

NOTE

FRAND, RAND, & THE PROBLEM AT HAND: INCREASING CERTAINTY IN INFRINGEMENT DAMAGES FOR STANDARD-ESSENTIAL PATENTS

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I. INTRODUCTION

People connect to Wi-Fi every day, but they generally do not consider the technological and economic miracle necessary for their phones, laptops, and occasionally refrigerators to all connect to the internet through the same wireless means. The Wi-Fi Alliance, a group that forty years ago would have sounded like something out of a fantasy novel, consists of about 800 companies¹ and owns the brand “Wi-Fi.”² But what makes Wi-Fi, Wi-Fi? How do so many devices, developed and produced by so many different suppliers, all use the same protocol(s) for connecting to each other? The Institute of Electrical and Electronic Engineers (IEEE), another voluntary group of about 400 companies, dictates the standards, whether they be technical, electrical, or computational, that developers must use or meet when creating Wi-Fi enabled products.³ Companies voluntarily join this group, and innumerable others like it, to collaborate harmoniously with each other and share their intellectual property at reasonable prices to benefit both each other and consumers. This is generally more idyllic than true.

When Standard-Setting Organizations (“SSOs”) set various industry standards, they often require the incorporation of certain technologies (and, therefore, their underlying patents) into the standard. Standard-Essential Patents (“SEPs”) generally require that a patent-holder agree to Fair, Reasonable, and Non-Discriminatory (“FRAND”) terms or Reasonable and Non-Discriminatory (“RAND”) terms in the agreements incorporating their patent into a standard. These terms do what their names suggest, and oblige the SEP-holder to, speaking

¹ *Become a Driving Force in the Wi-Fi® Industry*, WI-FI ALLIANCE (July 2019), https://www.wi-fi.org/download.php?file=/sites/default/files/private/Join_Wi-Fi_Alliance_201908.pdf [<https://perma.cc/SE32-VZHD>].

² *Who We Are*, WI-FI ALLIANCE, <https://www.wi-fi.org/who-we-are> [<https://perma.cc/9FBA-X39G>].

³ *Help for the IEEE 802.11 Working Group Website*, INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, <http://www.ieee802.org/11/help.html> [<https://perma.cc/KV92-ZSRJ>].

generally, not charge unreasonable fees in licensing their SEPs. What is a “fair” rate? What is a “reasonable” rate? What constitutes “non-discriminatory” practices in the licensing of SEPs? SSOs generally decline to answer these questions themselves, further complicating the matter. Instead, courts solve these problems if and when these terms become the subject of litigation, as they indeed have, in cases across the country brought by SEP-holders, would-be SEP-licensees (“standard-implementers”), and even the Federal Trade Commission (the “FTC”).⁴ The Federal Circuit, having nationwide jurisdiction in appeals of patent infringement cases,⁵ has not established a clear-cut rule as to how to determine a FRAND or RAND (henceforth referred to collectively as “F/RAND”) royalty rate in the case of infringement,⁶ and so this remains an area of especially high uncertainty today, in the already uncertainty-rife field of patent litigation.⁷

This note proposes that SSOs incorporate guidance in F/RAND terms as to the specific test(s) that a court should use to determine a F/RAND royalty. It begins by discussing in detail the problems facing SEP-licensing and the concerns inherent to judicial royalty-determination in SEPs. This note continues by analyzing the leading precedent dictating damages calculations in infringement cases and examining how courts have interpreted that precedent in a F/RAND context, discussing the implications on SEP-licensees and -licensors throughout. It explores other tweaks to the common valuation methods found in litigation and legal literature and the potential impacts upon licensees and licensors those may cause. Throughout, this note analyzes the advantages and drawbacks of various valuation approaches and considerations, and emphasis will be placed upon the role of the SSO and the considerations an SSO ought to weigh in crafting guidance for calculation of a F/RAND rate. This note serves as a caution of the complications causing uncertainty in SEP infringement litigation, an identifier of valuation approaches and the concerns they implicate, and an argument for

⁴ See, e.g., *Ericsson, Inc. v. D-Link Sys.*, 773 F.3d 1201, 1231 (Fed. Cir. 2014) (interpreting the following RAND terms: “[SEP-holder must] grant a license under reasonable rates to an unrestricted number of applicants on a worldwide basis with reasonable terms and conditions that are demonstrably free of unfair discrimination”); *In re Innovatio IP Ventures, LLC*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *46-47 (N.D. Ill. Sept. 27, 2013) (interpreting the following RAND terms: “[SEP-holder will] grant a nonexclusive, nontransferable sole and personal license under any such issued patent on a nondiscriminatory basis, on terms and conditions which Intermec deems reasonable.”); see also *FTC v. Qualcomm Inc.*, 411 F. Supp. 3d 658, 671-672, 680 (N.D. Cal. 2019) (FTC bringing a case against Qualcomm under its FTCA § 5 authority for behavior involving alleged violation of FRAND commitments).

⁵ *Court Jurisdiction*, UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT, <http://www.cafc.uscourts.gov/the-court/court-jurisdiction> [<https://perma.cc/ZR8P-AV79>].

⁶ *Ericsson*, 773 F.3d at 1232 (“Although we recognize the desire for bright line rules and the need for district courts to start somewhere, HN29 courts must consider the facts of record when instructing the jury and should avoid rote reference to any particular damages formula.”).

⁷ James Bessen & Michael J. Meurer, *Lessons for Patent Policy from Empirical Research on Patent Litigation*, 9 LEWIS & CLARK L. REV. 1, 2 (2005).

SSOs to rectify the current problems and inequities in judicial F/RAND rate calculation.

II. BACKGROUND

In many industries and economies across the globe, private companies recognize the benefits that standardization grants to both consumers and businesses.⁸ Standardization conveniences users of technology every day, whether it be by connecting Bluetooth earbuds of one brand to a phone of another, streaming music on a 4G network, or charging phones with a USB cable. Any product that adopts a standard requires licensure of SEPs that the product's producer does not own, and SEP-holders can thereby potentially wield an undue influence over both the market in general and their competitors once a standard has taken root across an industry.⁹ SSOs attempt to remedy this problem, known as "patent hold-up," via voluntary licensing commitments with SEP-holders to, among other things, exclusively license their SEPs on F/RAND terms.¹⁰

In cases of patent infringement, damages must be "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."¹¹ Courts have generally determined such a royalty when calculating damages in patent infringement cases by weighing some form of the factors set out in *Georgia-Pacific Corp. v. United States Plywood Corp.* ("*Georgia-Pacific*").¹² However, courts' applications of the *Georgia-Pacific* factors have varied from case to case and court to court,¹³ and SEP-holders have engaged in limited litigation regarding F/RAND terms thus far in their history. Additionally, foreign jurisdictions have applied a variety of different valuation methods in cases regarding F/RAND terms.¹⁴ Recent years have also seen a proliferation of

⁸ U.S. Dep't of Justice & U.S. Patent & Trademark Office, Policy Statement on Remedies for Standards-Essential Patents Subject to Voluntary F/RAND Commitments 2-3 (Jan. 8, 2013) ("Voluntary consensus standards serve the public interest in a variety of ways, from helping protect public health and safety to promoting efficient resource allocation and production by facilitating interoperability among complementary products.").

⁹ *Id.* at 4.

¹⁰ *Id.* at 5.

¹¹ 35 U.S.C. § 284.

¹² *Ga.-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970). *See, e.g.*, *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233 (W.D. Wash. Apr. 25, 2013).

¹³ *Compare* *Ericsson, Inc. v. D-Link Sys.*, 773 F.3d 1230-1232 (Fed. Cir. 2014) (using only relevant *Georgia-Pacific* factors when considering patentee's actual RAND commitment in jury instruction), *with* *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *53-65 (holding that "The *Georgia-Pacific* factors must be adjusted [and modified] to account for the purpose of the RAND commitment.").

¹⁴ Anna Layne-Farrar & Koren W. Wong-Ervin, *Methodologies for Calculating FRAND Damages: An Economic and Comparative Analysis of the Case Law from China, the*

legal literature proposing potential valuation methods.¹⁵ The culmination of these elements results in a variety of means of determining F/RAND royalty rates and handling infringement of SEPs, both already-implemented and hypothetical, with no universal standard governing valuation.

A. *The Problem at Hand*

SSOs generally write F/RAND terms in a vague manner. For instance, the F/RAND terms central to the dispute in *Ericsson, Inc. v. D-Link Systems* stated only that Ericsson would “grant a license under reasonable rates to an unrestricted number of applicants on a worldwide basis with reasonable terms and conditions that are demonstrably free of unfair discrimination.”¹⁶ While the terms used in *Ericsson* are not necessarily representative of all F/RAND terms in their verbatim form,¹⁷ they are notable as an example. The F/RAND agreement makes no effort to define the terms “reasonable” or “unfair discrimination”, which are inherently ambiguous. This example embodies the common problem faced by courts in virtually every F/RAND case. Some F/RAND terms abstain from using language regarding fairness (making them only “RAND” terms, rather than “FRAND”), such as those in question in *In re Innovatio* (“*Innovatio*”), where the terms stated that the SEP-holder must “grant a nonexclusive, nontransferable sole and personal license under any such issued patent on a nondiscriminatory basis, on terms and conditions which [the SEP-holder] deems reasonable.”¹⁸ While these terms grant the court more guidance than those used in *Ericsson*, by specifying that reasonableness ought to be determined from the perspective of the SEP-holder, they still lack guidance on how reasonableness or how a “nondiscriminatory basis” ought to be determined by a court in F/RAND cases. Despite the addition of a “fairness” element in FRAND terms not present in RAND terms, courts generally consider the two terms interchangeably at the damages calculation phase, with the addition of a “fairness” element not noticeably altering analysis.¹⁹ As such, this note considers FRAND and

European Union, India, and the United States, 8 JINDAL GLOB. L. REV. 127, 143-146, 147-148 (2017) (discussing valuation methods used in select Chinese and British courts).

¹⁵ See, e.g., Jorge L. Contreras, *Global Rate Setting: A Solution for Standards-Essential Patents?*, 94 WASH. L. REV. 701 (2019) (proposing a strategy for implementing a global rate-setting board for SEPs via a binding arbitration framework).

¹⁶ *Ericsson*, 773 F.3d at 1231.

¹⁷ See, e.g., *In re Innovatio IP Ventures, LLC*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *46-47 (N.D. Ill. Sept. 27, 2013) (discussing the RAND terms in question in the case, and how the terms differ from those used in *Ericsson*).

¹⁸ *Id.*

¹⁹ Compare *id.* at *169 (applying a “top-down” valuation approach to a RAND-encumbered patent), with *GPNE Corp. v. Apple, Inc.*, No. 12-CV-02885-LHK, 2014 U.S. Dist. LEXIS 53234, at *35 (N.D. Cal. Apr. 16, 2014) (applying *Innovatio*’s “top-down” valuation approach to a FRAND-encumbered patent).

RAND terms interchangeably in discussing frameworks for determining royalty rates for patents encumbered by either set of terms.

F/RAND terms' application by federal courts in damages calculation has varied by jurisdiction,²⁰ and this variance has caused a high level of uncertainty as to what rate a court might find "reasonable and non-discriminatory."²¹ The inherent vagueness of the terms "fair" and "reasonable" has only further served to muddy the waters of royalty-determination.²² While SSOs use F/RAND terms to inhibit abuse of the economic power that ownership of an SEP grants, the uncertainty in the valuation processes used by courts has the potential to dramatically disfavor litigants lacking significant resources. Therefore, SSOs could benefit SEP-holders and SEP-licensors by providing further guidance in the F/RAND terms as to how a F/RAND royalty rate should be determined.

B. The Proposed Solution

While no means of valuation will ever provide a perfect calculus for determining a reasonable royalty,²³ SSOs can frame litigation prior to its inception by incorporating an intended means or approach to valuation in the F/RAND commitment itself. Courts have previously expressed interest in receiving guidance on valuation methodology from SSOs,²⁴ so incorporation of that guidance could drastically reduce the differences between how courts calculate F/RAND rates. Neither codified U.S. patent law nor legal precedent require a specific means for valuation of a reasonable royalty, merely that a reasonable royalty be calculated to determine damages.²⁵ On this basis, guidance from SSOs in the F/RAND terms instructing courts, or potential licensees and SEP-holders, on the proper

²⁰ See, e.g., *Innovatio*, 2013 U.S. Dist. LEXIS 144061; *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233 (W.D. Wash. Apr. 25, 2013).

²¹ Contreras, *supra* note 15, at 706 ("[G]iven the . . . legal uncertainty that pervades this area, an increasing number of disputes have arisen regarding the appropriate level of FRAND royalty rates . . . [and] these disputes are costly, unpredictable, and disruptive to the market.").

²² See, e.g., FEDERAL TRADE COMMISSION, *THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION* 192 (2011) ("The terms RAND and FRAND are vague and ill-defined.").

²³ See *Unisplay, S.A. v. Am. Elec. Sign Co., Inc.*, 69 F.3d 512, 517 (Fed. Cir. 1995) (explaining that analyzing the hypothetical negotiation between the patentee and infringer when determining reasonable royalties "necessarily involves an element of approximation and uncertainty").

²⁴ See, e.g., *Microsoft*, 2013 U.S. Dist. LEXIS 60233 at *45 ("Neither the IEEE nor the ITU specifies that RAND terms must be determined using an incremental value approach."). The IEEE and the ITU are SSOs relevant to the *Microsoft* case.

²⁵ 35 U.S.C. § 284; *Whitserve, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 31 (Fed. Cir. 2012) (stating that expert witnesses need only to analyze the applicable G-P Factors, rather than discuss all 15); *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 899 (Fed. Cir. 1986) (citing *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 507 (1964)) ("Section 284 does not mandate how the district court must compute that figure, only that the figure compensate for the infringement.").

means and/or considerations for determining a F/RAND rate could import an SSO-chosen regime to SEP-infringement litigation. However, SSOs generally do not provide such guidance.²⁶ Some SSOs even take extreme measures to discourage potential rulemaking within the SSO on the subject, such as barring the discussion of royalty rates or other licensing concerns at SSO functions.²⁷ SSOs generally comprise various competitors and participators in the industry or industries that the relevant standard occupies. Therefore, one can hardly fault corporations for making conservative decisions in the face of high uncertainty to prevent risking inadvertent devaluation of one's IP or raising costs of licensing others'.

This short-sighted approach increases complexity, and thereby costs, in litigation. That complexity has trended towards hurting, rather than helping, SEP-holders, with major F/RAND cases often deciding royalty rates of well below 1% per unit and of much lesser values than the rates SEP-holders have expressed as (in their belief) F/RAND.²⁸ With over a decade of judicial decisions and academic literature on the subject since the first appellate court case to determine a F/RAND royalty rate,²⁹ judicial history can serve as a guide to both corporations and SSOs as to potential means for valuation of reasonable royalties for SEPs. SSOs ought to learn from this history and adopt guidance in their F/RAND terms to reduce complexity in litigation and to provide a valuation approach that aligns with the context of the standard and SEP in question while fulfilling the goals of SSO-members.

C. Common Concerns in Rate-Determination

When determining a reasonable royalty rate, common concerns often dominate a court's analysis when dealing with F/RAND-encumbered patents. The aforementioned concern of patent hold-up occurs when an SEP-holder has made a commitment to license on F/RAND terms, but then seeks to use the patent's

²⁶ See, e.g., *In re Innovatio IP Ventures, LLC*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *46-47 (N.D. Ill. Oct. 3, 2013) (discussing the RAND terms in question in the case, which are general and do not provide guidance).

²⁷ See, e.g., IEEE STANDARDS ASS'N, IEEE-SA STANDARDS BOARD OPERATIONS MANUAL § 5.3.10.2 (2020) ("No discussions or other communications regarding the following topics shall occur during IEEE-SA working group standards-development meetings or other duly authorized IEEE-SA standards-development technical activities: . . . the essentiality, interpretation, or validity of patent claims; specific patent license terms or other intellectual property rights . . .").

²⁸ Ming-Tao Yang & Jinwoo Kim, *Managing the Unavoidable – Recent Developments in Standard Essential Patent Litigation in the U.S. and Europe*, FINNEGAN (Dec. 2018), <https://www.finnegan.com/en/insights/managing-the-unavoidablerecent-developments-in-standard-essential-patent-litigation-in-the-us-and-europe.html> [<https://perma.cc/MP5K-6Y58>] ("Many SEP owners are disappointed with the rates resulting from these decisions and contend that these are highly biased in favor of standard implementers.").

²⁹ *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297 (3d Cir. 2007).

essentiality to the standard to obtain an above-F/RAND rate.³⁰ Put simply, patent hold-up occurs when the SEP-holder either refuses to license the patent or attempts to abuse the patent's essentiality in negotiations or litigation to receive a higher rate. "Patent hold-out" marks a similar concern mirrored to the side of the licensor, and occurs when a licensee either refuses to take a F/RAND license or unreasonably delays doing so, to drive down the licensing costs to below a F/RAND rate.³¹

These two concerns illustrate the potential market advantage that the licensor or licensee may abuse if the circumstances of a licensure of a F/RAND-encumbered patent allow, and therefore courts try to discourage such behaviors.³² If courts frequently set F/RAND rates too high, they effectively encourage patent hold-up due to the high royalty rate available to SEP-holders in litigation.³³ Conversely, if courts frequently set F/RAND rates too low, they effectively encourage patent hold-out by disproportionately benefitting standard-implementers in litigation.³⁴ The former hurts consumers by limiting production of standard-abiding goods and hurts SEP-licensees by forcing them to choose between paying high rates, risking litigation, or declining to adopt a standard.³⁵ The latter hurts innovation by discouraging technology-developers from contributing to a standard and hurts consumers by having SSOs decide standards from a likely smaller pool of available technologies, potentially providing an inferior product.³⁶ Additionally, calculation of low F/RAND rates at litigation

³⁰ *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233, at *37-38 (W.D. Wash. Apr. 25, 2013) ("The ability of a holder of an SEP to demand more than the value of its patented technology and to attempt to capture the value of the standard itself is referred to as patent "hold-up."); Layne-Farrar & Wong-Ervin, *supra* note 14, at 129.

³¹ *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1332 (Fed. Cir. 2014) ("[A]n injunction may be justified where an infringer unilaterally refuses a FRAND royalty or unreasonably delays negotiations to the same effect."); Layne-Farrar & Wong-Ervin, *supra* note 14, at 129.

³² *See, e.g. Apple*, 757 F.3d at 1332 ("A patentee subject to FRAND commitments may have difficulty establishing irreparable harm. On the other hand, an injunction may be justified where an infringer unilaterally refuses a FRAND royalty or unreasonably delays negotiations to the same effect.").

³³ *In re Innovatio IP Ventures, LLC*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *61-62 (N.D. Ill. Oct. 3, 2013) ("[An SEP] holder can demand excessive royalties far beyond the fair value of its technological contribution to the standard, merely because the implementer has no choice but to pay.").

³⁴ *Apple*, 757 F.3d at 1332 (acknowledging the dangers of patent hold-out).

³⁵ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *38 ("The threat of hold-up increases as the standard becomes more widely implemented and firms make sunk cost investments that cannot be recovered if they are forced to forego implementation of the standard or the standard is changed.").

³⁶ *See Layne-Farrar & Wong-Ervin, supra* note 14, at 152-153 ("If the worst penalty a SEP infringer faces is merely paying, after an adjudication, the FRAND royalty it should have agreed to pay when first asked, then holdup and holdout give implementers a profitable way to defer payment.").

incentivizes infringement, as the infringer will have a potentially lucrative means of deferring payment of a licensure fee.³⁷ A third concern of courts in royalty-determination for SEPs is “royalty-stacking,” which theoretically occurs when an SEP-holder licenses SEPs at excessive rates without regard to the other complementary patents in a standard that a licensee must also license, thereby making production of goods meeting the standard *per se* unprofitable.³⁸ This concern has a particular sensitivity to even minute favoring of SEP-holders by courts in royalty determination, as implementing a standard can require the licensure of hundreds to thousands of SEPs.³⁹ These concerns generally dominate judicial analysis in determining a framework in which a court can evaluate a F/RAND royalty rate.⁴⁰

III. ESTABLISHED JUDICIAL FRAMEWORKS & PROSPECTIVE ALTERNATIVES TO DETERMINE A REASONABLE ROYALTY RATE

Put simply, judicial decisions regarding F/RAND royalty damages in federal courts have been few and far between. However, when the courts have encountered F/RAND terms, they have generally analyzed these cases through the lens of *Georgia-Pacific* and its fifteen factors.⁴¹

A. *Georgia-Pacific*

While *Georgia-Pacific*'s website advertises itself as a significant player in the business of paper production since the 1920s, the corporation does not advertise the volume of judicial decisions and legal literature that have been produced referencing its name since the District Court for the Southern District of New York ruled in its favor on May 28, 1970.⁴² This litigation provided the primary precedent for countless subsequent judicial decisions.⁴³

³⁷ *See id.*

³⁸ *See id.* at 130 (“The royalty stacking theory . . . maintains that patent holders will set their royalty rate without regard to the other strictly complementary patent holders . . .”); *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *42-43 (“Likewise, a proper methodology for determining a RAND royalty should address the risk of royalty stacking by considering the aggregate royalties that would apply if other SEP holders made royalty demands of the implementer.”).

³⁹ *In re Innovatio IP Ventures, LLC*, No. 2302, 2013 U.S. Dist. LEXIS 144061, at *66 (N.D. Ill. Sept. 27, 2013) (“This concern arises because most standards implicate hundreds, if not thousands of patents.”).

⁴⁰ *See Layne-Farrar & Wong-Ervin, supra* note 14, at 129-130.

⁴¹ *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233, at *51 (W.D. Wash. Apr. 25, 2013) (“Courts have long experience in conducting hypothetical bilateral negotiations to frame the reasonable royalty inquiry in patent infringement cases under the *Georgia-Pacific* framework.”); *See GEORGIA-PACIFIC*, <https://www.gp.com/> [<https://perma.cc/8Y9D-ZM4C>].

⁴² *Ga.-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1143 (S.D.N.Y. 1970).

⁴³ *Layne-Farrar & Wong-Ervin, supra* note 14 at 139.

Not involving SEPs or SSOs, the case entailed Georgia-Pacific suing a competitor for alleged unfair competition and infringement of three Georgia-Pacific-owned patents.⁴⁴ After the district court found that U.S. Plywood Corp. had infringed one of Georgia-Pacific's patents, the parties disagreed on the proper means of valuing a royalty rate for the patent to determine damages.⁴⁵ The decision set out fifteen factors (the "G-P Factors") for courts to weigh in patent infringement cases to determine damages based on a hypothetical royalty that would have been paid by the infringer, had the infringer sought a license for the patent rather than infringed.⁴⁶ Courts generally apply these factors via a "hypothetical negotiation" approach to determine a reasonable royalty rate.⁴⁷

B. The "Hypothetical Negotiation" Approach

The Federal Circuit Court of Appeals has described the "hypothetical negotiation," also known as the "willing licensor-willing licensee," approach as an "attempt[] to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before the infringement began."⁴⁸ The Federal Circuit has endorsed⁴⁹ the Sixth Circuit's view that "[a]mong the relevant facts [to the hypothetical negotiation] are: what plaintiff's property was, to what extent defendant has taken it, its usefulness and commercial value as shown by its advantages over other things and by the extent of its use and the commercial situation."⁵⁰ The District Court for the Southern District of New York, in *Georgia-Pacific*, stated that the hypothetical negotiations:

would involve a market place confrontation of the parties, the outcome of which would depend upon such factors as their relative bargaining strength; the anticipated amount of profits that the prospective licensor reasonably thinks he would lose as a result of licensing the patent as compared to the anticipated royalty income; the anticipated amount of net profits that the prospective licensee reasonably thinks he will make; the commercial past performance of the invention in terms of public acceptance and profits; the market to be tapped; and any other economic factor that normally prudent

⁴⁴ *Ga.-Pac. Corp.*, 318 F. Supp. at 1117.

⁴⁵ *Id.* at 1117-1118, 1120.

⁴⁶ *Id.* at 1120.

⁴⁷ *See id.* at 1131 (determining that courts should use hypothetical reasonable royalty negotiations to determine the amount of reasonable royalty that infringer would have had to pay a patent holder). *See, e.g.*, *GPNE Corp. v. Apple, Inc.*, No. 12-CV-02885-LHK, 2014 U.S. Dist. LEXIS 53234, at *9 (N.D. Cal. Apr. 16, 2014) ("The *Georgia-Pacific* factors are used in the 'hypothetical negotiation' approach to determining a reasonable royalty.").

⁴⁸ *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed. Cir. 2009).

⁴⁹ *Id.* at 1324.

⁵⁰ *Panduit Corp. v. Stahl Bros. Fibre Works*, 575 F.2d 1152, 1159 (6th Cir. 1978) (citation and quotations omitted) (quoting *Egry Reg. Co. v. Standard Reg. Co.*, 23 F.2d 438, 443 (6th Cir. 1928) (citing *U.S. Frumentum Co. v. Lauhoff*, 216 F. 610, 617 (6th Cir. 1914))

businessmen would, under similar circumstances, take into consideration in negotiating the hypothetical license.⁵¹

However, *Georgia-Pacific* left unclear several considerations and parameters such as the date of the negotiation, whether to presume validity of the patent in the negotiation, and others.⁵² These considerations are addressed in Section III.e below.

C. Application & Alterations of *Georgia-Pacific*

In a F/RAND context, courts have abandoned, modified, and even supplemented the G-P Factors.⁵³ This has occurred primarily in two landmark cases: *Microsoft v. Motorola* (“*Microsoft*”)⁵⁴ and *Ericsson v. D-Link Sys* (“*Ericsson*”).⁵⁵

The *Microsoft* court explicitly altered the majority of the G-P Factors, to account for the effect the patent’s status as an SEP could have upon a court’s valuation of a reasonable royalty rate in ways that could unfairly advantage one party over another.⁵⁶ The Federal Circuit Court of Appeals took a less rigid approach in *Ericsson*, adopting a more context-driven framework.⁵⁷ While the *Ericsson* court acknowledged that at least five of the factors would require alteration or removal in a F/RAND context,⁵⁸ the court declined to adopt a bright line rule regarding the factors’ application, instead granting lower courts the autonomy to use, alter, or disregard each G-P Factor as the facts of a case warrant.⁵⁹

Rather than provide a specific test, the *Ericsson* court most prominently held that RAND-encumbered patents’ reasonable royalties must not gain value in

⁵¹ *Ga.-Pac.*, 318 F. Supp. at 1121.

⁵² *Compare, e.g., Ericsson, Inc. v. D-Link Sys.*, 773 F.3d 1201, 1234 (Fed. Cir. 2014) (postulating that the hypothetical negotiation date could be set a date prior to adoption of the standard, to assuage patent hold-up concerns), *with In re Innovatio IP Ventures, LLC*, No. 2302, 2013 U.S. Dist. LEXIS 144061, at *50 (N.D. Ill. Sept. 27, 2013) (quoting *Lucent Techs.*, 580 F.3d at 1324) (conducting the hypothetical negotiation “just before infringement began”).

⁵³ *See Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233, at *52 (W.D. Wash. Apr. 25, 2013).

⁵⁴ *Id.* at *52, *56-65.

⁵⁵ *Ericsson*, 773 F.3d at 1230.

⁵⁶ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *53-65.

⁵⁷ *Ericsson*, 773 F.3d at 1232 (“Although we recognize the desire for bright line rules and the need for district courts to start somewhere, courts must consider the facts of record when instructing the jury and should avoid rote reference to any particular damages formula.”).

⁵⁸ *Id.* at 1230-31 (“Several . . . Georgia-Pacific factors would at least need to be adjusted for RAND-encumbered patents—indeed, for SEP patents generally.”)

⁵⁹ *Id.* at 1232 (“Although we recognize the desire for bright line rules and the need for district courts to start somewhere, courts must consider the facts of record when instructing the jury and should avoid rote reference to any particular damages formula.”).

damages-calculation on account of a standard's adoption.⁶⁰ The Federal Circuit later confirmed that this rule applied to *all* SEPs, regardless of an actual F/RAND commitment by the patent-holder.⁶¹ While a more context-driven approach allows for greater flexibility by the court in calculating value, it increases uncertainty in how litigation might play out for potential litigants.⁶² It could also potentially increase the likelihood of success by an appellant on appeal on account of the high degree of variance in how a district court could apply *Georgia-Pacific*.⁶³

Some have called into question the *Georgia-Pacific* framework as too complex to produce an accurate reasonable royalty rate.⁶⁴ Judge Posner has expressed skepticism of the framework, noting that a court would struggle to balance fifteen or more factors to come up with “anything resembling an objective assessment.”⁶⁵ The *Ericsson* court indirectly addressed this uncertainty by calling for the alteration or complete removal of factors on a context-driven basis at a court's discretion, albeit with certain explicit suggestions regarding some factors.⁶⁶ Similar policies to that of *Ericsson* are thereby likely to reduce complexity of analysis (but increase pre-litigation uncertainty) in prospective valuation of a reasonable royalty rate.

While both the *Ericsson* and *Microsoft* courts' alteration of the G-P Factors have commonly seen adoption by courts in application of the G-P Factors in a F/RAND context,⁶⁷ not all courts have done so. In one instance, the Eastern District of Texas asserted that “there is no rule that a FRAND royalty must always

⁶⁰ *Id.*

⁶¹ *Commonwealth Sci. & Indus. Rsch. Org. v. Cisco Sys.*, 809 F.3d 1295, 1305 (Fed. Cir. 2015) (“We therefore reaffirm that reasonable royalties for SEPs generally – and not only those subject to a RAND commitment – must not include any value flowing to the patent from the standard's adoption.”).

⁶² See Jorge L. Contreras, *Global Rate Setting: A Solution for Standards-Essential Patents?*, 94 WASH. L. REV. 701, 707-08 (2019).

⁶³ See *id.*

⁶⁴ See, e.g., *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 911 (N.D. Ill. 2012), *aff'd in part, rev'd in part, and remanded to* 757 F.3d 1286 (Fed. Cir. 2014).

⁶⁵ *Id.*

⁶⁶ *Ericsson*, 773 F.3d at 1231 (“multiple *Georgia-Pacific* factors . . . are not relevant, or are misleading” in a RAND context).

⁶⁷ See, e.g., *Biscotti Inc. v. Microsoft Corp.*, No. 2:13-cv-01015-JRG-RSP, 2017 U.S. Dist. LEXIS 94016, at *12-13 (E.D. Tex. May 25, 2017) (citing to *Ericsson* in application of the *Georgia-Pacific* factors in a RAND context); *GPNE Corp. v. Apple, Inc.*, No. 12-CV-02885-LHK, 2014 U.S. Dist. LEXIS 53234, at *30 (N.D. Cal. Apr. 16, 2014) (“Patent counting, or counting the number of patents essential to a standard and determining the value of a single patent by dividing the value of the standard by the number of essential patents, is imprecise because it does not account for the value of the asserted patent relative to the other standard essential patents.”); *In re Innovatio IP Ventures, LLC*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *100 (N.D. Ill. Oct. 3, 2013) (adopting the *Microsoft* altered *Georgia-Pacific* factors).

differ from a non-FRAND royalty.”⁶⁸ In this case, the court contemplated a two-step methodology: first, usage of an “incremental value” methodology,⁶⁹ second, conducting a “‘conservative’ royalty analysis in the non-FRAND context,” declining to adjust the “‘baseline’ royalty upwards even . . . [with a finding] that certain Georgia-Pacific factors exert upward pressure.”⁷⁰ The court did not actively endorse this method but did state that the “methodology is not unreliable or contrary to law and will not be excluded.”⁷¹ This means of application risks a reduction in the value of an SEP, but does not account for patent-stacking concerns.⁷² As a result, this methodology risks decreasing the value of the SEP, hurting the SEP-holder, or making licensing of SEPs prohibitively expensive, which hurts the SEP-licensee and consumers generally.⁷³ If courts incorporated this means of valuation of reasonable royalty rate, it would produce a high degree of uncertainty, failing to take into account concerns on either side of litigation. While the *Ericsson*- and *Microsoft*-style applications of the G-P Factors in a F/RAND context hold prominence in American courts,⁷⁴ their implementation lacks strong consensus.

D. The Georgia-Pacific Factors

Each of the G-P Factors, the additional implications or concerns that may arise with their employment in a F/RAND context, and alterations to the factors made by either the *Ericsson* or *Microsoft* courts, if such exist, are analyzed below. If adopting the *Georgia-Pacific* framework, or one similar to it, SSOs should consider each factor, the concerns upon both licensees and licensors that it implicates, and the context of the standard in question in determining whether to adopt, abandon, or modify the factor for the purposes of F/RAND royalty determination. Additionally, SSOs should bear in mind the caution advised by

⁶⁸ *Genband US LLC v. Metaswitch Networks Corp.*, No. 2:14-cv-33-JRG-RSP, 2016 U.S. Dist. LEXIS 2655, at *15 (E.D. Tex. Jan. 9, 2016).

⁶⁹ *Id.* at *14. This note discusses the “incremental value” approach *infra* Section III.f.2.

⁷⁰ *Genband*, 2016 U.S. Dist. LEXIS 2655, at *15.

⁷¹ *Id.*

⁷² *See id.* (acknowledging that certain G-P Factors can exert “upward pressure,” but not acknowledging how to remedy the change in value of the SEP this may cause and not discussing the potential patent-stacking ramifications that may ensue).

⁷³ Contreras, *supra* note 62, at 715.

⁷⁴ *See, e.g., Biscotti Inc. v. Microsoft Corp.*, No. 2:13-cv-01015-JRG-RSP, 2017 U.S. Dist. LEXIS 94016, at *12-13 (E.D. Tex. May 25, 2017) (citing to *Ericsson* in application of the *Georgia-Pacific* factors in a RAND context); *GPNE Corp. v. Apple, Inc.*, No. 12-CV-02885-LHK, 2014 U.S. Dist. LEXIS 53234, at *30 (N.D. Cal. Apr. 16, 2014) (“Patent counting, or counting the number of patents essential to a standard and determining the value of a single patent by dividing the value of the standard by the number of essential patents, is imprecise because it does not account for the value of the asserted patent relative to the other standard essential patents.”); *In re Innovatio IP Ventures, LLC*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *100 (N.D. Ill. Oct. 3, 2013) (adopting the *Microsoft* altered *Georgia-Pacific* factors).

Judge Posner—having fewer factors for judicial analysis eases the complexity of litigation, thereby potentially increasing certainty in valuation of a F/RAND royalty rate.⁷⁵

1. Existence of an established royalty

One must consider this factor examining the existence of an established royalty when a F/RAND-encumbered patent holder leases an SEP for purposes other than meeting the SEP standard. Licensing of the same patent, but outside of its F/RAND context as an SEP, may occur in a vastly different market context than the same patent's licensing for the purpose of meeting a standard of which it is an SEP.⁷⁶ Therefore a court's blind comparison of these could result in very disparate impacts in favor of the SEP-holder.⁷⁷ Since licenses granted outside of the context of meeting the requirements of a standard do not trigger the F/RAND terms, those licenses may charge a higher rate than what would be considered "reasonable" (and, in the FRAND context, "fair").⁷⁸ Failure to consider this concern can allow for discriminatory results benefitting the owner of a F/RAND-encumbered patent, and therefore courts' failure to temper consideration of this factor, if they consider it at all, almost certainly disadvantages SEP-licensees. SSOs should consider these implications when providing guidance in F/RAND terms.

The *Microsoft* court altered its implementation of this factor by mandating that "licensing royalties for a given patent(s) must be comparable to [F/RAND] licensing circumstances."⁷⁹ In doing so, it alleviated the aforementioned concern. The *Ericsson* court was silent on this factor.⁸⁰

2. Rates paid by licensee for comparable patents

Analysis under this factor by courts in any patent infringement case presents certain concerns, especially in the domain of SEPs. Patented technologies are unlikely to have a 1:1 alternative to their specific use and function, and licensing fees for "similar patents" likely fails to account for the context in which the technology at object in the suit is used.⁸¹ While in certain fields, such as

⁷⁵ See *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 911 (N.D. Ill. 2012), *aff'd in part, rev'd in part, and remanded to* 757 F.3d 1286 (Fed. Cir. 2014).

⁷⁶ *Id.*

⁷⁷ *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233, at *196-97 (W.D. Wash. Apr. 25, 2013) (demonstrating that differences in the context of an allegedly comparable license result in vastly different potential rates).

⁷⁸ *Id.*

⁷⁹ *Id.* at *58.

⁸⁰ *Ericsson, Inc. v. D-Link Sys.*, 773 F.3d 1201, 1230-32 (Fed. Cir. 2014).

⁸¹ *In re Innovatio IP Ventures, LLC*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *161 (N.D. Ill. Oct. 3, 2013) ("[T]here are no alternatives to the [SEPs at issue] that would provide all of the functionality of [the SEPs in question] with respect to the [relevant] standard.").

mechanical devices, multiple patented devices may perform functionally similar roles.⁸² In other fields, that is often not the case.⁸³ Substitution of one technology for another in a standard could result in a cascading effect dramatically altering the essentiality of SEPs and currently non-standard-essential patents. Therefore a patent's true value to a standard may not be properly analogized when compared to ostensibly "comparable" patents. This concern implicates both the licensee and the licensor by potentially influencing the result of litigation in an inaccurate and unpredictable manner. As such, SSOs ought to consider the comparability of an SEP to other "similar" patents in the context of an SEP's role in a standard to determine if this factor provides valuable insight in royalty analysis, or if it merely confounds the process. Neither *Ericsson* nor *Microsoft* altered this factor, however.⁸⁴

3. Nature and scope of the license

The factor to consider the nature and scope of the license similarly faces little controversy in the context of a F/RAND-encumbered patent. F/RAND terms have no reason to bear any influence on the decision as to the scope of a patent's license, except in that the scope by default must be non-exclusive. Exclusively licensing a F/RAND-encumbered patent would defeat the purpose of making the patent standard-essential, as none could then adopt the standard except for the recipient of the exclusive license. Courts would likely find such an act to violate the "non-discriminatory" prong of F/RAND terms.

4. Licensor's established licensing policy

Considering licensing policies can give rise to significant concerns if courts consider usage in determination of a F/RAND royalty rate. F/RAND terms generally presume the SEP-holder will license the patent in question,⁸⁵ if not installing an explicit good-faith requirement elsewhere in contract between the SSO and SEP-owner. Maintaining a monopoly is antithetical to that purpose, and logic provides little reasoning to support considering this factor in analysis.⁸⁶ For this reason, SSOs should generally instruct away from consideration of this factor.

The *Microsoft* court removed this factor from its implementation of *Georgia-Pacific*, asserting that the licensor's commitment to RAND terms precludes its

⁸² See, e.g., *id.*

⁸³ See *id.*

⁸⁴ *Ericsson, Inc. v. D-Link Sys.*, 773 F.3d 1201, 1230-32 (Fed. Cir. 2014); *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233, at *54-65 (W.D. Wash. Apr. 25, 2013).

⁸⁵ See *Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *46-47 (stating the explicit RAND terms in question, which seemingly presume the existence of licensing).

⁸⁶ See *Ericsson*, 773 F.3d at 1230 (dismissing application of the fourth factor due to the difficulty of a court to consider such without giving undue benefit to the SEP-holder).

ability to establish a monopoly.⁸⁷ The *Ericsson* court eliminated the factor for similar reasons.⁸⁸

5. Commercial relationship between licensor and licensee

Like the fourth factor, the fifth factor is on its face antithetical to the intent of F/RAND patents. This requires little explanation, as F/RAND terms aim to prevent the very type of discrimination these factors seek to consider.⁸⁹

6. Effect of selling patented specialty and existing value of the invention as a generator of sales for other, non-patented, items

SEP-holders may argue that the value of the patent increases by its status as an SEP.⁹⁰ This argument implicates potentially significant royalty-stacking concerns, and courts may bias results in favor of SEP-holders should they consider such an argument.⁹¹ However, absent royalty-stacking implications, this factor can provide insight into the potential value of a patent for royalty damages calculation. Alteration of this factor could alleviate royalty-stacking concerns, but an analysis under this factor that considers royalty-stacking could avoid these negative consequences while allowing the SEP to increase in value as a result of its standard-essential status (if the SSO in question desires this). An SSO intending for the value of an SEP to increase by a certain (preferably specified) measure on the basis of its standard-essential patents could adopt terms indicating this in the F/RAND agreement, potentially in standards incorporating few SEPs, as an incentive to patent-holders to submit their patents. In this scenario, an SSO should ensure royalty-stacking does not make adoption of the standard cost-prohibitive.

The *Microsoft* court asserted that, “a reasonable royalty would not take into account the value to the licensee created by the existence of the standard itself, but would instead consider the contribution of the patent to the . . . standard and also the contribution of those relevant technological capabilities” to the standard itself.⁹² Barring an erroneous or inflated finding of an SEP’s contribution to a standard, this bright-line rule likely leads to a proper valuation of the patent, but

⁸⁷ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *58.

⁸⁸ *Ericsson*, 773 F.3d at 1230.

⁸⁹ *See, e.g., id.* at 1231 (with the following RAND term: “[an SEP holder must] ‘grant a license under reasonable rates to an unrestricted number of applicants on a worldwide basis with reasonable terms and conditions that are demonstrably free of unfair discrimination.’”).

⁹⁰ *See, e.g., Georgia-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1119 (S.D.N.Y.1970).

⁹¹ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *60 (“there is substantial value in the agreed standard itself apart from any contribution of the patented technology to the standard, and the RAND commitment exists so that SEP patent holders cannot demand more than they contribute.”).

⁹² *Id.* at *59-60.

may fail to consider the intent of an SSO or SEP-holder when incorporating a patent into a standard.

7. The duration of the patent and the term of the license

Generally, regardless of whether a court does or does not consider this factor, it will have little influence in determination, as the term of a license for a F/RAND-encumbered patent is usually for the duration of the patent.⁹³

8. Established profitability, commercial success, and current popularity

Similar to the sixth factor, considering profitability of the product in royalty rate-calculation implicates concerns of bias towards the SEP-holder.⁹⁴ Considering popularity of the product(s) or underlying patent(s) in question can artificially inflate the value of the patent on the basis of its status as an SEP.⁹⁵ Analyzing this factor by determining value of the patent apart from the value associated with its status as an SEP can alleviate this concern,⁹⁶ however determining the influence individual components have on an abstract concept like value carries inherent difficulties. If SSOs fear erroneous valuation by courts on the basis of this factor, especially in the case of standards that incorporate massive quantities of SEPs, dismissing this factor entirely may simplify litigation and prevent the risk of royalty-stacking that this factor poses.

The *Microsoft* court adopted an approach here identical to its approach to the sixth factor, in not considering value derived from the existence of the standard.⁹⁷ The *Ericsson* court, while not stating a specific rule, asserted that this factor “would *at least* need to be adjusted for RAND-encumbered patents,” as the product’s value is likely inflated by the existence of the standard.⁹⁸

9. Comparative utility and advantages of the patent property

This factor poses problems in implementation in a F/RAND context, as, regardless of the efficacy of old modes or devices, a licensee must license the specific patent(s) mandated by the standard.⁹⁹ Due to the mandate to license that a standard imposes, utility and advantages of other patents would appear irrelevant to calculation of a reasonable royalty rate. However, courts disagree about this

⁹³ See, e.g. *id.* at *60 (“[T]he term of the [RAND] license would equate to the duration of the patent. In many circumstances, this factor will have little influence on what constitutes a reasonable royalty under the RAND commitment.”).

⁹⁴ See, e.g., *Ericsson*, 773 F.3d at 1231 (“‘current popularity’ . . . is likely inflated because a standard requires the use of the technology”) (citing *Ga.-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970)).

⁹⁵ *Ericsson*, 773 F.3d at 1231.

⁹⁶ See *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *59.

⁹⁷ *Id.* at *59-60.

⁹⁸ *Ericsson*, 773 F.3d at 1231 (emphasis added).

⁹⁹ *Id.*

assertion.¹⁰⁰ Calculating one patent's incremental value over another technology in the context of a standard can prove highly difficult,¹⁰¹ and therefore a court risks inaccuracy in usage of the reasonable royalty rate in a manner similar to the second factor. Uniform removal of this factor from consideration avoids this risk entirely.

The *Microsoft* court opted to incorporate this factor into its analysis of a hypothetical negotiation between the parties, used by the court to determine a reasonable royalty rate.¹⁰² The court asserts that "parties to a hypothetical negotiation under a RAND commitment would consider alternatives that could have been written into the standard instead of the patented technology" in the period prior to the standard's adoption and implementation.¹⁰³ The *Ericsson* court cautioned against usage of this factor, as "the technology is used because it is essential, not necessarily because it is an improvement over the prior art."¹⁰⁴ *Microsoft*'s application calculates the SEP's incremental value over other, presumably inferior, choices and increases the accordingly.¹⁰⁵ Similar to the second and eighth factors, substituting technologies in this way ignores the realities of complex standards, and assuming superiority risks unfairly benefitting an SEP-holder.

10. Nature and benefits of the patented invention

This factor's application in F/RAND cases faces a similar problem as application of the sixth and eighth factors, in that this factor may artificially inflate the value of the patent on account of its status as an SEP.¹⁰⁶ Standards' incorporation of large numbers of technologies will likely make calculating the value that a single SEP adds above others quite difficult.¹⁰⁷ Reasonable royalty rate analysis requires proof of a patent's actual market value,¹⁰⁸ and this greater difficulty in accurately measuring a reasonable royalty rate in an SEP context gives reason to avoid consideration of this factor altogether. Additionally, courts have consistently held against using product performance in the marketplace to calculate damages without a showing that the demand stems from the patent

¹⁰⁰ *Compare Ericsson*, 773 F.3d at 1231, with *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *60-61.

¹⁰¹ *Ericsson*, 773 F.3d at 1231.

¹⁰² *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *60-61.

¹⁰³ *Id.*

¹⁰⁴ *Ericsson*, 773 F.3d at 1231.

¹⁰⁵ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *60-61.

¹⁰⁶ *Id.* at *61-62.

¹⁰⁷ *See In re Innovatio IP Ventures, LLC*, No. 11C9308, 2013 U.S. Dist. LEXIS 144061, at *61 (E.D. Ill. Oct. 3, 2013) ("This concern arises because most standards implicate hundreds, if not thousands of patents . . .").

¹⁰⁸ *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 869 (Fed. Cir. 2010) ("[A] reasonable royalty analysis requires a court to hypothesize, not to speculate . . . [T]he trial court must carefully tie proof of damages to the claimed invention's footprint in the market place.").

itself,¹⁰⁹ further supporting caution in using this factor in complex standards. Conversely, universally removing this factor risks undervaluing SEPs where the SEP in question provides a distinctly superior benefit over the other incorporated SEPs to the prospective licensor or to the standard generally.¹¹⁰

The *Microsoft* court retained this factor, requiring the court to focus on the “contribution of the patent to the technical capabilities of the standard and also the contribution of those relevant technical capabilities to the implementer and the implementer’s products.”¹¹¹ This approach risks suffering from the concerns highlighted above. The *Ericsson* court instead cautioned against using this factor, as it “considers the commercial embodiment of the licensor, which is also irrelevant as the standard requires the use of the technology.”¹¹²

11. Extent of the licensee’s use of the patent and the value of that use

In the context of an SEP, this factor can influence valuation very similarly to the tenth factor.¹¹³ Both relate to the individual value of the SEP in question, and therefore this factor faces very similar risks and concerns in its potential application.¹¹⁴ Weighing this factor may result in inaccurate and potentially varied valuations,¹¹⁵ but neglecting to consider this factor risks undervaluing an SEP and benefitting licensees.¹¹⁶

The *Microsoft* court combined this factor with the tenth factor, with cumulatively analyzing the SEP’s individual value to the standard and to the licensee.¹¹⁷ Oddly, the *Ericsson* court did not alter or discuss this factor at all,¹¹⁸ despite its similarity to the tenth factor in both subject matter and potential concerns. However, the *Ericsson* court explicitly stated that its alterations were not an

¹⁰⁹ *Garretson v. Clark*, 111 U.S. 120, 121 (1884) (“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, and such evidence must be reliable and tangible, and not conjectural or speculative . . . [or show that] the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.”); see also *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1318 (Fed. Cir. 2011) (reaffirming *Garretson*’s position).

¹¹⁰ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *43 (stating that the RAND rate should reflect the SEP’s economic value).

¹¹¹ *Id.* at *61.

¹¹² *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201,1231 (Fed. Cir. 2014).

¹¹³ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *61-62.

¹¹⁴ *Id.*

¹¹⁵ See *In re Innovatio IP Ventures, LLC*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *66 (N.D. Ill. Sept. 27, 2013) (stating the large volume of SEPs in many standards).

¹¹⁶ See *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *43.

¹¹⁷ *Id.* at *43-44.

¹¹⁸ *Ericsson*, 773 F.3d at 1231.

exhaustive list, and that other factors may require alteration or removal in a F/RAND context.¹¹⁹

12. The customary portion of the profit or selling price paid as licensing royalty

This factor can prompt concerns of improper valuation of an SEP, as “analogous inventions” sold in comparable businesses may not be F/RAND encumbered.¹²⁰ SEPs may be comparable to similar F/RAND-encumbered SEPs, but otherwise the F/RAND terms may prove difficult to estimate and potentially non-obvious effects on license pricing.¹²¹ If an SSO believes that most licenses for similar technologies already occur at a F/RAND rate (despite the patents for those technologies not being F/RAND-encumbered), then this factor likely provides valid insight into a F/RAND rate for an SEP. Similarly, existence of analogous standards that use technology similarly analogous to the SEP in question could also warrant adoption of this factor. Absent such, however, endorsement of this factor risks royalty-stacking, especially if a certain type of technology has a particularly high market demand.

The *Microsoft* court limited application of this factor to investigation of “customary practices of businesses licensing RAND-committed patents.”¹²² The court does not discuss any potential difficulty in finding analogous customary practices, however, and high standards for comparability may make application of this factor in this manner difficult in practice.¹²³

13. Portion of profit creditable to patented invention

Similar to the tenth and eleventh factors, this factor presents risks of value inflation on the basis of essentiality to the standard, to the benefit of the SEP-holder.¹²⁴ As with those prior factors, consideration of this factor in a standard incorporating large numbers of patents presents very serious royalty-stacking and patent hold-up concerns, with calculation of the realizable profit creditable to a single patent difficult, if not impossible.

¹¹⁹ *Id.* (“*Georgia-Pacific* factors that are not relevant, or are misleading, . . . [include] at least, factors 4, 5, 8, 9, and 10.”).

¹²⁰ *See* *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1325 (Fed. Cir. 2009) (requiring licenses to be “sufficiently comparable” to sustain a damages amount); *Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *167-68 (citing *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 67 (Fed. Cir. 2012)) (“[T]he Federal Circuit has expressed skepticism about apportioning using comparable licenses.”).

¹²¹ *See Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *62 (“[L]icensing fees for non-RAND committed patents customary in a business industry cannot form the basis for comparison [to RAND-committed patents].”).

¹²² *Id.*

¹²³ *See Lucent Techs.*, 580 F.3d at 1325 (requiring a high degree of comparability between licenses to be sufficient to warrant the damages award requested).

¹²⁴ *See Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *62-63.

The *Microsoft* court approached this factor in the same manner as its approach to the tenth and eleventh factors, by emphasizing that “in the RAND context, it is critical to consider the contribution of the patented technology apart from the value of the patent as the result of its incorporation into the standard, the latter of which would improperly reward the SEP-owner for the value for the standard itself.”¹²⁵ The court did not consider the potential difficulties that calculation of this contribution could pose.¹²⁶

14. The opinion testimony of qualified experts

In a F/RAND context, this factor does not give reason to believe that its usage would benefit or harm either side of potential litigation. Neither *Microsoft* nor *Ericsson* made alterations to this factor’s interpretation or application.¹²⁷

15. *Ex ante* hypothetical negotiation

This factor calls for the “hypothetical negotiation” as detailed previously. The *Innovatio* court stated that

[t]he purpose of conducting such a hypothetical negotiation is “to ascertain the royalty upon which the parties would have agreed had they successfully negotiated the agreement just before infringement began.” Accordingly, the court must try, “as best as possible, to recreate the *ex ante* licensing negotiation scenario and to describe the resulting agreement.”¹²⁸

Exactly how the court approaches the process of simulating a hypothetical negotiation can vary, with different implementations leading to different effects,¹²⁹ and therefore is a matter of controversy,¹³⁰ discussed further in Section III.e below.

The majority of the G-P Factors present questions regarding their application in calculation of F/RAND rates, and therefore SSOs ought to consider each G-P Factor in light of the relevant standard’s context and the SSO’s policy objectives. In light of the obtuse nature of weighing so many factors, SSOs should also consider the elimination of factors in their guidance. This is because retaining

¹²⁵ *Id.* at *62-63.

¹²⁶ *See Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *56-65.

¹²⁷ *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201,1230-32 (Fed. Cir. 2014); *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *56-65.

¹²⁸ *In re Innovatio IP Ventures, LLC*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *51 (N.D. Ill. Sept. 27, 2013) (citing *Lucent Techs.*, 580 F.3d at 1324-25).

¹²⁹ *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 911 (N.D. Ill. 2012) (“And could a judge or a jury really balance 15 or more factors and come up with anything resembling an objective assessment?”), *aff’d in part, rev’d in part, and remanded* 757 F.3d 1286 (Fed. Cir. 2014); Contreras, *supra* note 15, at 722 (“Needless to say, different views regarding which firms are similarly situated can have a material impact on the rates charged by SEP holders.”).

¹³⁰ *See, e.g., Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *56 (citing *Microsoft*, 2013 U.S. Dist. LEXIS 602333, at *53) (criticizing the *Microsoft* court’s hypothetical negotiation procedure and implementing a process that differed in several regards).

the entire list or even adding to it increases judicial and jury decision-making, providing more vectors for uncertainty.¹³¹ Consideration of each factor in calculation of a standard's SEPs' value can provide more specific guidance to courts and increase certainty prior to litigation.

E. Implementation of "Hypothetical Negotiations"

Courts have disagreed regarding the process by which a court should conduct a "hypothetical negotiation" regarding an SEP on a number of grounds. Most notably, the disagreements concern the following issues: (1) whether to presume the SEP's essentiality to the standard; (2) whether to presume the SEP's validity as a patent; (3) at what date to set the hypothetical negotiation; and (4) whether and how a court should consider comparable licenses.¹³²

1. Whether to Presume the SEP's Essentiality to the Standard

Intuition dictates that, if a patent's essentiality to a standard is not a certainty, negotiators would consider such, and so implementers of a hypothetical negotiation should do the same. SEP-implementers regularly challenge the essentiality of SEPs in infringement litigation,¹³³ and thus, without accounting for this possibility, a court potentially removes a standard-implementer's bargaining chip at negotiation. When failing to consider the question of an SEP's actual essentiality, courts risk advantaging SEP-holders by potentially granting a royalty rate higher than what would have been agreed upon at the time of the hypothetical negotiation. The court in *Microsoft* adopted the latter school of thought and asserted that an SEP's "value would be diminished by the lack of better evidence regarding [the SEP's] true relevance" to a standard.¹³⁴ However, the court in *Innovatio* cautioned against this practice, stating "[n]ow that the court has adjudicated essentiality, the patent owner cannot leave the hypothetical negotiation on the ground that it will contest essentiality in court. The RAND obligation requires that it grant a license."¹³⁵ The *Innovatio* court further contended that "the patent infringer gets no discount on its licensing fee because of uncertainty about its liability that has since been cleared up by litigation."¹³⁶ Indeed, the

¹³¹ *Apple*, 869 F. Supp. 2d at 911 ("And could a judge or a jury really balance 15 or more factors and come up with anything resembling an objective assessment?"), *aff'd in part, rev'd in part, and remanded* 757 F.3d 1286 (Fed. Cir. 2014).

¹³² *Compare Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *55-61, *with LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 76 (Fed. Cir. 2012), *and Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *53.

¹³³ *Layne-Farrar & Wong-Ervin*, *supra* note 14, at 135 ("Implementers can and regularly do challenge the essentiality of patents declared at SDOs, so a declared essential patent may be found to be not essential during the course of a trial.")

¹³⁴ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *155.

¹³⁵ *Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *59.

¹³⁶ *Id.*

Federal Circuit has adopted a similar stance,¹³⁷ fearing that doing otherwise encourages litigation by benefitting the licensee/infringer.

In guiding courts on this issue, SSOs must consider as a matter of policy whether standard-implementers or SEP-holders ought to benefit in a hypothetical negotiation as to the court's finding of essentiality. On its face, the *Microsoft* approach encourages patent hold-out, as implementers could receive the benefit of being able to question a patent's essentiality in a negotiation despite a judicial finding otherwise.¹³⁸ Conversely, a policy in line with that of the Federal Circuit encourages patent hold-up if a standard-implementer questions a patent's essentiality in negotiation, as, at the cost of (potential) future legal fees, an SEP-holder can eliminate that negotiation advantage.

The Federal Circuit's policy appears to primarily discourage litigation by licensees, ostensibly encouraging patent-owners to include their technologies in standards. However, under the current status quo, SEP-owners currently benefit unfairly from the lack of litigation over essentiality.¹³⁹ Over-declaring of SEPs, or declaring more of one's patents as standard-essential than are actually so, poses a much more present threat, as SSOs generally do not publicly list or declare patents essential to their standards.¹⁴⁰ This problem runs rampant in several fields today, with a 2017 *European Commission* report asserting that evidence "suggest[s] that only half, or up to 90 percent, of declared patents to key technologies may be truly essential."¹⁴¹ Similarly, a 2013 study found that only fifty-six percent of patents whose owners declared to be essential to the LTE telecommunications standard were actually so.¹⁴² Over-declaration by SEP-owners occurs for a number of reasons, many of them non-malicious.¹⁴³ Therefore, trying to rectify this reality purely through infringement damages calculation policy seems an inappropriate. Discouraging litigation by licensees with rulings like

¹³⁷ *LaserDynamics*, 694 F.3d at 76 ("In considering the fifteen *Georgia-Pacific* factors, it is presumed that the parties had full knowledge of the facts and circumstances surrounding the infringement at that time.").

¹³⁸ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *152-55.

¹³⁹ See Michael T. Renaud, James Wodarski, Matthew S. Galica, *Key Considerations for Global SEP Litigation Part 1*, MINTZ (Oct. 30, 2019), <https://www.mintz.com/insights-center/viewpoints/2231/2019-10-key-considerations-global-sep-litigation-part-1> [<https://perma.cc/N94B-54SZ>].

¹⁴⁰ See Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1959 (2002) (noting that best practice for SSOs would be to list all SEPs publicly, but implicitly stating that such is not currently done).

¹⁴¹ Robin Stitzing et al., *Over-Declaration of Standard Essential Patents and the Determinants of Essentiality 2* (2018).

¹⁴² *Evaluation of LTE Essential Patents Declared to ETSI*, Cyber Creative Inst. Co. Ltd. 19 (2013), <http://www.cybersoken.com/file/lte03EN.pdf> [<https://perma.cc/5QD4-TZB4>].

¹⁴³ See Cody Akins, Note, *Overdeclaration of Standard-Essential Patents*, 98 TEX. L. REV. 579, 582-587 (2020) (indicating that over-declaration can occur for reasons such as the difficulty of ascertaining actual essentiality, fear of punishment from SSOs or the FTC for not declaring a standard-essential patent as an SEP, and others).

the Federal Circuit's in an area that already inefficiently places costs upon licensees does not foster equity or efficiency in standard implementation.

Overall, determining whether to consider a patent's essentiality in a hypothetical negotiation requires weighing of hold-up, hold-out, and over-declaring concerns. The number of concerns at play, and their highly contextual nature, may warrant SSO silence on the issue, as circumstances regarding these concerns and the potential ramifications of explicit, context-neutral policies in potential litigation may very well be unforeseeable.

2. Whether to Presume the SEP's Validity as a Patent

In an *ex ante* hypothetical negotiation, similar concerns as to essentiality play out in consideration of whether or not to presume a patent's validity. In *Microsoft*, the court did not presume validity, similarly to essentiality.¹⁴⁴ The Federal Circuit has adopted the opposite view,¹⁴⁵ because, without a finding of validity, no *hypothetical* negotiation would occur.¹⁴⁶

Again, a determination as to whether or not to consider the validity of an SEP in a hypothetical negotiation becomes a question of policy for an SSO. Similar to the question of essentiality, presuming validity risks patent hold-up, while a lack of a presumption risks patent hold-out, and so an SSO must determine which, in its context, warrants greater concern. Again, foresight of the context of a negotiation may be impossible, and therefore courts may better resolve this context-driven question *after* infringement rather than SSOs resolving it *prior*.

3. At What Date to Set the Hypothetical Negotiation

Georgia-Pacific stated that the hypothetical negotiation should occur "at the time infringement began,"¹⁴⁷ which, in many patent infringement cases, may pose no bias favoring one litigant over another. In cases involving SEPs, however, this precedent has not consistently held. The *Microsoft* court set the date of the hypothetical negotiation as prior to adoption and implementation of the relevant standard.¹⁴⁸ On the other hand, the court in *Innovatio* set the date of the hypothetical negotiation at "about the time of the initial adoption of the [relevant] standard, and therefore approximately the time when the [manufacturers] began selling [standard-]compliant products that allegedly infringed the patents."¹⁴⁹ The court in that case made that determination based on the agreement

¹⁴⁴ *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233, at *155 (W.D. Wash. Apr. 25, 2013).

¹⁴⁵ *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1325 (Fed. Cir. 2009) ("The hypothetical negotiation also assumes that the asserted patent claims are valid and infringed.").

¹⁴⁶ *In re Innovatio IP Ventures, LLC*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *59 (N.D. Ill. Sept. 27, 2013).

¹⁴⁷ *Ga.-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

¹⁴⁸ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *61 ("The focus is on the period before the standard was adopted and implemented.").

¹⁴⁹ *Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *60-61.

of both parties, and applied that date to hypothetical negotiations for “*all* of the patents [sic], including those that were applied for and issued after that date.”¹⁵⁰ The Federal Circuit has required a single hypothetical negotiation date, rather than multiple separate dates, for separate acts of infringement,¹⁵¹ and therefore such an approach may be attractive in cases with multiple SEPs (and potentially multiple standards). The *Innovatio* court provided no analysis regarding potential consequences of the *LaserDynamics* decision, as the parties in *Innovatio*’s case had agreed upon the chosen date.¹⁵²

The *Innovatio* court’s approach, while straightforward, gives rise to several potential consequences not considered in that case. Former judge for the Federal Circuit, Arthur Gajarsa, has, in coordination with others, written support for a “pre-standard” negotiation date for hypothetical negotiations regarding SEPs, stating that “[t]he later date on which the individual implementer chose to use the patented technology is not the correct date because the implementer *did not have the option at that time* of choosing an alternative technology.”¹⁵³ Gajarsa continues, asserting that, once a patent is locked into a standard, “the costs associated with modifying the standard to design around SEPs are substantial, and the individual infringer no longer has the option of using alternatives to the standardized technology . . . [pre-standard negotiation] will ensure that the reasonable royalty rate is not artificially inflated by these lock-in costs.”¹⁵⁴ William Lee and Douglas Melamed contend in their article *Breaking the Vicious Cycle of Patent Damages* that “[t]he FRAND commitment means that the patent holder no longer has a right . . . to refuse to license its patent; by the same token, the infringer is *entitled* to use the patented technology and does not need to obtain the consent of a recalcitrant or mercenary patent holder in order to do so.”¹⁵⁵ The authors here warn of the ability of a patent holder to “extract a lock-in premium,” should the hypothetical negotiation date occur after adoption.¹⁵⁶ While this stance of an affirmative right of standard-adopters to use SEPs may not be the predominant legal belief in this field, it nevertheless remains consistent with the “non-discriminatory” requirement of F/RAND terms, and further warrants framing the hypothetical negotiation date as just prior to adoption of the standard.

In determining a universal standard for a hypothetical negotiation date, SSOs ought to heavily consider adoption of the “pre-standard negotiation” approach

¹⁵⁰ *Id.* (emphasis added).

¹⁵¹ *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 76 (Fed. Cir. 2012).

¹⁵² *Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *60-61.

¹⁵³ Hon. Arthur J. Gajarsa, William F. Lee & A. Douglas Melamed, *Breaking the Georgia-Pacific Habit: A Practical Proposal to Bring Simplicity and Structure to Reasonable Royalty Damages Determinations*, 26 TEX. INTELL. PROP. L.J. 51, 72 (2018) (emphasis added).

¹⁵⁴ *Id.* at 73.

¹⁵⁵ Douglas A. Melamed & William F. Lee, *Breaking the Vicious Cycle of Patent Damages*, 101 CORNELL L. REV. 385, 431-432 (2016) (emphasis added).

¹⁵⁶ *Id.* at 426.

as prescribed by Judge Gajarsa.¹⁵⁷ Should an SSO apply a date-setting approach in line with that of *Innovatio*, the risk of artificial inflation of a royalty rate, by virtue of lock-in costs, disadvantages SEP-adopters by incentivizing adoption as early as possible.¹⁵⁸ Should an SSO wield sufficient industry authority, declining to adopt the “pre-standard negotiation” approach could serve as a tool to encourage early adoption. This approach brings with it risks, however, as early adopters likely assume greater commercial risk in implementing a technology prior to its testing in the marketplace.¹⁵⁹ Should concerns regarding uncertainty of marketability dominate potential adopters, utilization of infringement-date hypothetical negotiations discourages both early- and late-adoption by favoring SEP-holders in late-adoption litigation. This presents both a choice of policy for the SSO and a calculation of its ability to control the market. An SSO may also design guidance that implements carve-outs for early-adopters, late-adopters, or both, to account for situations in which infringers will likely make timing decisions without consideration of lock-in costs or to disincentivize late-adoption beyond a certain date or marketization benchmark.¹⁶⁰ Regardless, when determining the date of hypothetical negotiations, SSOs should heavily consider the economic realities of their standard and its relevant industry, as well as the effects that the chosen policy has on licensees, licensors, and the relationship dynamic between the two.

4. Whether & How a Court Should Consider Comparable Licenses

Georgia-Pacific explicitly called for analysis of licenses to comparable patents to the patent in suit and to other licenses of the patent in question in determining infringement damages,¹⁶¹ and courts within the United States and abroad have frequently relied upon these comparisons in whole or in part in determining damages for F/RAND-related infringement.¹⁶²

Licenses to analogous patents may not provide valuable insight into a F/RAND rate and can instead lead to inaccuracies in royalty determination and at worst dramatically disfavor SEP-infringers. The Federal Circuit has set a high bar for consideration of licenses to other, allegedly similar technologies, stating that “alleging a loose or vague comparability between different technologies or

¹⁵⁷ Gajarsa et al., *supra* note 153, at 81.

¹⁵⁸ See *In re Innovatio IP Ventures*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *60-61 (N.D. Ill. Sept. 27, 2013).

¹⁵⁹ Melamed & Lee, *supra* note 155, at 426 n.200 (“In circumstances where infringers make timing decisions unconstrained by lock-in, it might be appropriate to assess different reasonable royalties based on different hypothetical negotiation dates for early movers (who may have assumed greater commercial risk in implementing the infringing technology before it was tested in the marketplace) and late adopters (who may have delayed implementation until the infringing technology was commercially successful).”).

¹⁶⁰ See *id.*

¹⁶¹ *Ga.-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (calling for analysis of comparable licenses in the first and second factors).

¹⁶² Layne-Farrar & Wong-Ervin, *supra* note 14, at 129, 143-148.

licenses does not suffice.”¹⁶³ With good reason, too, as plaintiffs in patent infringement litigation are incentivized to utilize comparisons to ramp up royalty rates on dubious-at-best grounds.¹⁶⁴ In 2013, the *Innovatio* court acknowledged the difficulty of identifying appropriate comparable licenses, as both standard-adoption and judicial developments regarding the issue were still in their infancy.¹⁶⁵

These problems still persist, although admittedly less severely, today, as the Federal Circuit’s guidance regarding admissibility of comparable licenses in F/RAND cases allows usage of a seemingly wide range of licenses for comparison.¹⁶⁶ Third-party licenses’ *effective* licensing rate are often obtuse and difficult to accurately ascertain,¹⁶⁷ and, therefore, the usage of the *declared* licensing rate in courts potentially obfuscates the actual value of the patent at issue. Further, patents involved in complex standards often lack identical equivalents, and so licenses to other patents may not adequately reflect the unique features inherent to the patent at issue or the allegedly comparable patent.¹⁶⁸ In determining the level of influence, if any, comparable licenses will play in guidance in F/RAND terms, SSOs must consider the context in which the standard, or SEP(s), exist, and determine if comparable licenses are likely to indicate the actual value of an SEP. SSOs could require evidence of a comparable license’s effective rate, rather than just its stated rate, for consideration of such evidence, however that may prove difficult and no less inaccurate or speculative. SSOs are not ideally situated to compel disclosure of licenses’ effective costs to SEP-licensees, as they only have bargaining power with SEP-holders. Comparable licenses provide a useful metric for courts, despite their pitfalls, but SSOs likely cannot avoid the faults common to this type of evidence via guidance within F/RAND terms.

¹⁶³ *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 79 (Fed. Cir. 2012).

¹⁶⁴ *See, e.g., id.* at 80. (“The district court correctly recognized that LaserDynamics’ reliance on the two DVD-related patent licensing programs and the 1997 Licensing Executives Survey was problematic”); *Wordtech Sys. v. Integrated Networks Sol., Inc.*, 609 F.3d 1308, 1320-1321 (Fed. Cir. 2010) (rejecting patentee’s reliance on licenses that were not comparable, contrary to patentee’s assertions); *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 869 (Fed. Cir. 2010) (stating that patentee’s expert “used licenses with no relationship to the claimed invention to drive the royalty rate up to unjustified double-digit levels”); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1332 (Fed. Cir. 2009) (noting the patentee’s failure to prove comparability of allegedly comparable licenses).

¹⁶⁵ *In re Innovatio IP Ventures*, No. 11 C 9308, 2013 U.S. Dist. LEXIS 144061, at *168 (N.D. Ill. Sept. 27, 2013).

¹⁶⁶ *See, e.g., Commonwealth Sci. & Indus. Research Org. v. Cisco Sys. Inc.*, 809 F.3d 1295, 1303 (Fed. Cir. 2015) (“[O]therwise comparable licenses are not inadmissible solely because they express the royalty rate as a percentage of total revenues, rather than in terms of the smallest salable unit.”).

¹⁶⁷ *Melamed & Lee, supra* note 155, at 418.

¹⁶⁸ *See, e.g., Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *40.

Courts can also look to licenses from the same SEP-holder, either for the SEP in question or for SEPs within the same family to determine a comparable license.¹⁶⁹ However, patent-holders often structure licenses so as to present a higher apparent cost of the license, knowing that these licenses will be used to influence royalty calculation in potential litigation.¹⁷⁰ SSOs are better situated to address this concern than they are to address concerns of ambiguity related to effective rates in licenses for comparable patents. In drafting F/RAND terms, SSOs can demand SEP-holders draft licenses with clear payment structures, or bar common schemes of driving up the apparent costs of a license to a licensee.¹⁷¹ While these terms' enforceability may prove difficult in practice,¹⁷² SSOs can at least reduce these concerns more easily than those regarding comparison to licenses for different SEPs or non-F/RAND-encumbered patents generally.

F. Alternatives and Supplements to the "Hypothetical Negotiation"

Courts have employed other valuation methods aside from, and occasionally in combination with, hypothetical negotiations, despite the popularization of said negotiations by the *Georgia-Pacific* framework's wide adoption.¹⁷³ Section 284 does not mandate any one means of valuation for damages in patent infringement cases,¹⁷⁴ and so no statute mandates hypothetical negotiations.

1. Valuation via Calculation of Incremental Value of the SEP over Potential Alternatives

Some courts, SEP-holders, and even a federal agency have encouraged usage of the "incremental value" approach for determining a reasonable royalty rate, although this method has not been adopted by the Federal Circuit.¹⁷⁵ The method

¹⁶⁹ See, e.g., *SK Hynix Inc. v. Rambus Inc.*, No. C-00-20905 RMW, 2013 U.S. Dist. LEXIS 66554, at *20 (N.D. Cal. May 8, 2013) (using licenses by the RAND-encumbered patent-holder to the licensee's competitors as evidence for determining a royalty rate).

¹⁷⁰ Melamed & Lee, *supra* note 155, at 418.

¹⁷¹ David Arsego, *The Problem with FRAND: How the Licensing Commitments of Standard-Setting Organizations Result in the Misvaluing of Patents*, 41 *BROOK. J. INT'L L.* 257, 266 (2015) (demonstrating the rule-setting abilities of SSOs).

¹⁷² J. Gregory Sidak, *The FRAND Contract*, 3 *Criterion J. of Innovation* 1, 3 (2018).

¹⁷³ See, e.g., *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 899 (Fed. Cir. 1986) (detailing and employing the analytical method, rather than a hypothetical negotiation).

¹⁷⁴ *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 507 (1964); 35 U.S.C. § 284.

¹⁷⁵ See FED. TRADE COMM'N, *THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION* 22-23 (2011), <https://www.ftc.gov/sites/default/files/documents/reports/evolving-ip-marketplace-aligning-patent-notice-and-remedies-competition-report-federal-trade/110307patentreport.pdf> [<https://perma.cc/74B2-2CXE>] (advocating usage of the incremental value method for patents). See, e.g., *Genband US LLC v. Metaswitch Networks Corp.*, No. 2:14-cv-33-JRG-RSP, 2016 U.S. Dist. LEXIS 2655, at *10 (E.D. Tex. Jan. 9, 2016) ("In a reasonable royalty analysis, damages evidence that is not closely tied to 'the incremental value that the patented invention adds to the end product' runs a substantial

comprises basing a royalty award on the incremental value an SEP contributes to the standard by comparing the SEP to the next-best alternative, generally excluding value added by the standardization of the technology.¹⁷⁶ The Federal Circuit has used this method, but has repeatedly noted that no one method should apply universally in determining a reasonable royalty.¹⁷⁷ Similarly, some legal literature has endorsed the method, indicating a somewhat widespread push for courts to adopt this method, both in the context of SEPs and patents generally.¹⁷⁸ This method of valuation derives its legitimacy from the assumption that a licensee would pay, at most, the incremental value of the relevant patent over its next-best alternative; otherwise, economic influences would dictate choosing to instead license the alternative.¹⁷⁹ In the context of SEPs, this line of reasoning endorses the proposal that a reasonable royalty for the SEP would constitute the additional value that the SEP adds to the standard over a similar standard that instead included the next-best alternative available at the time of the standard's implementation.¹⁸⁰

This approach appears attractive because of its intuitive nature and seemingly simplistic means of valuation. However, in practice, this method is likely to prove inequitable or grossly inaccurate, if not entirely unworkable. As the *Microsoft* court noted, “[c]alculating value for multi-patent standards gets very complicated, because when you take one patent out of a standard and put another one in you may make other changes, the performance of the standard is multidimensional, different people value different aspects.”¹⁸¹ As previously stated herein, standards may incorporate hundreds, or even thousands, of SEPs,¹⁸² and so more complicated standards only exacerbate this problem. Judge Gajarsa, writing with others, endorsed this method of valuation, giving the example of a patent “directed to an improved windshield wiper for a car, [where] the incremental value would be determined based on the benefits of the patented windshield wiper over other commercially-available windshield wipers.”¹⁸³ While

risk of ‘skew[ing] the damages horizon for the jury.’”); *Microsoft Corp. v. Motorola, Inc.*, NO. C10-1823JLR, 2013 U.S. Dist. 60233, at *44 (W.D. Wash. Apr. 25, 2013) (noting plaintiff, an SEP-holder, contending for valuation via the incremental value approach).

¹⁷⁶ *Ericsson, Inc v. D-Link Sys., Inc.*, 773 F.3d 1201, 1232-33 (Fed. Cir. 2014).

¹⁷⁷ *Commonwealth Sci. & Indus. Research Org. v. Cisco Sys., Inc.*, 809 F.3d 1295, 1301-02 (Fed. Cir. 2015); Gajarsa, *supra* note 153, at 74.

¹⁷⁸ See, e.g., Gajarsa et al., *supra* note 153, at 74 (“The jury should be instructed that the patent holder is entitled to recover damages only for the incremental value that the claimed invention contributes to the accused product. . . .”) (emphasis removed)

¹⁷⁹ Melamed & Lee, *supra* note 155, at 392.

¹⁸⁰ Gajarsa et al., *supra* note 153, at 81.

¹⁸¹ *Microsoft Corp. v. Motorola, Inc.*, NO. C10-1823JLR, 2013 U.S. Dist. 60233, at *46 (W.D. Wash. Apr. 25, 2013) (quotation marks omitted).

¹⁸² *In re Innovatio Ventures, LLC*, No. 2303, 2013 U.S. Dist. LEXIS 144061, at *61 (N.D. Ill. Sept. 27, 2013) (“This concern arises because most standards implicate hundreds, if not thousands of patents”).

¹⁸³ Gajarsa et al., *supra* note 153, at 74.

the article states that this valuation should disregard potential costs of switching from one patent to another, such as cost of redesigning products, it completely ignores the complexity inherent to many technologies and the differences that exist between replacing the windshield wipers of a car, and, for example, an integrated circuit within a component of a Wi-Fi LAN.¹⁸⁴

As outlined above, substitution of one patent or system of patents would almost certainly necessitate the alteration of other patents comprising the standard, which could very well then result in a cascade of necessary changes in the incorporated patents throughout the standard. In complex standards, such as those within the sphere of electrical devices,¹⁸⁵ usage of this method may increase arbitrary valuation of reasonable royalties. The *Microsoft* court asserted that it incorporated this approach, in part, through its application of the ninth G-P factor,¹⁸⁶ however, as stated previously, that application of the factor faces similar unworkability problems in complex standards. In *Innovatio*, one of the defendant's expert witnesses proposed calculating a RAND royalty via a similar method, referring to it instead as a "Bottom Up" valuation method.¹⁸⁷ The court rejected the method, citing to *Microsoft* and additionally making an argument similar to the instant argument made in this section, as the court found that "no alternatives to the [infringed SEPs] . . . would provide all of the functionality of [said SEPs]."¹⁸⁸ As *Innovatio* exemplifies, patents in complex standards, such as the Wi-Fi LAN-related standard at issue in *Innovatio*, are unlikely to have a functionally identical alternative.¹⁸⁹

In scenarios in which a standard could easily substitute an SEP for one of several alternatives, SSOs may very likely simplify litigation by determining reasonable royalties via the incremental value method. In the context of complex standards, as many standards are, this valuation approach provides an unworkable means that will inevitably produce arbitrary results.

¹⁸⁴ See, e.g., Yang & Kim, *supra* note 28, at 8 ("Therefore, a license on a \$200 to \$1,000 smart phone would result in a lot more royalties than a license on a \$1 to \$30 integrated circuits (ICs) that implement most of SEPs.").

¹⁸⁵ See, e.g., *Sisvel Wi-Fi Patent List*, SISVEL, <https://www.sisvel.com/images/documents/Wi-Fi/Patents.pdf> [<https://perma.cc/AX7D-PLFH>] (indicating a list of the patents that Sisvel, and only Sisvel, holds regarding the Wi-Fi-related IEEE standard).

¹⁸⁶ *Microsoft*, 2013 U.S. Dist. LEXIS 60233, at *60-61; see *Ga.-Pac. Corp. v. US Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) ("[Factor] 9. 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.").

¹⁸⁷ *In re Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *160-161.

¹⁸⁸ *Id.* at *161-162.

¹⁸⁹ *Id.* at *40 (referencing the 802.11 wireless standard implemented by the IEEE).

2. The Analytical Method

In the words of the Federal Circuit Court of Appeals, the analytical method “focuses on the infringer’s projections of profit for the infringing product.”¹⁹⁰ The method comprises “subtract[ing] the infringer’s usual or acceptable net profit from its anticipated net profit realized from sales of infringing devices.”¹⁹¹ On its face, this method bears a number of similarities with the usage of comparable licenses by courts in hypothetical negotiations, except for the limitation of usage of comparable licenses of the same patent by the same licensor.

This method, while not utilized today by the Federal Circuit, shows some promise in an SEP context, as the SEP-holder certainly licenses the SEP being litigated to other parties for the same standard. This method is also simpler, assuaging the concerns that Judge Posner expressed regarding the complicated nature of objectively determining a royalty rate while considering so many factors under *Georgia-Pacific*.¹⁹² In standards wherein widespread adoption is certain, variance between royalty rates in licensing of an individual SEP is likely to be low, and desire for a high degree of certainty in royalty rate disputes is strong, the analytical method presents an attractive alternative to the hypothetical negotiation method.

This method faces similar unworkability concerns to the incremental value method, albeit to a potentially lesser extreme. A court may reasonably determine the difference in value of an infringer’s profits by selling products that do not incorporate a standard versus in fact selling products. But, to determine damages, it must also inevitably determine the percentage value that the infringed SEP(s) contribute to the standard as a whole in comparison with that contributed by the remainder of the standard’s SEPs. This may necessarily result in a requirement of determining the SEP’s incremental value over its alternatives, invoking the concerns raised in the prior section.¹⁹³ In some contexts, that may not be necessary. However, should the value-add to the standard be determinable in a less arbitrary fashion, this method poses a potentially viable and simplistic approach to valuation.

3. The “Top Down” Valuation Approach

The *Innovatio* defendant’s expert witness proposed a valuation means similar to the incremental value method via a “Top Down” approach.¹⁹⁴ Dr. Anne Layne-Farrar and Koren Wong-Ervin summarize the approach as “generally

¹⁹⁰ *Lucent Techs. Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed. Cir. 2009).

¹⁹¹ *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 899 (Fed. Cir. 1986).

¹⁹² *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 911 (N.D. Ill. 2012) (“And could a judge or a jury really balance 15 or more factors and come up with anything resembling an objective assessment?”), *aff’d in part, rev’d in part, and remanded to* 757 F.3d 1286 (Fed. Cir. 2014).

¹⁹³ *See Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233, at *46 (W.D. Wash. Apr. 25, 2013).

¹⁹⁴ *Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *162-69.

start[ing] with the average price of the identified royalty base (in *Innovatio*, a Wi-Fi chip) and then calculate[ing] the average profit that the product/component maker earns on the sale of each unit, as a means of isolating the portion of the income from the sale of the product/component available to the maker to pay royalties on intellectual property.”¹⁹⁵

The *Innovatio* court noted several advantages of this method.¹⁹⁶ By utilizing the profit margin of the licensee’s sale of a product incorporating the SEP as the maximum potential royalty, the method assuages concerns of discriminatory (and therefore non-F/RAND) licensing and of royalty-stacking.¹⁹⁷ “If the royalty is excessive in comparison to an [SEP-licensee’s] profit margin on a [product incorporating an SEP], . . . the royalty is too high.”¹⁹⁸ By basing the royalty rate on the infringer’s expected profits, a court can determine a reasonable royalty without necessitating investigation of comparable licenses.¹⁹⁹ The *Innovatio* court further lauds this method for the “quantitative and analytical rigor [it provides] to the RAND analysis,” by relying upon verifiable inputs such as the average cost and profit of an infringer’s product as its inputs.²⁰⁰ Finally, the method allows for a court to appreciate a finding that an SEP is of “moderate to moderate-high importance” to a standard in its valuation of a reasonable royalty rate.²⁰¹ For these reasons, the “Top Down” approach provides an attractive means for damages calculation, and was adopted by the court in *Innovatio*.²⁰²

This method has its flaws, however. The Federal Circuit has held that an infringer’s profit margin is not the maximum value for a reasonable royalty, as an infringer can raise its selling price to accommodate a higher royalty rate.²⁰³ Conversely, wholesale incorporation of this method encourages infringers to potentially maintain a low profit margin until inevitable litigation as a means of acquiring a low royalty rate. Incorporation of this method of valuation in F/RAND terms themselves only heightens this risk. Should standard-implementers become aware of this guidance, SSOs effectively put them on notice that this strategy may drastically reduce their licensing costs. Similarly, a separate expert witness in the *Innovatio* case warned that widespread infringement may allow manufacturers to set their prices very low, where usage of this valuation method would severely limit SEP-holders’ recovery for damages.²⁰⁴ In addition, major cases have consistently found reasonable royalty rates of far below 1% and far

¹⁹⁵ Layne-Farrar & Wong-Ervin, *supra* note 14, at 150.

¹⁹⁶ See generally *Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *164-69.

¹⁹⁷ *Id.* at *164.

¹⁹⁸ *Id.*

¹⁹⁹ *Id.* at *167-68.

²⁰⁰ *Id.* at *168-69.

²⁰¹ *Id.* at *169.

²⁰² *Id.* at *164-69.

²⁰³ *Douglas Dynamics, LLC v. Buyers Prods. Co.*, 717 F.3d 1336, 1346 (Fed. Cir. 2013) (citing *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1338 (Fed. Cir. 2004)).

²⁰⁴ *Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *166.

below the rates which SEP-owners have themselves declared to be F/RAND rates.²⁰⁵ The *Microsoft* court endorsed this practice, stating that “because the risk of ‘royalty stacking’ inflates the impact of any royalty on a company’s bottom line, even a 1% royalty is a ‘high ceiling’ benchmark.”²⁰⁶ In *TCL v. Ericsson* (notably, a different case than the *Ericsson* referenced throughout), the Central District of California found an effective rate of 0.07%, or 0.555 to 15 cents on a product selling for hundreds of dollars, and these results are not abnormal.²⁰⁷ Obviously, concerns about the disparity between SEP-holder desired rates and judicially-determined rates rely upon the accuracy and good-faith of SEP-holder’s assertions as to their calculations of a F/RAND rate, and SEP-holders’ incentive to inflate their SEP’s value needs not be explained. However, if these valuations do indeed short-change SEP-holders, adoption of this method by an SSO only serves to perpetuate this current trend.

While the Top Down approach’s simplicity and predictability make it an attractive choice, SSOs must consider concerns of abuse by infringers and licensees as well as the (arguably) low rates that courts have found when deciding whether to adopt this method as a means or factor for valuation of a F/RAND royalty.

IV. CONCLUSION

Holistically, numerous concerns plague policy determinations regarding fairly and equitably determining a reasonable royalty rate. SSOs should consider the valuation methods described herein, the concerns they implicate, and the contexts of their standards to design royalty-valuation schemes within their F/RAND terms that guide courts in infringement damages valuation, thereby simplifying litigation, rectifying inequitable litigation trends, and increasing certainty in the calculus a court may use in determining a F/RAND royalty.

²⁰⁵ Yang & Kim, *supra* note 28.

²⁰⁶ *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233, at *280 (W.D. Wash. Apr. 25, 2013).

²⁰⁷ Yang & Kim, *supra* note 28; *see Tel Commun. Tech. Holdings v. Telefonaktiebolaget Lm*, No. SACV 14-341 JVS(DFMx), 2018 U.S. Dist. LEXIS 234535, at *184-86 (C.D. Cal. Mar. 9, 2018); *see, e.g., Ericsson Inc. v. D-Link Sys.*, No. 6:10-CV-473, 2013 U.S. Dist. LEXIS 110585, at *82-87 (E.D. Tex. Aug. 6, 2013)