

Chapter 2

FRAND Commitments and Royalties for Standard Essential Patents

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1 Introduction

This chapter addresses the conceptual and practical effect of Fair, Reasonable, and Non-Discriminatory (henceforth “FRAND”) commitments to standard setting organizations (henceforth “SSOs”) on royalties for standard essential patents (henceforth “SEPs”). While SSO activities are recognized as potential sources of economic efficiency, the nature of the SSO process facilitates and requires communication and agreement among parties that may otherwise compete in the marketplace, thus leading to antitrust agencies and private counsel to require caution in the standard setting process. The industry-wide, international scope of technological agreement in SSO activities is a potential source of market power for intellectual property owners. The risk of such market power has led technology adopters to seek assurances from technology contributing SSO participants that technologies adopted in the standard are made available on FRAND terms. In addition, it has become increasingly common for technology contributors to provide FRAND commitments in conjunction with their SSO participation. Recent decisions by U.S. courts and regulatory agencies have clarified that FRAND commitments can be binding on technology contributors, and that determination of FRAND royalty rates on standard essential technology can be meaningfully different from that applicable

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to technology unencumbered by FRAND commitments. More specifically, determination of FRAND royalty rates likely requires inquiry into the apportionment of inherent technology value from value that resulted from the SSO process and standard itself. This chapter addresses various methods to evaluate the sources of economic value of SEPs, to apportion inherent technology value from that resulting from a standard, and the implications of such apportionment on the royalties for FRAND encumbered SEPs.

2 Industry Standards

Technical or industry standards (henceforth “standards”) have become an integral part of technological development as well as everyday use of common devices. Cellular phone calls, wireless internet connection, broadcast television and radio, video and audio content streaming, connection of computer and media equipment peripherals (e.g. keyboard, mouse, speakers, set-top box), transfer of data between devices, storage and viewership of media on optical discs (e.g. DVDs) collectively make up just a sample of common uses of standards. More specifically, 3G, 4G, and LTE mobile telecommunication technology, 802.11 Wi-Fi wireless internet protocols, ATSC and DVB-T digital television transmission, H.264 video compression, USB and HDMI connectivity, Bluetooth wireless data exchange, and Blue-ray technologies are all examples of standards. Formally, standards are defined as product technology and/or manufacturing processes including consistent use of product, process, or production rules, conditions, characteristics, and guidelines, together with defined design and specification, performance, testing methods, and quality control.¹ As evidenced by the plethora of standards incorporated into today’s products, standards are a major contributor to product development in the modern economy.

The establishment of standards and the incorporation of them into products and manufacturing processes provide benefits for consumers and manufacturers of goods. Standards can make products more valuable for consumers and product manufacturers, as well as the production of products more efficient for the manufacturers. For example, a manufacturer of a wireless phone earpiece will benefit if its device operates with a wide range of phone models, as that would expand its potential customer base and demand for its products. In addition, broad functionality would prevent the need to manufacture a variety of models to fulfill the demands of various phone purchasers. Similarly, a consumer benefits from an earpiece working with a wide range of phone models that would prevent the need to purchase a new earpiece after obtaining a new phone. In other words, both the value

¹*Circular No. A-119*, (January, 2016), https://www.whitehouse.gov/sites/default/files/omb/inforeg/revised_circular_a-119_as_of_1_22.pdf; *Circular No. A-119*, (February, 1998), https://www.whitehouse.gov/omb/circulars_a119/.

of the earpiece to the consumer and the value to the product manufacturer increase due to the interoperability of products as the number of phone manufacturers implementing the same technological method of communication between the phone and an earpiece expands. Economists refer to this phenomenon as a networking effect. In economics, a network effect, or network externality, occurs when the value of a good to a user increases as others use the same type of product.² Standardizing the method of wireless communication between mobile phones and earpieces ensures that consumers and product manufacturers can experience the benefits associated with the network effect. For example, the existence and industry adoption of the Bluetooth wireless standard prevents a scenario where, only a Samsung earpiece works with a Samsung phone, only a Motorola earpiece works with a Motorola phone, and so on. Thus, network effects from standards typically increase the value of standard practicing products. In addition, this increase in value from the network effects typically corresponds to market expansion of the unit volume in terms of the products practicing the standards.³

At the heart of the network effect associated with standards is the interoperability of various products due to the incorporation of standard technology. Interoperability through standardization can be crucial for satisfying various consumer needs, particularly in the information technology industry.⁴ Through the standardized interoperability, consumers are less likely to be “locked in” to a single product model or manufacturer. In addition, more manufacturers can develop new and/or enhanced products to replace or work in conjunction with other manufacturers’ products.

The networking effect benefits experienced by both consumers and product manufacturers are a substantial driving force behind the motivation for standard setting. Not only can standards make products more valuable for consumers, they also increase production efficiency and incentivize increased innovation.⁵ In addition, the interoperability network effects can facilitate and sustain international trade. It is for such reasons that the U.S. Department of Justice (henceforth “DOJ”)

²D W CARLTON & J M PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* (4TH ED. 2015); CHAD SYVERSON AUSTAN GOOLSBEE, STEVEN LEVITT, *MICROECONOMICS* (2013); DANIEL L. RUBINFELD ROBERT S. PINDYCK, *MICROECONOMICS* (2009). Network effects also arise when the expansion of users leads to increased variety or lower pricing of complementary goods. Economists may refer to such network effects as indirect network effects.

³In the extreme case of a government mandated standard, such as the ATSC digital television transmission standard mandated by the U.S. government for all televisions, universal adoption of the standard results in the adoption of SEP technology on a scale vastly greater than that which would have occurred without the standard.

⁴Fed. Trade Comm’n, *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition*, (March, 2011), <https://www.ftc.gov/sites/default/files/documents/reports/evolving-ip-marketplace-aligning-patent-notice-and-remedies-competition-report-federal-trade/110307patentreport.pdf>.

⁵Increased product value and expanded market product unit volume increase the potential for manufacturers, investors, and innovators to recoup innovation expenses, thus stimulating and increasing industry innovation activity.

and U.S. Federal Trade Commission (henceforth “FTC”) (henceforth collectively, “U.S. agencies”) recognize standards as a driving force for the modern economy.⁶

3 Standard Setting Organizations and Standard Essential Patent Licensing

The development of a standard typically involves a SSO.⁷ SSOs serve an important role by providing a platform for businesses, universities, and individuals from across the world working in corresponding industries to collaborate and participate in the development and establishment of standards.⁸ Typically SSOs engage in evaluating various alternative technologies and determining which technologies to incorporate into a standard. Given the benefits of standards, SSOs play an important role in product and technology development. Ultimately, SSOs choose which technology solutions will most likely be embedded in products with widespread development.

Just as economists like to say there is no such thing as a free lunch, the saying holds for the SSOs and standards. The rationale is that the benefits of the SSOs establishing standards come with a potential competitive cost. This is because the SSO standard establishment process outlined above involves coordination among entities that would typically otherwise compete but-for their involvement in the SSO process. As a result, SSO activities can be the cause of potential anticompetitive effects. One cost of SSO member collaboration is the exclusion of rivals’ alternative technology. However, typically SSO membership and participation is open to all industry participants thereby limiting the exclusion of any technology option as a candidate for the standard evaluation and selection process. In addition, the ultimate selection of a standard enables the beneficial network effects through product interoperability.

Another anticompetitive concern with the SSO process relates to enforcement of patent rights covering technology required to practice a standard—often referred to as standard essential patents. Upon an SSO’s adoption of a standard, SEP owners gain the position of control of access to rights to the standard, positioning them to

⁶U.S. Dep’t of Justice & Fed. Trade Comm’n. (2007), available at <https://www.ftc.gov/sites/default/files/documents/reports/antitrust-enforcement-and-intellectual-property-rights-promoting-innovation-and-competition-report.s.department-justice-and-federal-trade-commission/p040101-promotinginnovationandcompetitionrpt0704.pdf>.

⁷For convenience, this chapter considers standard setting organization (SSO) as synonymous with standard developing organization (SDO).

⁸An alternative standard is a standard developed and owned by a single product manufacturer that dominates a particular market. Such a standard is referred to as a *de facto* standard. Examples of *de facto* standards include Facebook, and Microsoft Office. The focus of this chapter is standards established through SSOs.

capture licensing fees reflecting the resulting value of the *standard*.⁹ That is, after adoption of a standard as the industry is locked into the technology selection, implementers may have no choice but to license the rights to the SEPs in exchange for royalties reflecting a lack of technology alternatives and/or the expanded market value created by the standard adoption, thereby increasing SEP holders' licensing fees.

This effectively non-competitive licensing position for implementers can be of particular concern given the common widespread reach of a chosen standard, nationally or globally. It is the widespread adoption that enables SEP patent holders to extract whatever the market will bear (potentially including value of the standard) given the standard-enhanced market value and the lack of substitutability from otherwise alternative technologies. After all, it is not only past, un-adopted technology that is locked out once a standard is set; it is also new technology that arises after standard adoption that may not reasonably be turned due to the lock-in effect. In addition, in anticipation, and as a result, of widespread adoption of a standard, manufacturers of products implementing the standard technology may expend significant resources on production processes based on the selection of the standard, resulting in significant sunk costs which together with widespread standard adoption inhibit the pursuit of any alternative product designs due to increased switching costs.¹⁰ High switching costs may further enable SEP holders to obtain licensing fees, for example, based on royalty rates higher than they would have absent the establishment of the standard. Thus, patent holders can benefit from the inclusion of their SEP-protected technology into a standard from both increased royalty rates after an industry is locked into a standard, plus an expansion of licensed sales due to widespread standard adoption.

SEPs owners' ability to capture relatively higher licensing fees as a result of industry participants being locked into an industry standard and/or facing high switching costs is commonly referred to as patent "hold-up." Typically, the more widespread the standard and/or higher the switching costs the higher a patent holder can charge in licensing fees.¹¹ An SEP holder obtaining such increased licensing fees essentially reflects the patentee's ability to extract the network effects value from the standard for itself. In doing so, SEPs owners may prevent product manufacturers and consumers from experiencing the full realization of the benefit of network effects. If patent holders successfully demand and obtain elevated licensing fees, this raises product manufacturers' costs, which at least partially offsets some of

⁹To the extent the network effects are due to interoperability, as opposed to the specific technology choice, expand the value of products practicing the standard, the standard also may enable SEP owners to capture royalties beyond those reflecting the patented technology value itself. An exception may be when the SEP technology has no meaningful competitive alternative technology.

¹⁰High sunk costs may be indicative of the large switching costs required to pursue and commercialize alternative technologies.

¹¹U.S. Dep't of Justice & Fed. Trade Comm'n, *supra* note 6.

the potential gains for manufacturers from the adoption of a standard.¹² In addition, the high licensing fees may delay or hinder further investment by manufacturers in products implementing the standard. Furthermore, higher production costs can ultimately result in decreased profits to product manufacturers, increased prices for consumers, and delayed further investment by manufacturers in products using the standard.¹³

4 SSO Licensing Policies and FRAND¹⁴ Commitments

As part of efforts to influence the licensing of SEPs, SSOs have developed certain licensing policies for patent holders in an attempt to mitigate the risk of excessive licensing fees from SEP owners, particularly where technology contributors participate in the SSO process. These policies typically address the risk of patent hold-up through disclosure requirements and licensing rules.¹⁵ Disclosure rules generally require SSO participants to make known any patents or applications for patents owned by participants that read on the (proposed) standard. The objective with the disclosure rule is to identify the various intellectual property rights associated with the technologies considered for the standard *ex ante*, thus allowing SSO participants to make informed decisions during the standard selection process and minimizing the number of surprise licensing obligations once the standard is selected (*ex post*).¹⁶

It has become increasingly common for SSOs to require their participants to commit to identifying any potential SEPs, and to licensing them on FRAND terms. Generally speaking, FRAND terms categorically have two components: first, the requirement to license to any potential licensee without discrimination; and second, to offer reasonable royalty terms for SEP licensure. However, SSOs typically do not explicitly define what exact licensing royalty terms qualify as FRAND, and not all SSOs' licensing rules are identical. In fact, an SSO policy may explicitly prohibit

¹²Such an offset from increased licensing fees occurs to the extent that a manufacturer is unable to raise downstream product prices. However, any product price increase as a means to counter cost increases (due to licensing fees), particularly with minimal reduction to units sold, may be a proper adjustment to reflect valuable inputs to the product.

¹³The reduction in investment is relative to the investment that would exist if SEP holders simply received royalties reflecting the inherent technology value and not the value of the standard. Although high licensing fees can on the one hand stimulate investment in new and improved technology (i.e. invention and innovation), the high price of access to the technology for adopters can on the other hand limit the demand for and adoption/commercialization of further new technology.

¹⁴In the literature and case law, FRAND and RAND are generally used interchangeably.

¹⁵U.S. Dep't of Justice & Fed. Trade Comm'n, *supra* note 6.

¹⁶*Id.*

any discussion, among members and participants, of license rates.¹⁷ The inclusion of often vague language in SSO licensing policies leaves room for interpretations over the licensing fee terms that would be consistent with an SSO's FRAND requirements, which thus can ultimately be up for debate.¹⁸ Yet, the general goal of FRAND term licensing rules is to make sure holders of SEPs do not (i) use the threat of patent hold-up or refusal to license to extract excessive and unreasonable licensing fees (i.e., the licensing rate must be Rreasonable); (ii) lock out a competitor from the industry by refusing to license (i.e., licensing must be Non-Discriminatory)¹⁹; or (iii) use the essential nature of the SEPs to extort fees for other non-SEPs or require cross-licenses (i.e., the licensing terms must be Fair). In other words, as a practical matter, given the market power SEP owners may obtain with the adoption of a standard, the extra requirements for FRAND licensing include, but are not necessarily limited to, determining a reasonable royalty with the following extra conditions: (i) no exclusive licensing terms that would restrict technology adopters' access to standard essential technology; (ii) no cross-license requirement with regards to non-SEPs; and (iii) no bundling of the SEPs with non-SEP technologies to extend the SEP owners' market share reach into other non-essential technology areas.²⁰

It has not been historically clear whether or how FRAND commitments are binding, or how the "reasonable" condition of FRAND terms can be determined. Taking the definitional components of FRAND—Fair, Reasonable, and

¹⁷IEEE-SA, *IEEE-SA Patent Policy: Introduction and guide to the IEEE-SA patent policy effective 15 March 2015*, (2016), <https://development.standards.ieee.org/myproject/Public/mytools/mob/patut.pdf>.

¹⁸The vague nature of FRAND terms incorporated into SSO licensing policies are often the result of antitrust concerns over explicit agreement on technology prices, see U.S. Dep't of Justice & Fed. Trade Comm'n, *supra* note 6.

¹⁹A separate but related component of the "non-discriminatory" part of the FRAND condition is the comparison of rates across products and licensees. U.S. courts and U.S. agencies have determined that asymmetric rates are not inconsistent with FRAND. See, e.g., case cited *infra* note 24; U.S. Department of Justice, *Response to Trustees of Columbia University, Fujitsu Limited, General Instrument Corp., Lucent Technologies Inc., Matsushita Electric Industrial Co., Ltd., Mitsubishi Electric Corp., Philips Electronics N.V., Scientific-Atlanta, Inc., and Sony Corp., Cable Television Laboratories, Inc., MPEG LA, L.L.C. Request for Business Review Letter*, (1997), <https://www.justice.gov/archive/atr/public/busreview/215742.htm>. As will be discussed more fully below, according to recent rulings, FRAND terms do not necessarily require symmetric rates for all products and licensees. In other words, FRAND terms may include a royalty fee structure that varies based on timing, product volume, and/or product-type.

²⁰It can, and has been, claimed by patent holders that requiring implementers to take licenses to non-SEPs as part of a license to SEPs is benign, in the sense the non-SEPs are simply licensed for free. However, it is incorrect to presume that non-SEPs simply have no value. If it was believed by a patent holder that some of its patents had no value, it could just make them available with a zero-cost license. The determination of what IP is needed or desired, including that of "valueless" patents, can be handled by the licensee, and need not be mandated by the patent holder. That is, if a patent has no value, a licensee will not worry about not having a license to it. If there is some risk a baseless lawsuit may nonetheless ensue on a "valueless" patent, it would be the implementer that is asking for the license, not the patent holder that is demanding it be licensed.

Non-Discriminatory—at face value, it may intuitively appear that determining a SEP royalty rate that is “reasonable” is no different than a “reasonable” royalty rate resulting from royalty analyses for non-essential patents. As will be shown in the next part, this is not necessarily the case, as there are distinct and meaningful differences between royalty rate analyses for SEPs compared to analyses for patents that are unencumbered by FRAND commitments. These differences are motivated by the goals of FRAND term licensing outlined above, namely preventing patent holdup while also promoting widespread adoption.²¹ It will also be shown in the next part that SEP owners should account for such differences when making licensing offers given the apparent current view from U.S. courts regarding the binding nature of commitments to SSO licensing policies.

Committing to an SSO’s FRAND licensing term policy is often times mandatory for technology contributors participating in the SSO standard process. On the other hand, typically there is no SSO policy requirement for SEP owners that do not participate in the standard development and selection process. However, there are incentives for holders of SEPs to participate in the SSO activities, thereby ultimately committing to the FRAND terms for any licensing activity. For example, SSO’s typically aggregate assurances regarding which patents are claimed essential to the standard, which may be perceived as an endorsement of the relevance of SEPs for technology contributors. In addition, SSO participation provides patent holders the opportunity to influence the standard that is adopted. Ultimately, participation in an SSO process is voluntary and holders of SEPs that do not participate in the SSO process are not necessarily bound by all the SSO disclosure and FRAND licensing rules.²²

5 FRAND Terms Determination and Recent U.S. Court Decisions

The U.S. agencies have recognized licensing SEPs based on FRAND terms as a method for mitigating the potential for patent hold-up. At the same time, the agencies further recognize that certain aspects of SSO licensing policies may hinder the impact of any FRAND commitment to an SSO by holders of SEPs. For example, as previously noted, SSO licensing policies generally do not incorporate any well-defined criteria for what licensing fees actually qualify as FRAND. In addition, patent holders may simply fail to comply with an SSO’s licensing policy. Failing to comply with an SSO’s FRAND policy may be the result of a patent holder taking advantage of a negotiation position and engaging in patent hold-up. On the other hand, negotiating parties may legitimately disagree as to what terms qualify as FRAND.

²¹See, e.g., case cited *infra* note 24.

²²U.S. Dep’t of Justice & Fed. Trade Comm’n, *supra* note 6.

There is no universal authority or method for identifying FRAND licensing terms. Again, thus far, SSO's licensing policies generally fall short of explicitly defining FRAND terms. Nevertheless, recent decisions from U.S. courts, together with guidance from U.S. agencies provide clarity for identifying licensing terms for SEPs. A few takeaways from these recent decisions which will be discussed below relate to when FRAND terms apply, and certain conditions for obtaining FRAND terms.

5.1 *FRAND Commitments Are Binding*

The existence of a commitment by an owner of SEPs to comply with an SSO's FRAND licensing policy at first glance may not be sufficient to simply determine that the patentee is bound to always licensing under FRAND terms as part of an agreement with a potential licensee. According to *Metaswitch Networks Ltd. v. Genband US LLC*, et al. (henceforth "*Metaswitch*")²³ the valuation and damages expert cannot presume that patent holders with SSO commitments are legally bound by such commitments. *Metaswitch* does go on to say that assuming a binding obligation is reasonable, but that is the extent to which the valuation expert (e.g. economist) shall claim any binding nature of a FRAND commitment. However, a more comprehensive review of recent case law indicates that making such an assumption is in fact reasonable. According to recent U.S. court decisions, commitments to SSO licensing terms by patent holders are binding, thereby granting any potential licensee the right to have access to the patent holder's SEP rights under FRAND terms.

In *Microsoft Corp. v. Motorola, Inc.* et al. (henceforth "*Microsoft*"),²⁴ the ninth circuit appellate court clarified that SSO FRAND licensing commitments are "contracts [that] are subject to common-law obligations of good faith and fair dealing." In *Microsoft*, the district court decision was appealed to the ninth circuit court since the claim at issue was breach of contract where Microsoft, as a "third-party beneficiary to Motorola, Inc.'s [FRAND] commitments to [SSOs]", alleged Motorola breached its obligation to license its SEPS under FRAND terms based on its commitments to SSOs.

In another example, the district court in *In re Innovatio IP Ventures, LLC Patent Litigation* (henceforth "*Innovatio*")²⁵ affirmed that, given the patent claims at issue were essential to the standard they were all subject to FRAND. *Innovatio* further clarifies that the patent holder is bound by the FRAND obligation even where the SEPs were subject to an SSO licensing agreement from previous patent owners. In

²³*Metaswitch Networks Ltd. v. Genband US LLC*, No. C-14-744, ECF No. 299 (E.D. Tex., 2016).

²⁴*Microsoft Corporation v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir., 2015).

²⁵*In re Innovatio IP Ventures, LLC Patent Litigation*, No. C-11-9308, ECF No. 975 (N.D. Ill., 2013).

other words, according the *Innovatio*, when an entity acquires SEPs from another entity that committed to an SSO agreement requiring the licensure of patents under FRAND terms, the acquiring party inherits the FRAND obligation.

In *Realtek Semiconductor, Corp. v. LSI Corp. et al.* (henceforth “*Realtek*”),²⁶ the district court examined FRAND commitments as part of an analysis involving injunction claims and royalty rate determination. In *Realtek*, the patent holder submitted letters of assurance to the SSO committing to the SSO’s FRAND licensing policy. The court in *Realtek* interpreted the FRAND commitment as a “contract” establishing an obligation by which the patentee is bound. Based on this logic, the court in *Realtek* determined (1) the obligation was breached due to an SEP owner’s injunction request prior to an offering of a license on FRAND terms, and (2) to comply with the contract the patent holder must offer licenses to the SEPs under FRAND terms.

The Federal Circuit also acknowledged the binding nature of a patentee’s FRAND obligation through a commitment to an SSO (*Ericsson, Inc., et al. v. D-Link Systems, Inc., et al.* (henceforth “*Ericsson*”)).²⁷ The Federal Circuit in *Ericsson* adds the clarification that the binding FRAND licensing commitment is not generic and may “vary from case to case”, and that the patent holder is bound to the specific FRAND terms outlined in the agreement between patentee and SSO at issue. In other words, *Ericsson* emphasizes that in addition to the binding nature of a FRAND commitment to an SSO, FRAND obligations are not identical and may vary to some degree across SSOs.

The court in *Commonwealth Scientific and Industrial Research Organisation v. Cisco Systems, Inc.* (henceforth “*CSIRO*”)²⁸ addressed the unique scenario involving a SEP owner committing to an SSO’s FRAND policy for one standard but not for another (related) standard. The court in this district level decision clarified that the patentee is bound by its commitment to the SSO’s licensing policy through its submission of a letter of assurance. In particular, *CSIRO* affirmed that the patentee’s letter of assurance to the SSO regarding FRAND licensing “constitute[s] binding contractual commitments” and based on this contract the patent holder is obligated to license the SEP under FRAND terms to any party. However, the court also determined the patentee is not bound by any licensing commitment with respects to any revisions or changes to the standard. In other words, the court determined that due to a lack of any assurance to the SSO for the same patent but relating to revisions to the standard, the patent owner is not bound by any FRAND commitment for revisions to the standard. More specifically, *CSIRO* affirmed “while [the patentee] was free to offer licenses on [F]RAND terms as to products practicing these revisions, it was not contractually obligated to do so.” Thus, *CSIRO*

²⁶*Realtek Semiconductor, Corporation v. LSI Corporation*, No. C-12-3451, ECF No. 363 (N.D. Cal., 2014).

²⁷*Ericsson, Inc., et al. v. D-Link Systems, Inc.*, 773 F.3d 1201 (Fed. Cir., 2014).

²⁸*Commonwealth Scientific and Industrial Research Organisation v. Cisco Systems, Inc.*, No. C-11-343, ECF No. 324 (E.D. Tex., 2014).

clarifies that while patentee licensing agreements with SSOs are binding contractual agreements, each SSO may have its own licensing policies outlining FRAND commitments, and these commitments can be specific, or limited to, a specific standard.

However, as will be discussed below, a recent ruling by the Federal Circuit subsequent to *CSIRO* may have rendered moot the focus on whether a FRAND commitment was made.

In *Apple, Inc. et al. v. Motorola, Inc. et al.* (henceforth “*Apple*”)²⁹ the court evaluated a patentee’s FRAND commitments via an agreement with an SSO, and the implications of such an agreement on the ability to obtain injunctive relief. In doing so, the court interpreted the FRAND commitment as an obligation for the SEP owner. In addition, the court further clarified that the FRAND commitment is not a conditioned agreement. In particular, according to *Apple* the patentee’s agreement with the SSO regarding FRAND licensing is an unconditional commitment by the patentee to license the SEP at issue to “anyone willing to pay a FRAND royalty.”

In sum, district courts, regional appellate court, and the Federal Circuit hold consistent views regarding the binding nature of SEP owners’ commitments to SSO’s FRAND licensing policies. Upon making such a commitment to an SSO, the patent owners are bound by the terms of the specific commitment in a contractual sense and obligated to license the SEPs under FRAND terms. In other words, the current case law clarifies that through a patent holder’s (or preceding patent owner’s) agreement with an SSO to license SEPs under FRAND terms, any third-party entity is entitled to access to the patent rights under FRAND terms.

5.2 Additional Requirements for FRAND Analysis

In addition to establishing the binding nature of an SEP owner’s SSO licensing commitment to license under FRAND terms, recent U.S. case law also provides useful insight into the determination of royalty terms that actually fall within the confines of a FRAND requirement. Decisions in recent U.S. cases, including those referenced above, emphasize that analysis of FRAND licensing rates for SEPs can be meaningfully different from the determination of rates for patents outside of a standard. As will be discussed below, U.S. case law emphasizes the need to identify sources of economic value for the patented technology and apportion the value of technology itself from value of the standardization. This extra necessary analytical step is consistent with the guidelines and recommendations previously set forth by the U.S. agencies which are aimed at limiting patent hold-up by owners of SEPs.

As discussed above, since technology adopters can be locked in once a standard is established, SEP holders can engage in patent hold-up and demand high licensing

²⁹*Apple, Inc. et al. v. Motorola, Inc.*, 869 F.Supp.2d 901 (N.D. Ill., 2012).

fees. The high switching costs required to utilize an alternative to the standard technology, or lack of alternatives, may prevent technology adopters from pursuing alternative technologies. However, payment of high licensing fees based on high switching costs and licensees locked into a standard can correspond to SEP owners obtaining royalties based on the value of the standardization process and beyond the value of patented technology alone. For this reason, U.S. courts and U.S. agencies have emphasized the extra necessary apportionment steps when analyzing SEPs and FRAND royalty terms. For example, according to the Federal Circuit, the necessary apportionment includes the following

When dealing with SEPs, there are two special apportionment issues that arise. First, the patented feature must be apportioned from all of the unpatented features reflected in the standard. Second, the patentee's royalty must be premised on the value of the patented feature, not any value added by the standard's adoption of the patented technology. These steps are necessary to ensure that the royalty award is based on the incremental value that the patented *invention* adds to the product, not any value added by the standardization of that technology.³⁰

The first condition is necessary because “[j]ust as we apportion damages for a patent that covers a small part of a device, we must also apportion damages for SEPs that cover only a small part of the standard” since the royalty must be “apportioned to the value of the patented invention [] not the value of the standard as a whole”.³¹ In other words, the first condition, although relating to a standard, is part an apportionment of aggregate product technology value which is a an apportionment step generally in line with a royalty analysis for any type of patent.

However, the second condition is an additional level of apportionment required by the Federal Circuit for technology in a standard where the apportioning extends beyond relative technology value. The second condition is not apportioning from other technology in the standard or the product overall, but rather the isolating of the value of the *adoption* of the standard with the inclusion of the invention in the standard. The regional Ninth Circuit appellate court also recognizes the importance of the step by acknowledging the “very purpose of the [F]RAND agreement is to promote adoption of a standard by decreasing the risk of hold-up”.³² Similarly, in *Innovatio*, the district court emphasizes that “one of the primary purposes of the [F] RAND commitment is to avoid patent hold-up” and a “[F]RAND rate [should] reflect only value of the underlying technology and not the hold-up value of standardization”. The recent U.S. case decisions highlighting the need for the extra step of apportioning the value of the standard adoption from the value of the patented technology as part of the FRAND royalty determination built on the guidelines of the U.S. agencies. In a joint report from the FTC and DOJ, the U.S. agencies stressed that for analyzing royalty terms and hold-up, the analysis should

³⁰*Ericsson, Inc., et al. v. D-Link Systems, Inc.*, 773 F.3d 1201 (Fed. Cir., 2014).

³¹*Id.*

³²*Microsoft Corporation v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir., 2015).

“distinguish between the licensing terms a patent holder could obtain solely based on the merits of its technology and the terms that it could obtain because its technology was included in the standard”.³³ The distinction is relevant for a FRAND analysis because the two are different sources of market power and per the recent U.S. case law royalties consistent with FRAND should only reward the patent holder based on the merits of the technology. Ultimately, “the royalty for SEPs should reflect the approximate value of that technological contribution, not the value of its widespread adoption due to standardization”.³⁴

Recent decisions by U.S. courts and guidelines from U.S. agencies provide some frameworks for apportioning to the value of the technology covered by a SEP, separate from the value of the standardization process and address the potential hold-up problem. First and foremost, an FTC recommendation to courts has been to apply the hypothetical negotiation framework for analyzing royalty rates for patents subject to FRAND.³⁵ In general, the U.S. courts have followed this recommendation. For example, *Microsoft*, *Innovatio*, *CSIRO*, *Realtek*, and *Ericsson* all support the use of a hypothetical negotiation for valuing FRAND royalty rates.

These decisions, along with guidelines from the U.S. agencies outline and endorse practical steps for determining FRAND rates through making certain adjustments to a typical *Georgia-Pacific* hypothetical negotiation patent royalty analysis to better isolate the true value of the SEP technology, separate from the value of the standardization. One method is an adjustment to the hypothetical negotiation timing. Usually, a hypothetical negotiation analysis is based on evaluating a would-be negotiation just prior to first infringement. However, since the ability of SEP owners to obtain royalty rates based on the standardization value is typically tied to high switching costs and/or an industry locked into a particular technology, the FTC recommends setting the hypothetical negotiation date at the early stage of development during the licensee’s design choice phase.³⁶ Note that this may not be the same date as the time of first infringement. Similarly, *Ericsson* and *Innovatio* identify a negotiation date of just prior to the adoption of the standard as a method to follow for removing patent value based on hold-up tied to the standardization value. The rationale for the negotiation date adjustment is that the valuation analysis is done for a time when design choice is still ongoing and the licensee is not yet locked into the standard, nor has it expended significant resources (in the form of sunk costs) based on the industry adoption of a standard. With the new negotiation date, the impact of switching costs on the royalty rate can be minimized and the technology at issue can be evaluated against market alternatives.

The second adjustment to the hypothetical negotiation analysis can be considered an extension of the first adjustment of moving the timing of the negotiation. The FTC’s guideline extends beyond moving the date of the hypothetical

³³U.S. Dep’t of Justice & Fed. Trade Comm’n, *supra* note 6.

³⁴*Ericsson, Inc., et al. v. D-Link Systems, Inc.*, 773 F.3d 1201 (Fed. Cir., 2014).

³⁵Fed. Trade Comm’n, *supra* note 4.

³⁶*Id.*

negotiation date. A part of a FRAND analysis, capping the royalty based on incremental value over alternatives available at the time the standard was defined would support a royalty based on the value of the technology covered by the SEP.³⁷ However, due to complexities with reasonably identifying the benefits of alternatives, approaches based on incremental value above alternatives were rejected by *Innovatio* and the district level opinion affirmed by *Microsoft*. The recent U.S. court decisions did not completely reject an analysis based on incremental value of alternatives as an option for any case; but rather the methods were determined to be inappropriate for the specific analyses at issue. In *Ericsson*, the Federal Circuit acknowledged, although did not fully analyze, alternatives that could have been written into the standard as an input to the royalty analysis to account for potential patent hold-up.

Other methods for identifying FRAND royalties which are supported by recent U.S. court decisions and the U.S. agencies include, for example, those based on established market transactions, which at times may be an input for a hypothetical negotiation analysis. The FRAND royalties for the SEPs can be based on a variety of market transactions. For example, relevant market transactions may take the form of bilateral agreements, patent pool agreements, and even negotiated royalty offers.³⁸ In general, the important requirement for relying upon market comparable transactions is that the royalty analysis must account for any differences in market conditions between the negotiation at issue and the one that is associated with the comparable market transaction.³⁹ Conditions that may warrant the need for adjustments can include timing of agreement, inclusion of cross-licensing in the established agreement, and the number, country, and strength of patents covered by agreements, pending litigation as a factor, and the products at issue. In a FRAND analysis, additional needs for adjustments may become relevant and necessary, including accounting for whether the patents at issue in the established transaction are SEPs and also subject to FRAND, a difference in SSO licensing policy, and/or whether the agreement is a patent pool arrangement. For example, a license agreement for an SEP entered into at the time just prior to the standardization may provide useful insight into the value of the technology separate from the standard value.

As a less straightforward example, established royalty rates for SEPs licensed together with other intellectual property, such as certain non-SEPs, do not necessarily provide FRAND royalty terms for rights to just the SEPs at issue. The

³⁷*Id.*

³⁸*Commonwealth Scientific and Industrial Research Organisation v. Cicso Systems, Inc.*, No. C-11-343, ECF No. 324 (E.D. Tex., 2014); *Microsoft Corporation v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir., 2015).

³⁹*Ericsson, Inc., et al. v. D-Link Systems, Inc.*, 773 F.3d 1201 (Fed. Cir., 2014); *Microsoft Corporation v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir., 2015); U.S. Dep't of Justice & Fed. Trade Comm'n, *supra* note 6.

established rates may be informative as they represent agreements between parties regarding the SEPs. However, the established royalty rates may also reflect value attributed to the other intellectual property; thus, simply basing a FRAND royalty on the established rate without accounting for this extra value can result in an overstated royalty. In other words, the established rate may properly be a function of true FRAND rates for the SEPs, but at the same time may not be limited to a FRAND rate appropriate for the SEPs alone. In addition, the portion of the rate based on the value of the non-SEPs may be included as a result of (i) demand for the additional non-SEP intellectual property, or (ii) hold-up. This is not to say that an established rate for certain SEPs and non-SEPs cannot represent FRAND royalty rates for just the SEPs. It may, in fact, be the case that the non-SEPs contribute trivial value, thereby warranting the appropriateness of the established royalty as a FRAND royalty for just the SEPs. However, this determination should not be presumed without proper consideration and support for the minimal value captured by the non-SEPs. Failure to do so may result in the use of established royalty rates allowing SEP holders to capture monetary value extending beyond that attributed to the technology covered by the SEPs, a clear extension beyond FRAND guidelines established by recent case law and regulatory agencies.

Proper consideration and incorporation of the above methods into the royalty analysis (i.e. hypothetical negotiation timing, royalty capping based on alternative technologies at the standard adoption time, and use of established rates with applicable proper adjustments) can assist with identifying and isolating the value of the standard essential technology separate from the value of adopting the standard and incorporating the patented technology. This apportionment will ultimately work towards ensuring the royalty rate determination satisfies the “fair and reasonable” requirement of FRAND. Coupling this analysis with royalty terms that are made available to any technology adopter and that do not require cross-licensing or the adopter’s licensure of separate non-SEP rights creates a framework for the determination of FRAND royalties.

It is worth noting that following the guidance for a proper FRAND analysis established by recent case law and regulatory agencies does not require a “one size fits all” royalty for an SEP. The extra apportionment required for a FRAND analysis and methods for achieving such apportionment may yield, or at least not be inconsistent with, rates for the same SEP varying by product volume or product type.⁴⁰ The justification for this is simple; the same technology may provide varying value and improvements over technological alternatives depending on the product type.

⁴⁰See, e.g., *Microsoft Corporation v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir., 2015).

6 Impact of FRAND on Patent Royalties

The FRAND royalty analysis requirement of apportioning to the value of the actual technology in isolation from any value of the adoption of the standard including the patented technology can certainly have an impact on the royalty determination. The goal is to limit the value captured by the royalty to the technology itself without capturing hold-up value due to, for example, switching costs and/or the industry locked into a standard. Since switching costs can be very large, licensees may be willing to pay royalties based on a value amount well above that for the patented technology alone for access to technology covered by SEPs, to avoid these costs. This potential premium, which can be attributed to patent hold-up, can be eliminated under a proper FRAND analysis, thereby potentially lowering the royalties patentees may expect to earn from licensing fees.

The main competitive/market concern surrounding SSO collaboration is that patent holders may gain market power through standardization and lead to exclusion of alternative competitive technology. Whether or not this occurs, there is no claim that implementers (i.e. potential licensees) have somehow inappropriately attained market power or any other inappropriate economic rent in their commercial efforts. Ultimately, if not allowing SEP holders to capture the value of the standard means implementers capture the value, this does not suggest there is any loss in economic efficiency. There is no theoretical claim that FRAND commitments are a means by which implementers gain market power or otherwise achieve an unfair advantage. As such, any value captured by implementers is only that dictated by a competitive and efficient market system. That is, implementers should be able to keep whatever gains or rents the competitive market allows them to keep.

On the other hand, if the value of the standardization cannot be captured by SEP holders, this does not necessarily translate into the value transferred to implementers. If the standardization itself has value, the objective of FRAND is to prevent SEP holders from capturing that value, and the idea that implementers capture it, suggests the downstream implementer market is somehow concentrated or monopolized. This is contrary to implementer markets generally, where substantial and ever increasing competition usually exists. In other words, it should not be expected that implementers will not compete-away (pass through) any standard-based value. Such a claim would require evidence of the lack of competition, entry barriers, etc. Furthermore, a concentrated downstream standard implementer market is contrary to an intended goal of standardization and FRAND terms, namely widespread adoption.⁴¹ The combination of FRAND terms and increasing competition between implementers of standard technology can effectively yield a transfer of the value of standardization to the public domain (e.g. consumers).

Given that proper FRAND analysis accounts for alternative technologies, for example at the time of the adoption of the standard technology, the nature of the

⁴¹*Id.*

alternative technologies would likely have an impact on the patent value. The lesser the improvement of the technology covered by the SEP over the alternatively available technology, the smaller the royalty rate that is warranted. Therefore, if an SEP really had no viable alternative technology, then a FRAND rate may not be materially different than a rate reflecting all the value the SEP owner could extract (absent any FRAND requirement). It is when there were alternatives to an SEP, but the standard adoption rendered them irrelevant, or their use not reasonably feasible due to switching costs, that it would be expected that the FRAND rate will differ from that which the market will bear. In other words, application of the above FRAND requirements does not necessarily guarantee a “low” rate, nor should it. What should happen is that certain items are factored in, and others factored out of the royalty rate. Proper FRAND determination can still yield royalty fees that result in material impact on implementers’ costs, and potentially consumer prices. For example, if there is a lack of alternatives and the improvement of the technology covered by the SEP is highly valued by consumers, market-based economics may justify increased implementer costs, supported by higher product prices.

7 Federal Circuit Ruling on *CSIRO* and the Relevance of FRAND Commitments

In the December 2015 ruling by the Federal Circuit regarding *CSIRO*, the appellate court apparently provided further clarification regarding the additional apportionment required for valuing all SEPs, as opposed to only those encumbered by FRAND obligations. The Federal Circuit seemingly eliminated previous ambiguity by stating “royalties for SEPs generally—and not only those subject to a [F]RAND commitment—must not include any value flowing to the patent from the standard’s adoption”.⁴²

8 Conclusion

The answer to the question of what impact, if any, a FRAND requirement has on patent royalties may depend on who you ask. What is clear, however, is that recent decisions from U.S. courts and guidelines established by U.S. agencies emphasize that a proper FRAND analysis for SEPs must be based on the value of the patented technology and not the value of the standard adoption. Proper reliance upon established market transactions and adjustments to a hypothetical negotiation analysis can provide realistic effective means for determining appropriate FRAND

⁴²*Commonwealth Scientific and Industrial Research Organisation v. Cicso Systems, Inc.*, 809 F.3d 1295 (Fed. Cir., 2015).

royalty terms. The guidance from the U.S. agencies can be helpful in providing some consistency in FRAND analyses given the oftentimes vague language of SSO licensing policies. Despite the vague language, practitioners should consider SSO licensing policies to be binding. Between the binding nature of the SSO commitments and the focus of eliminating standard adoption value from FRAND royalty terms, the cost for access to standard essential intellectual property rights should be kept within reasonable reach. Additional clarity from U.S. courts and/or U.S. agencies may or may not increase the consistency of FRAND determinations. However, keeping these requirements and guidelines in place should remain beneficial given the collusive nature of SSOs. This is not to say that the coordination amongst competitors through SSO activities is necessarily a bad thing. Networks effects made possible through product interoperability based on standards published by SSOs can increase consumer product value, promote manufacturing efficiencies, and stimulate international trade.

The common justification for intellectual property law is that inventions must be properly protected to allow inventors to be rewarded for inventions, thereby stimulating innovation. However, promoting inventions and innovation does not justify, nor does it require, rewarding patent owners beyond the value of the technology the intellectual property is meant to protect. Allowing patent holders to extract the value of the network effect created from a standard rewards the patentees based on value beyond the patented technology. Without FRAND terms the network effects value will flow to SEP holders. Proper FRAND terms that keep SEP holders from extracting the value of network effects can still leave the efficient level of return for innovators—that based on the technology itself. In other words, extracting the value of network effects by SEP holders is not necessary to appropriately motivate innovation. Any value of the standardization resulting from collaborative efforts during the SSO process may ultimately be available in the public domain.

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