribution of value to the product-at-issue. Stated differently, in evaluating licenses, it is important not to confuse the notion of comparable licenses with respect to a given type of *product* with comparable licenses regarding a given *technology*. Thus, licenses that "stack" onto one product should be relevant and admissible even if not directly comparable.

Best Practice 3 – To assert royalty stacking in a reasonable royalty analysis, the accused infringer should provide concrete evidence of patents outside the patent(s)-in-suit that read on an accused product and that create an enhanced royalty burden on the accused product.

Accounting for royalty stacking in assessing the reasonable royalty is easier said than done, given the amount and type of evidence that would be required at trial to elucidate the non-asserted patents that may read on the accused product(s). In a multi-featured product, courts have endorsed various ways of determining the value of the patented features, such as through the use of surveys, conjoint analysis, hedonic regression, or other analytical methods that suit the circumstances. Such evidence relating to non-asserted patents will complicate the trial but, where competent evidence is available, it should be evaluated to arrive at a reasonable royalty. The party arguing that stacking is a concern must come forward with other licenses or royalty demands on the product-in-suit to support claims of stacking, because a jury instruction on royalty stacking is only required when the evidence of record supports such an instruction.[159] Allegations of stacking without such evidence would require proving other patents read on the product at issue where no license was sought, and would be too speculative. Such proof would result in a patent trial within a patent trial and would quickly become unmanageable.

3. Noninfringing Alternatives and "Design Arounds"

Principle No. 7(a) – The reasonable royalty must reflect the extent to which the patented invention represents an improvement over any commercially acceptable and available noninfringing alternatives, including any such alternatives disclosed in the prior art. A royalty which over- or undervalues the inventive contribution of the patent claim is not reasonable.

The principle that a reasonable royalty should compensate only for the incremental benefit of the patented technology over the next best noninfringing alternative is consistent with economic theory

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159 *Ericsson*, 773 F.3d at 1234.

in that the value of an asset is limited to the economic benefit that can be obtained from using the asset vis-à-vis that which can be obtained by using the next best available alternative. It is the incremental economic benefit over that which can be earned using the next best alternative that determines the economic value of the patented invention and, thus, the royalty the owner can obtain in the market for the use of that patented invention.[160] As the Federal Circuit recognized in *Grain Processing Corp. v. American Maize-Products*, "only by comparing the patented invention to its next-best available alternative(s)—regardless of whether the alternative(s) were actually produced and sold during the infringement—can the court discern the market value of the patent owner's exclusive right, and therefore his expected profit or reward, had the infringer's activities not prevented him from taking full economic advantage of this right."[161]

The reasonable royalty should compensate the patent owner for the claimed invention's incremental improvement over the prior art or the next best commercially acceptable noninfringing alternatives (sometimes referred to as "design arounds") if any such alternatives are shown to be "available" during the period of infringement.[162] A noninfringing alternative need not actually have been implemented or on the market during the period of infringement in order to qualify as "available," but it must be shown that the proposed alternative is both technically and commercially feasible.[163] In addition, the proposed alternative must be shown to be "noninfringing," meaning that it cannot

160 *Id.* at 1226 ("The essential requirement is that the ultimate reasonable royalty award must be based on the incremental value that the patented invention adds to the end product."); *see also* Aqua Shield v. Inter Pool Cover Team, 774 F.3d 766, 770–71 (Fed. Cir. 2014) ("If a potential user of the patented technology would expect to earn X profits in the future without using the patented technology, and $X + Y$ profits by using the patented technology, it would seem, as a prima facie matter, economically irrational to pay more than Y as a royalty—paying more would produce a loss compared to forgoing use of the patented technology.").

161 Grain Processing Corp. v. American Maize-Products Co., 185 F.3d 1341, 1351 (Fed. Cir. 1999).

162 Courts have long considered the availability of noninfringing alternatives to be well within the scope of information relevant to the determination of a reasonable royalty. *See*, *e.g.*, Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1159 (6th Cir. 1978); Hughes Tool Co. v. G.W. Murphy Industries, Inc., 491 F.2d 923, 931 (5th Cir. 1973); Smithkline Diagnostics, Inc. v. Helena Labs. Corp., No. B-83-10-CA, 1989 WL 418791, at *6 (E.D. Tex. June 30, 1989), *aff'd* 926 F.2d. 1161 (Fed. Cir. 1991); *see also* Radio Steel & Mfg. Co. v. MTD Prods., Inc., 788 F.2d 1554, 1557 (Fed. Cir. 1986); Columbia Wire Co. v. Kokomo Steel & Wire Co., 194 F. 108, 110 (7th Cir. 1911). Indeed, it is often analyzed as a *Georgia-Pacific* factor. Georgia-Pacific Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (listing "the utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results," as the ninth of fifteen evidentiary factors for determining a reasonable royalty); *see also* i4i Ltd. P'ship v. Microsoft Corp., 598 F.3d 831 (Fed. Cir. 2010) (affirming admissibility of expert's reliance on *Georgia-Pacific* factors in his reasonable royalty determination, including the lack of "acceptable non-infringing alternatives . . . at the time of the hypothetical negotiation"); LaserDynamics, Inc. v. Quanta Computer, Inc., No. 2:06-cv-348, 2011 WL 197869, at *2 (E.D. Tex. Jan. 20, 2011); Abbott Labs. v. Sandoz, Inc., 743 F. Supp. 2d 762, 773 (N.D. Ill. 2010). Thus, under existing law, it is clear that a legitimate noninfringing design around alternative may be considered in the reasonable royalty analysis.

163 *See, e.g.*, *Grain Processing*, 185 F.3d at 1354 (holding that a proposed noninfringing alternative need not be "on the market" to be considered "available;" however, a district court should consider whether the proposed alternative is technically and commercially feasible, looking at such factors as whether the accused infringer had access to "the necessary equipment, know-how, and experience" to implement the alternative, and whether "the high cost of a necessary material . . . render[ed] a substitute 'unavailable'"); *see also* AstraZeneca AB v. Apotex Corp., 782 F.3d 1324, 1335 (Fed. Cir. 2015) ("The district court found that Apotex would have faced substantial technical and practical obstacles to marketing a non-infringing generic omeprazole formulation. Based on that finding, it was proper for the court to hold that the difficulties Apotex would have encountered upon attempting to enter the omeprazole market with a non-infringing product are relevant to the royalty rate a party in Apotex's position would have been willing to pay for a license to Astra's patents.").

infringe the claims of any asserted patents, nor can it infringe any third-party patents absent a showing that the accused infringer could have adopted the proposed alternative without infringing those patents.[164] Finally, the proposed alternative must be shown to be an "acceptable" substitute for the patented invention. "Consumer demand defines the relevant market and relative substitutability among products therein. Important factors shaping demand may include consumers' intended use for the patentee's product, similarity of physical and functional attributes of the patentee's product to alleged competing products, and price."[165] Under the pure Prospective-Only or Strict *Ex Ante* Model, and perhaps under the Status Quo/Book of Wisdom Model (depending upon the specific application of the book of wisdom in a given case), the proposed alternative must have been available at the time of first infringement. However, under the Retrospective Model and perhaps under the Status Quo/Book of Wisdom Model (again depending on the application of the book of wisdom), a proposed alternative that became commercially acceptable, available, or noninfringing after the date of first infringement, but before the date of trial, may be considered. In that situation, it may be appropriate to set two different royalty rates to account for the different economic circumstances before and after the date when that proposed alternative became available, acceptable, or noninfringing.

a. Disclosure of Noninfringing Alternative Contentions and Evidence

<u>Best Practice 4</u> – To prevent expense, delay, and prejudice during the litigation proceedings, the accused infringer should be required to identify during fact discovery any commercially acceptable and available noninfringing alternatives that it intends to offer at trial.

<u>Best Practice 5</u> – Technical and damages expert reports should be exchanged by the parties to ensure full and fair disclosure of (1) all evidence supporting or refuting the parties' contentions that a proposed alternative is or is not commercially acceptable, available, or noninfringing, and (2) the parties' contentions regarding how and why a proposed alternative should or should not affect the calculation of reasonable royalty damages.

It is often the case that conclusory assertions of proposed alternatives to the patented technology are made after the close of fact discovery through a damages expert during the expert discovery period. Such late and general assertions typically lead to *Daubert* motions, motions *in limine*, or evidentiary objections at trial that require the court to make an important evidentiary determination late in the proceedings, and with little information. Further, if the court permits the introduction of evidence of the late-identified proposed alternative, the patent holder may be at a distinct disadvantage. The patent holder may not be in a position to mount a persuasive challenge as to the technical or commercial merits of the proposed alternative due to the lack of fact discovery, yet the argument that the proposed alternative should limit the damages award may have appeal to the fact finder.

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164 *See AstraZeneca*, 782 F.3d at 1340–41 (holding that where the accused infringer failed to explain how it could adopt a proposed alternative without infringing third-party patents designed to protect that alternative, the district court did not err in finding that the proposed alternative was not "available to [the accused infringer] as a non-infringing alternative").

165 *Grain Processing*, 185 F.3d at 1355 (internal citation omitted).

Not only is there uncertainty for both litigants and the court regarding the required timing and extent of the disclosure of any proposed alternatives, the evidentiary standards regarding the admissibility of any proposed alternatives are also unclear.

To address these evidentiary concerns, courts should set forth specific mechanisms in the case schedule to account for design around evidence and argument, such as those outlined in the Best Practices above. Such mechanisms may need to include the provision of rebuttal expert reports to ensure that the experts' opinions regarding noninfringing alternatives are fully set forth, such that the party with the burden of proof (discussed below) has ample opportunity to provide evidence so as to satisfy its burden.

b. Allocations of Burden of Proof for Assessment of Noninfringing Alternative Contentions

In the reasonable royalty context, the allocation of burden of proof between the parties with respect to the assessment of noninfringing alternatives is not clearly established in law.[166] The Working Group arrived at the following consensus:

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[166] *Compare AstraZeneca*, 782 F.3d at 1340–41 (holding that the patent holder was not required to prove that a proposed alternative actually infringed certain third-party patents where the patent holder showed that the third-party patents were "designed to protect" the proposed alternative because the district court could reasonably infer from that fact that the proposed alternative was not available as a noninfringing alternative; the accused infringer's "conclusory assertion" that it could have used the alternative without infringing the third-party patents "[did] not suffice to overcome that inference"), *with* ResQNet.com, Inc. v. Lansa, Inc., 594 F.3d 860, 872 (Fed. Cir. 2010) ("The district court seems to have been heavily influenced by Lansa's [i.e., the accused infringer's] decision to offer no expert testimony to counter Dr. David's opinion. But it was ResQNet's [i.e., the patent holder's] burden, not Lansa's, to persuade the court with legally sufficient evidence regarding an appropriate reasonable royalty. As a matter of simple procedure, Lansa had no obligation to rebut until ResQNet met its burden with reliable and sufficient evidence. This court should not sustain a royalty award based on inapposite licenses simply because Lansa did not proffer an expert to rebut Dr. David." (citing *Lucent*, 580 F.3d at 1329 ("Lucent had the burden to prove that the licenses were sufficiently comparable to support the lump sum damages award."))); THE NAT'L JURY INSTRUCTION PROJECT, MODEL PATENT JURY INSTRUCTIONS 64–66 (2009), *available at* http://www.modeljuryinstructions.com/category/national-patent-jury-instructions/ (providing clear burden of proof on the plaintiff for establishing lost profits damages, but listing a number of considerations for the jury in determining reasonable royalty damages, where the plaintiff did not establish lost profit damages for any or all of the accused products).

<u>Best Practice 6(a)</u> – For a proposed noninfringing alternative identified by the accused infringer that was on the market at the time of the alleged first infringement, the patent holder bears the burden of proving, by a preponderance of the evidence, that the alternative is either not commercially acceptable or not noninfringing and therefore may not be considered as a factor in the hypothetical negotiation.

<u>Best Practice 6(b)</u> – For a proposed noninfringing alternative identified by the accused infringer that was not on the market at the time of the alleged first infringement, the accused infringer bears the burden of proving, by a preponderance of the evidence, that the alternative was available at the time of the alleged first infringement, as well as commercially reasonable and noninfringing therefore may be considered as a factor in the hypothetical negotiation.

This allocation of burdens aligns with the allocation of burdens in the context of lost profits damages,[167] and the Working Group concluded there is no reason for it to differ in the reasonable royalty context.

Moreover, the allocation of burdens with respect to alternatives not on the market at the time of the alleged first infringement (sometimes called "hypothetical alternatives") places the burden of proof on the party in the best position to obtain and develop evidence on the availability, commercial reasonableness, and noninfringement of the proposed alternative—the accused infringer offering the alternative in the first instance. Placing the burden on the patent holder on this issue would, as in the lost profits context, put the patent holder in the unfair position of having to prove a negative with respect to each noninfringing alternative identified by the accused infringer. Moreover, putting the burden on the patent holder would create the potential for abuse, as an accused infringer could hide an alternative it truly intends to rely on amongst many others, thereby forcing the patentee to expend significant time and resources to disprove each one.

The fact finder should make the ultimate determination as to whether a proposed alternative is commercially acceptable, available, and noninfringing in light of all the evidence admitted at trial.

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167 *See*, *e.g.*, Zygo Corp. v. Wyko Corp., 79 F.3d 1563, 1571 (Fed. Cir. 1996) (noting that the plaintiff bears the burden on lost profit damages calculations, including the non-existence of a noninfringing alternative); Smithkline Diagnostics, Inc. v. Helena Labs. Corp., 926 F.2d 1161, 1165 (Fed. Cir. 1991); TWM Mfg. Co. v. Dura Corp., 789 F.2d 895, 901 (Fed. Cir. 1986); *see also* Grain Processing Corp. v. American Maize-Products Co., 185 F.3d 1341, 1354 (Fed. Cir. 1999) ("When an alleged alternative is not on the market during the accounting period, a trial court may reasonably infer that it was not available as a non-infringing substitute at that time," which means then that the burden then falls on the infringer to prove availability, and the fact finder "must proceed with caution" in assessing that proof.).

<u>Principle No. 7(b)</u> – The total economic cost to the accused infringer of implementing the next best commercially acceptable and available noninfringing alternative may serve to cap the reasonable royalty award.

Common sense and economics both argue that, in general, it would be irrational for an accused infringer to pay more for a license to a patent than the "total economic cost" it would incur to implement its next best commercially acceptable and available noninfringing alternative to the patented technology. As the Federal Circuit recently noted in *AstraZenica AB*:

> When an infringer can easily design around a patent and replace its infringing goods with noninfringing goods, the hypothetical royalty rate for the product is typically low. There is little incentive in such a situation for the infringer to take a license rather than side-step the patent with a simple change in its technology. By the same reasoning, if avoiding the patent would be difficult, expensive, and time-consuming, the amount the infringer would be willing to pay for a license is likely to be greater.[168]

The total economic cost of implementing such a noninfringing alternative would include any costs attributable to the loss of the benefits and advantages of the patented technology in comparison to those of the proposed alternative, such as (1) any incremental R&D, product development, or manufacturing expenses over those associated with the research, development, and manufacture of the patented technology, and (2) any incremental foregone profits associated with time-to-market delays, changes in price, or changes in consumer demand or market share associated with commercializing the proposed alternative in comparison to those associated with commercializing the patented technology. In each case, the total economic costs of implementing a proposed alternative would be measured without reference to any switching costs, lock-in costs, patent-holdup costs, or other costs associated solely with (1) removing patented technology after its initial adoption or (2) the adoption of the patented technology by a standard-setting organization, governmental body, or similar market-shaping force.

In the real world, negotiators for patent licenses consider the alternatives to patent licenses, including achieving the goal of the patented technology in a manner that does not require a license.[169] So too, goes the argument, should the hypothetical negotiators.[170] This economic theory

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168 AstraZeneca AB v. Apotex Corp., 782 F.3d 1324, 1334–35 (Fed. Cir. 2015) (internal citation omitted).

169 *See, e.g.,* C.W. Shifley, Commentary, *Alternatives to Patent Licenses: Real-World Considerations of Potential Licensees Are—and Should Be—a Part of the Courts' Determinations of Reasonable Royalty Patent Damages*, 34 IDEA: J.L. & TECH. 1, 3 (1993). Mr. Shifley quotes George E. Frost, former patent counsel for General Motors, describing the real world process of negotiating a license royalty as necessitating a determination of the "increment of value": "[W]e need to be sure that we don't get into royalties that are more than what the alternative costs, because there's no sense at all to pay more to use the patent including the royalty, . . . than it would cost to use the alternative." *Id.*

170 *See*, *e.g.*, *id.* at 2 (quoting commentator George E. Frost as saying "[t]he dollar disadvantage of going to the most practical non-infringing alternative in lieu of the patent product . . . places a ceiling on what any rational negotiator would . . . pay"); *see also* Kimberly-Clark Worldwide, Inc. v. First Quality Baby Prods., LLC, No. 1:09-CV-1685, 2013 WL 6036029, at *2–4 (M.D. Pa. Nov. 13, 2013) (denying motion to strike expert testimony, given the economic circumstances of the particular case and the availability and cost of acceptable noninfringing alternatives, concluding that the accused infringer would agree to a royalty capped at the cost of the noninfringing alternative); Brandeis Univ. v. Keebler Co., Docket No. 474 at 9, No. 12-CV-01508 (N.D. Ill. Jan. 18, 2013) (Posner, J., sitting by designation) (holding that the defendant, "would not have paid a royalty higher than the cost to it of switching to a

has become established in the consideration of a lost profits award. In *Grain Processing Corp. v. American Maize-Products Co.*, the Federal Circuit held that the existence of a noninfringing alternative must be considered in reconstructing the "but for" world, and thus may cap or render unavailable a lost profits damages award.[171]

The Federal Circuit seemed poised to apply *Grain Processing* in the reasonable royalty context,[172] but declined the opportunity to do so in *Mars, Inc. v. Coin Acceptors, Inc.* In *Mars*, the accused infringer argued that "an infringer should not be required to pay more in reasonable royalties than it would have paid to avoid infringement in the first place by switching to an available noninfringing alternative."[173] The Federal Circuit rejected this argument, both because "there was no available and acceptable noninfringing alternative to which Coinco could have switched at the time of the hypothetical negotiation," and because "an infringer *may* be liable for damages, including reasonable royalty damages, that exceed the amount that the infringer could have paid to avoid infringement."[174] The *Mars* court, however, stopped short of holding that reasonable royalty damages can *never* be capped by such a cost in the appropriate circumstances.

In light of the foregoing, and notwithstanding the *Mars* decision, the Working Group favors limiting the reasonable royalty award where credible evidence is provided to show the total economic cost associated with implementing a technically and commercially feasible noninfringing alternative in place of the accused instrumentality, unless such an award is shown to undercompensate the patent holder for the infringement. Such a limitation is supported by economic considerations articulated above—one would not agree to pay more for a license than he or she would have paid to avoid infringement in the first place[175]—and provides a means to calculate damages that may, in at least some circumstances, be more tethered to concrete dollar amounts than a *Georgia-Pacific* analysis.

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noninfringing substitute […] or otherwise reworking its manufacturing process to avoid making the infringing [product]").

171 *See Grain Processing*, 185 F.3d at 1350–51 ("[A] fair and accurate reconstruction of the 'but for' market also must take into account, where relevant, alternative actions the infringer foreseeably would have undertaken had he not infringed. Without the infringing product, a rational would-be infringer is likely to offer an acceptable non-infringing alternative, if available, to compete with the patent owner rather than leave the market altogether. The competitor in the 'but for' marketplace is hardly likely to surrender its complete market share when faced with a patent, if it can compete in some other lawful manner.").

172 *See* Riles v. Shell Exploration & Prod. Co., 298 F.3d 1302, 1312 (Fed. Cir. 2002) ("The economic relationship between the patented method and non-infringing alternative methods, of necessity, would limit the hypothetical negotiation." (citing *Grain Processing*, 185 F.3d at 1347 (the difference in production costs between infringing and noninfringing products "effectively capped the reasonable royalty award")); Zygo Corp. v. Wyko Corp., 79 F.3d 1563, 1571-72 (Fed. Cir. 1996) (vacating and remanding the district court's damages determination where both lost profits and reasonable royalty failed to take into account noninfringing alternatives that would have given the alleged infringer a "stronger position to negotiate for a lower royalty rate"); *see also* Micro Chem., Inc. v. Lextron, Inc., 317 F.3d 1387, 1393 (Fed. Cir. 2003) (reserving judgment on "whether the holding of *Grain Processing* has applicability in the reasonable royalty context").

173 Mars, Inc. v. Coin Acceptors, Inc., 527 F.3d 1359, 1373 (Fed. Cir. 2008).

174 *Id.* (emphasis added). Interestingly, the Federal Circuit did not cite or mention *Grain Processing* in the opinion.

175 *See, e.g.*, Joan L. Eads, Commentary, *Does* Grain Processing *Apply in a Reasonable Royalty Damage Analysis?*, 10 No. 26 ANDREWS INTELL. PROP. REP. 13 (2004); ECONOMIC APPROACHES TO INTELLECTUAL PROPERTY 52–57 (Gregory K. Leonard & Lauren J. Stiroh eds., 2005); Nathaniel C. Love, Comment, *Nominal Reasonable Royalties for Patent Infringement*, 75 U. CHI. L. REV. 1749, 1757–66 (2008); Liane M. Peterson, Grain Processing *and* Crystal Semiconductor*: Use of Economic Methods in Damage Calculations Will Accurately Compensate For Patent Infringement*, 13 FED.

<u>Best Practice 7</u> – The proponent of a royalty cap based on a noninfringing alternative must provide evidence regarding:

a. all incremental costs associated with implementation of the proposed alternative over the implementation of the accused instrumentality;

b. all incremental costs associated with the marketing and selling of the proposed alternative over the costs associated with the marketing and selling of the accused instrumentality; and

c. all incremental foregone profits associated with the sale of the proposed alternative over the sale of the accused instrumentality to the extent that the proposed alternative is not a perfect substitute for the proposed alternative in the relevant market.

The proponent of a royalty cap based on the existence of a proposed commercially acceptable and available noninfringing alternative must provide competent, admissible evidence (subject to cross-examination) covering relevant costs and foregone profits.

A noninfringing alternative analysis should include evidence as to all incremental costs associated with implementation of the proposed alternative over the implementation of the accused instrumentality, including design and development costs (including any additional personnel costs); cost of materials; and costs associated with any required redesign of other components to accommodate the proposed alternative (including any licensing fees for implementing a third party's patented technology in the noninfringing design). Such incremental costs should be measured without reference to any switching costs, lock-in costs, patent-holdup costs, or other costs associated solely with (1) removing patented technology after its initial adoption or (2) the adoption of the patented technology by a standard-setting organization, governmental body, or similar market-shaping force.

A noninfringing alternative analysis should also include evidence as to all incremental costs associated with the marketing and selling of the proposed alternative over the costs associated with the marketing and selling of the accused instrumentality, e.g., sales-force training that would be required for the proposed alternative that would not be required for the accused instrumentality.

Furthermore, such an analysis should include evidence as to all incremental foregone profits associated with the sale of the proposed alternative over the sale of the accused instrumentality to the extent that the proposed alternative is not a perfect substitute for the proposed alternative in the relevant market, e.g., time-to-market delays, changes in price, and changes in customer demand or

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CIRCUIT B.J. 41 (2003); John W. Schlicher, *Measuring Patent Damages by the Market Value of Inventions—The* Grain Processing*,* Rite-Hite*, and* Aro *Rules*, 82 J. PAT. & TRADEMARK OFF. SOC'Y 503 (2000); Christopher B. Seaman, *Reconsidering the* Georgia-Pacific *Standard for Reasonable Royalty Patent Damages*, 2010 BYU L. REV. 1661, 1711–26; John S. Torkelson, *Calculating Reasonable Royalty Damages for Infringement of Early-Stage Technology Patents*, 4 SEDONA CONF. J. 47, 56–57 (2003).

market share that are attributable to foregoing the benefits and advantages of the patented technology by the adoption of the proposed alternative.

The Working Group notes that the time at which allegedly available alternatives may be considered will depend upon the hypothetical negotiation model used, i.e., Prospective-Only or *Ex Ante*, Status Quo/Book of Wisdom, or Retrospective or *Ex Post* Models. Under the *Ex Ante* Model, and arguably under the Status Quo Model, available alternatives would be assessed at a time just prior to first infringement when the hypothetical negotiation would be held. For the Retrospective Model, however, an alternative that comes available after first infringement but before trial could be considered. (This may also be true for the Status Quo Model, depending upon the application of the Book of Wisdom). Under the Retrospective Model, therefore, there might be a determination of a *Georgia-Pacific* reasonable royalty for some portion of the time, and then a reasonable royalty determined by the costs of switching to a noninfringing alternative for a later portion of time.

4. Switching Costs, Lock-in Costs, Patent-Holdup Costs, and Other Costs Not Attributable to the Benefits and Advantages of the Patented Invention

<u>Principle No. 8</u> – The reasonable royalty normally should not encompass any value or premium attributable to market considerations unrelated to the benefits and advantages of the patented invention, such as any switching costs, lock-in costs, patent-holdup costs, or other similar costs.

"Switching costs, lock-in costs, patent-holdup costs, and other similar costs" refer to the costs associated with removing patented technology from an accused product *after* that technology has already been adopted. These types of costs may create a problem because they may increase the amount a patent holder can charge for a license to the patented technology based on market conditions unrelated to the merits of the patented technology.[176]

The FTC has described the problems arising from switching costs, etc. as follows:

> As [a manufacturer] chooses technologies to incorporate into a new product, [it] will often make investments (e.g., building manufacturing facilities) based on [its] choice [to adopt the patented technology] that make it more costly to switch to an alternative. If the hypothetical negotiation is deemed to take place after investments have increased switching costs, the reasonable royalty may be higher than it would have been at the time of the design choice. This result overcompensates patentees compared to the economic value of the invention because of investments by the infringer. The ability of patentees to demand and obtain royalty payments based on the infringer's switching costs is commonly called "hold-up."[177]

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176 Ericsson, Inc. v. D-Link Sys., 773 F.3d 1201, 1226 (Fed. Cir. 2014) ("As a substantive matter, it is the 'value of what was taken' that measures a 'reasonable royalty' under 35 U.S.C. § 284. What is taken from the owner of a utility patent (for purposes of assessing damages under § 284) is only the patented technology, and so the value to be measured is only the value of the infringing features of an accused product.").

177 FED. TRADE COMM'N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION, at 22 (2011), *available at* http://www.ftc.gov/os/2011/03/110307patentreport.pdf [hereinafter *FTC Report*]. It should be noted, however, that there have been questions raised about the applicability of the FTC Report since it was drafted before the *Ericsson* decision.

Potential holdup or lock-in effects, whereby switching costs associated with removing patented technology from an accused product after that technology has already been adopted arise, come about primarily in two scenarios. In the first, a patented component has become necessary to practice an industry standard. The industry standard may be one that was promulgated by a standard setting organization or it may simply be a standard that has arisen as the result of market forces (commonly referred to as a *de facto* standard).[178] The second holdup or lock-in scenario is presented when a technically feasible, noninfringing alternative exists for a component of a product, but that alternative cannot be incorporated into the product because it is prohibited by a government regulation.

In the context of standard-essential patents (SEPs), "[p]atent hold-up exists when the holder of a SEP demands excessive royalties after companies are locked into using a standard."[179] As recognized by the court in *Microsoft Corp. v. Motorola, Inc.*, "when [a] standard becomes widely used, the holders of Standard-Essential Patents (SEPs) obtain substantial leverage to demand more than the value of their specific patented technology. This is so even if there were equally good alternatives to that technology available when the original standard was adopted. After the standard is widely implemented, switching to those alternatives is either no longer viable or would be very costly."[180] Many commentators have described this patent holdup as an important factor in increased licensing rates or royalty calculations, which can result in overcompensation of patent holders.[181]

When present, whether in the SEP context or otherwise, factoring out such costs is important to all hypothetical negotiation models so as to not overcompensate the patent holder. Such factoring out may occur by natural operation of the Prospective-Only or *Ex Ante* and Status Quo/Book of Wisdom Models by virtue of the earlier hypothetical negotiation date that is applied. Use of the Retrospective Model, however, would require mechanisms to factor out these costs from the reasonable royalty analysis, such as by (1) having district courts exercise their gatekeeping responsibility to exclude these costs from any reasonable royalty calculations submitted to the trier-

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178 Examples of such *de facto* standards include the QWERTY keyboard and the MP3 audio format. For more regarding the development and effects of *de facto* standards, *see* Janice M. Mueller, *Patent Misuse Through the Capture of Industry Standards*, 17 BERKELEY TECH. L.J. 623, 633–35 (2002).

179 *Ericsson*, 773 F.3d at 1210. However, as the Federal Circuit has recognized, not every case involving an SEP automatically gives rise to a patent holdup problem. "A jury . . . need not be instructed regarding royalty stacking unless there is actual evidence of stacking." *Ericsson*, 773 F.3d at 1234. An example of this would include showing that the patent holder demanded higher royalty rates from standard-compliance companies. *Id.*

Indeed, not all commentators agree that patent holdup is a significant concern in some or most cases. *See*, *e.g.,* Einer Elhauge, *Do Patent Holdup and Royalty Stacking Lead to Systematically Excessive Royalties?*, 4 J. COMP. L. & ECON. 535 (2008); J. Gregory Sidak, *Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 714 (2008).

180 Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217, at *10 (W.D. Wash. Apr. 25, 2013); *see also In re* Innovatio IP Ventures, LLC Patent Litig., No. 1:11-CV-9308, 2013 WL 5593609, at *8–9, *40–41 (N.D. Ill. Oct. 3, 2013).

181 *See, e.g.,* Thomas F. Cotter, *Patent Holdup, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. 1151 (2009); Joseph Scott Miller, *Standard Setting, Patents, and Access Lock-In: RAND Licensing and the Theory of the Firm*, 40 IND. L. REV. 351 (2007); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007); Carl Shapiro, *Injunctions, Hold-Up, and Patent Royalties*, 12 AM. L. & ECON. REV. 280 (2010). *But see* Einer Elhauge, *Do Patent Holdup and Royalty Stacking Lead to Systematically Excessive Royalties?*, 4 J. COMP. L. & ECON. 535 (2008); J. Gregory Sidak, *Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 714 (2008).

of-fact, and (2) instructing the trier-of-fact about the need to avoid these costs when awarding a reasonable royalty. In each case, the objective would be to ensure that any reasonable royalty calculation and resulting damages award does not include value attributable to market conditions unrelated to the benefits and advantages of the patented invention.

Thus, where the accused infringer has incurred sunk investment costs by bringing the patented technology or an accused device incorporating the patented technology to market, the reasonable royalty should exclude any premium the patent may command resulting solely from the accused infringer's need to switch to a proposed alternative product or remove the patented technology from its accused product. These costs would need to be carefully distinguished from the "total economic cost" discussed above associated with losing the incremental benefits and advantages of the patented invention over the next best noninfringing alternative.

In some cases, to accomplish these goals, the trier-of-fact may need to envision the hypothetical negotiation as occurring before the accused infringer invested any sunk costs in the patented technology or became locked into using the patented technology as a result of market forces or government regulation. The relevant question would then be: Is this cost something that the accused infringer could have avoided if it had adopted a proposed alternative or chosen not to infringe at the time before it invested those sunk costs or became locked into using the patented technology?

This approach is consistent with that articulated by the FTC: "A reasonable royalty damages award that is based on high switching costs, rather than the *ex ante* value of the patented technology compared to alternatives, overcompensates the patentee . . . . To prevent damage awards based on switching costs, courts should set the hypothetical negotiation at an early stage of product development, when the infringer is making design decisions."[182]

This approach is also consistent with the Federal Circuit's treatment of patent-holdup costs in *Ericsson, Inc. v. D-Link Sys.*:

> In deciding whether to instruct the jury on patent hold-up and royalty stacking, again, we emphasize that the district court must consider the evidence on the record before it. The district court need not instruct the jury on hold-up or stacking unless the accused infringer presents actual evidence of hold-up or stacking. Certainly something more than a general argument that these phenomena are possibilities is necessary. Indeed, "a court should not instruct on a proposition of law about which there is no competent evidence." Depending on the record, reference to such potential dangers may be neither necessary nor appropriate.[183]

In the forthcoming WG9 Commentary on Case Management of Patent Damages Issues, to be published in the coming months, the Working Group recommends Best Practices when calculating reasonable royalty patent damages in cases presenting the above-mentioned scenarios. And in the forthcoming WG9 Commentary on Standard-Essential Patents and FRAND Issues, to be published for public comment in the coming months, the Working Group will recommend Principles and Best Practices specific to the Standard-Essential Patent and FRAND contexts.

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182 *FTC Report, supra* note 177, at 190–91.

183 *Id.* (internal citations omitted).

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The Sedona Conference was founded in 1997 by Richard Braman in pursuit of his vision to move the law forward in a reasoned and just way. Richard's personal principles and beliefs became the guiding principles for The Sedona Conference: professionalism, civility, an open mind, respect for the beliefs of others, thoughtfulness, reflection, and a belief in a process based on civilized dialogue, not debate. Under Richard's guidance, The Sedona Conference has convened leading jurists, attorneys, academics, and experts, all of whom support the mission of the organization by their participation in conferences and the Sedona Conference Working Group Series (WGS). After a long and courageous battle with cancer, Richard passed away on June 9, 2014, but not before seeing The Sedona Conference grow into the leading nonpartisan, nonprofit research and educational institute dedicated to the advanced study of law and policy in the areas of complex litigation, antitrust law, and intellectual property rights.

The WGS was established to pursue in-depth study of tipping point issues in the areas of antitrust law, complex litigation, and intellectual property rights. It represents the evolution of The Sedona Conference from a forum for advanced dialogue to an open think tank confronting some of the most challenging issues faced by our legal system today.

A Sedona Working Group is created when a "tipping point" issue in the law is identified, and it has been determined that the bench and bar would benefit from neutral, nonpartisan principles, guidelines, best practices, or other commentaries. Working Group drafts are subjected to a peer review process involving members of the entire Working Group Series including—when possible—dialogue at one of our regular season conferences, resulting in authoritative, meaningful, and balanced final commentaries for publication and distribution.

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