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**FRAND Licensing Obligation Framework in the EU: Now and After
the IP Action Plan**

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I hereby declare that I have compiled the thesis independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading.

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(date)

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ABSTRACT

Standard Essential Patents (SEPs) are patents that cover critical technological inventions deemed necessary for the implementation of a specific industry standard, which ensures the compatibility and interoperability among technologies in various industries. However, the licensing of SEPs often faces challenges such as patent hold-up and hold-out due to the inherent power imbalance between patent holders and implementers. To reduce the occurrence of these issues, Fair, Reasonable, and Non-Discriminatory (FRAND) commitments have been introduced, requiring SEP holders to grant licenses on equitable, economically viable, and non-discriminatory terms. The importance of FRAND licensing has increased with the progressive development of technology patents. However, FRAND licensing obligations in the European Union (EU), consisting of only fragmented documents such as SSO recommendations and definitions given in partial case law, have led to a lack of a clear framework of obligations for SEP holders and implementers, resulting in reduced effectiveness in addressing hold-up and hold-out issues.

This thesis examines the existing obligations for SEP holders and implementers within the EU's FRAND licensing framework, the unresolved issues in the current obligation framework, and potential applicability of strategies employed by other jurisdictions to address these ambiguities. The study also assesses the IP Action Plan (COM (2020) 760) and its effectiveness in addressing the current framework's uncertainties, with the ultimate goal of advancing a more concrete FRAND licensing obligation framework. By exploring these aspects, the research aims to contribute to mitigating the risks associated with patent hold-up and hold-out and fostering innovation and competition within the patent technology sector and other industries reliant on standardized technologies and data transfers.

ABBREVIATIONS

CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
CJEU	Court of Justice of the European Union
EC	European Commission
EPC	European Patent Convention
EU	European Union
FRAND	Fair, Reasonable, and Non-Discriminatory
IoT	Internet of Things
IP	Intellectual Property
SEP	Standard Essential Patent
SME	Small and Medium-Sized Enterprises
SSO	Standard Setting Organization
TFEU	Treaty on the Functioning of the European Union
UK	United Kingdom
US	United States

1. INTRODUCTION

Standard Essential Patents (SEPs) are patents that protect key technological inventions which are necessary for the implementation of a specific industry standard. These patents facilitate compatibility and interoperability among different technologies, allowing various products and services to function seamlessly together. Due to their essential nature, SEPs hold a unique position within the market, which can lead to challenges in licensing.¹

The licensing of SEPs can give rise to two major issues: patent hold-up, where a patent holder exploits their dominant position by demanding excessive royalties or imposing unfavorable terms on licensees; and patent hold-out, where potential licensees refuse to enter into a license agreement or engage in lengthy negotiations to delay the licensing process.² These issues stem from the inherent power imbalance between SEP holders and those seeking to implement the patented technology.

To address these challenges and promote a more balanced licensing environment, the granting of SEP licenses in a fair, reasonable and non-discriminatory (FRAND) licensing was utilized.³ Originating from a policy of standard-setting organizations (SSOs) to require patent holders to commit to licensing on FRAND terms, FRAND licensing was developed by SSOs to encourage innovation and competition among SEP holders and implementers while preventing anti-trust practices.⁴ These commitments require SEP holders to grant licenses to all related parties on fair, reasonable, and non-discriminatory terms. SSO documents and scholars argue that by adhering to the FRAND principle,

¹ Tyagi, A., & Chopra, S. (2017). Standard Essential Patents (SEP's)-Issues & Challenges in Developing Economies. *Journal of Intellectual Property Rights*, 22, 121-135.

² Contreras, J. L. (2019). Global Rate Setting: A Solution for Standards-Essential Patents. *Wash. L. Rev.*, 94, 701.

³ Picht, P. G. (2016). The ECJ rules on standard-essential patents: thoughts and issues post-Huawei. *ECLR: European Competition Law Review*, 37(9), 365-375.

⁴ Wright, J. D. (2013). SSOs, FRAND, and Antitrust: Lessons from the Economics of Incomplete Contracts. *Geo. Mason L. Rev.*, 21, 791.

the risks associated with patent hold-ups and hold-outs can be effectively reduced, thereby creating a more competitive and innovative marketplace for SEP holders and implementers.⁵

However, the lack of a relatively specific framework for the obligations of SEP holders and enforcers has challenged the enforcement of FRAND licenses, leading to a reduction in the effectiveness of FRAND in addressing patent hold-up and rejection issues. In attempting to address these issues, recent CJEU cases, such as *Huawei v ZTE*, have introduced a framework for the obligations of FRAND licenses in negotiating and applying for injunctions, and this framework has been refined by subsequent case law.⁶

The evidence collectively indicates that a well-defined FRAND licensing framework would be beneficial. The recent Digital Market Act in the EU has adopted the FRAND concept for data transfers, highlighting that a well-defined FRAND framework could extend beyond patent technologies industries, and encompass other industries.⁷

In order to improve the current FRAND licensing framework, it is not sufficient to capture case law and policy from jurisdictions alone, and due to the globalization of technology commerce, it is necessary to study FRAND licensing practices in jurisdictions outside the EU. The legislative environment, technological developments and case law in both the US and China have been greatly enriched in recent years by the continued growth of SEP holders and implementers in their jurisdictions.⁸ As a result, they have established a relatively specific framework of administratively issued FRAND licensing obligations to which SEP stakeholders can refer. In contrast, the EU does not have a comprehensive and coherent FRAND licensing framework until June 2023. Existing FRAND obligations in the EU rely primarily on CJEU decisions and the 2017 Communication from the European Commission to the European Parliament on the EU approach to standard essential

⁵ Geradin, D., & Rato, M. (2007). Can standard-setting lead to exploitative abuse? A dissonant view on patent hold-up, royalty stacking and the meaning of FRAND. *European Competition Journal*, 3(1), 101-161.

⁶ Mesel, N. D. (2018). Interpreting the 'FRAND' in FRAND Licensing: Licensing and Competition Law Ramifications of the 2017 *Unwired Planet v Huawei* UK High Court Judgements. *Multi-dimensional Approaches Towards New Technology: Insights on Innovation, Patents and Competition*, 119-135.

⁷ Habich, E. (2022). FRAND Access to Data: Perspectives from the FRAND Licensing of Standard-Essential Patents for the Data Act Proposal and the Digital Markets Act. *IIC-International Review of Intellectual Property and Competition Law*, 53(9), 1343-1373.

⁸ Gabison, G. A. (2018). A Two-Dimensional Approach to Non-Discriminatory Terms in FRAND Licensing Agreements. *BUJ Sci. & Tech. L.*, 24, 100.

patents (EU Approach).⁹ On April 27, 2023, the European Commission introduced Proposal for a Regulation on Standard Essential Patents, which will be implemented in June 2023.¹⁰ This thesis only discusses the EU framework for FRAND licensing prior to the proposal and its areas of clarity and slightly refers to those parts of the proposal that provide information on those areas of clarity.

As technology evolves, such as 5G, 6G and the introduction of highly intelligent IoT and AI products, the increase in the variety of SEPs may exacerbate the challenges associated with FRAND licensing. The introduction of an effective and balanced FRAND licensing framework for SEP holders and implementers is an urgent priority. Therefore, in 2020, the EU launched its IP Action Plan (COM(2020) 760). The purpose of this thesis is to explore the existing obligations of SEP holders and implementers within the EU with respect to FRAND licensing in order to summarize the ambiguities that exist in the current framework of obligations. The strategies adopted by other jurisdictions to address these ambiguities will then be analyzed to understand their global prevalence and potential applicability within the EU context. In addition, this study will look at whether these ambiguities are addressed in the recently published IP Action Plan (COM (2020) 760), with the ultimate goal of advancing a more specific framework for FRAND licensing obligations. as well as potentially help mitigate the risks associated with patent hold-ups and hold-outs. To achieve this, the following issues will be explored:

- 1) What issues are academically recognized as needing to be addressed in FRAND licensing? And what approaches have been proposed to address this issue? What are some approaches or issues that have not yet been discussed?
- 2) How does the current EU legal framework govern FRAND licensing? And how are they addressing the obligations in FRAND licensing within the EU, and what unresolved issues remain from the relevant case law?
- 3) What strategies have been employed by other countries to build a FRAND licensing obligation framework? In cases where the context is similar to that of the European Union, what potential approaches could be adopted by the EU to address these issues?

⁹ European Commission. (2017). Setting out the EU approach to Standard Essential Patents. Retrieved 30 March 2023, from <https://ec.europa.eu/docsroom/documents/26583/attachments/1/translations/en/renditions/native>

¹⁰ European Commission. (2023). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on standard essential patents and amending Regulation (EU)2017/1001. Retrieved from https://single-market-economy.ec.europa.eu/system/files/2023-04/COM_2023_232_1_EN_ACT_part1_v13.pdf.

- 4) To what extent does the IP Action Plan address the unclarity of the FRAND licensing framework? And what are the actions taken under this plan accordingly, and how might they influence the FRAND licensing framework?

The remaining of this thesis is structured as follows:

- 1) A literature review of scholarly articles to identify the major controversies surrounding FRAND licensing, and the research gap regarding current FRAND licensing obligation framework in the EU.
- 2) A review of the existing legal framework governing FRAND licensing within the EU.
- 3) A comparative analysis of legislation, policy, and case law from countries with similar contexts to the European Union, namely, US and China.
- 4) An assessment of the IP Action Plan's contributions, taking into account actions taken so far and their potential impact on the SEP holder and implementer obligations in current EU FRAND framework.

2. LITERATURE REVIEW

This literature review will examine previous research on SEP licensing in the context of FRAND and the general perception of getting FRAND licensing controversies. By outlining the key findings, the review draws the current consensus of the academic community on the FRAND licensing discussion, as well as a portion of the FRAND licensing framework discussion topics that have not yet been mentioned.

The controversy over SEP licensing in the context of FRAND has been topical for research in the past few years. Research on this complex area of law from around the globe, including the EU, has provided increasing clarity on this topic. The results of research on FRAND licensing in the EU will be evaluated and discussed in this section. Key research contributions in this area include:

First, early in the introduction of the FRAND concept, some of the studies explored the principles and objectives of FRAND licensing, and a considerable number of them emphasized the importance of balancing the interests of SEP holders and implementers.¹¹ These studies often emphasize the role of FRAND commitments in preventing patent hold-ups and hold-outs, fostering innovation and promoting competition in the market.¹² At the same time, some researches are skeptical about the FRAND commitment, the main concern is the inapplicability of FRAND in the context of free software.¹³ However, the prevailing idea is that FRAND can be effective in helping to make licensing

¹¹ Henningsson, K. (2016). Injunctions for standard essential patents under FRAND commitment: a balanced, royalty-oriented approach. *IIC-International Review of Intellectual Property and Competition Law*, 47(4), 438-469; TANG, Y. (2019). SEP Holders' Injunctive Relief under Antimonopoly Law. *Available at SSRN* 3443556; Spulber, D. F. (2020). Licensing standard essential patents with FRAND commitments: preparing for 5G mobile telecommunications. *Colo. Tech. LJ*, 18, 79.

¹² Geradin, D., & Rato, M. (2007). Can standard-setting lead to exploitative abuse? A dissonant view on patent hold-up, royalty stacking and the meaning of FRAND. *European Competition Journal*, 3(1), 101-161; Ménière, Y., & Thumm, N. (2015). Fair, reasonable and non-discriminatory (FRAND) licensing terms. *JRC Science and Policy Report, European Commission*.

¹³ Kesan, J. P. (2011). The Fallacy of OSS Discrimination by FRAND Licensing: An Empirical Analysis. *Illinois Public Law Research Paper*, (10-14).

of SEPs more efficient and less likely to dispute, but that the clarity of the FRAND promise needs to be refined.¹⁴

After the development of the FRAND licensing concept, corresponding case law has emerged. Thus, the researchers obtained the legal framework for FRAND licensing in the EU by exploring the key court decisions and regulatory interventions currently available.¹⁵ Among other things, scholars have concluded that most FRAND licensing litigation and disputes arise from patent hold-out and hold-up.¹⁶ *Huawei v ZTE* and the cases following this have had a significant impact on the development of FRAND licensing obligations in the EU, providing guidance on overall negotiation practices and the implementation of the injunction.¹⁷ However, research regarding this topic is not a one-off discussion, but rather an ongoing analysis of recent court decisions legislations, and policies to achieve a most FRNAD SEP licensing framework at the moment.

By examining the FRAND licensing framework, ongoing research has led to a gradual clarification of the reasons for and ways to prevent SEP hold-ups and hold-outs, with the central theme being the lack of clarity surrounding the obligations of SEP holders and enforcers.¹⁸ This ambiguity is thought to make FRAND commitments less effective in preventing patent hold-ups and hold-outs. Critics argue that the lack of clear guidelines as to what constitutes a FRAND offer, the appropriate royalty rate, and the negotiation process leaves room for opportunistic behavior and protracted legal disputes.¹⁹ There is also a large body of literature exploring various approaches to determining FRAND royalties, including comparable, top-down, and hybrid models. Researchers have emphasized

¹⁴ Baron, J., Pentheroudakis, C., & Thumm, N. (2016). FRAND licensing in theory and in practice: proposal for a common framework. *Antitrust Chronicle*, 3(1).

¹⁵ Heim, M., & Nikolic, I. (2019). A FRAND regime for dominant digital platforms. *J. Intell. Prop. Info. Tech. & Elec. Com. L.*, 10, 38; Borghetti, J. S., Nikolic, I., & Petit, N. (2021). FRAND licensing levels under EU law. *European Competition Journal*, 17(2), 205-268.

¹⁶ Li, B. C. (2016). The Global Convergence of FRAND Licensing Practices: Towards Interoperable Legal Standards. *Berkeley Tech. LJ*, 31, 429.

¹⁷ Galli, N. (2016). The FRAND Defense Up to Huawei/ZTE. *Bocconi Legal Papers*, 7, 155; Picht, P. G. (2016). The ECJ rules on standard-essential patents: thoughts and issues post-Huawei. *ECLR: European Competition Law Review*, 37(9), 365-375; Lawrance, S., Brooks, F., & Batsford, J. (2020). *Unwired Planet v Huawei, Conversant v Huawei & ZTE: UK Supreme Court confirms Global FRAND licensing*. *Journal of European Competition Law & Practice*, 11(9), 516-523.

¹⁸ Smith, B., & Mourkas, D. (2015). High Court Decision in *Arriva v Luton Airport*: Does a Dominant Undertaking Need to Be Present Downstream and/or to Gain Some Economic Benefit for a Finding of Abuse?. *Competition LJ*, 14, 79.

¹⁹ Baron, J., Pentheroudakis, C., & Thumm, N. (2016). FRAND licensing in theory and in practice: proposal for a common framework. *Antitrust Chronicle*, 3(1).

the importance of considering factors such as the value of the patented technology, the contribution of the SEP to the standard, and the cumulative impact of the royalty stacking when calculating FRAND royalty rates.²⁰

Another commonly cited issue in the literature is the inconsistency in FRAND licensing practices across jurisdictions.²¹ Researchers have noted that differences in legal frameworks, enforcement mechanisms, and court decisions can create challenges for SEP holders and implementers operating in the global market.²² However, in the context of inconsistent FRAND licensing obligations, there are no articles yet that discuss what obligations are more prevalent worldwide, posing risks to SEP holders and implementers who need to grant licenses.

While the existing literature on FRAND licensing and SEPs provides valuable insights, and to be sure there is much literature examining the obligations of FRAND licensing, there are still research gaps that warrant further investigation, considering the ruling of major disputes regarding current FRAND obligations in other jurisdictions approach and the recent IP Action Plan. Given the IP Action Plan's emphasis on promoting a balanced and effective SEP licensing environment, it is critical to examine how the proposed reforms affect FRAND licensing practices and obligations.

²⁰ Lawrance, S., Brooks, F., & Batsford, J. (2020). Unwired Planet v Huawei, Conversant v Huawei & ZTE: UK Supreme Court confirms Global FRAND licensing. *Journal of European Competition Law & Practice*, 11(9), 516-523; Patra, S. P., & Raju, K. D. (2022). SEPs, FRAND and its impact: a comparative study of recent case laws in the USA, EU, and India. *International Journal of Intellectual Property Management*, 12(3), 403-428.

²¹ Layne-Farrar, A., & Wong-Ervin, K. W. (2017). Methodologies for calculating FRAND damages: an economic and comparative analysis of the case law from China, the European Union, India, and the United States. *Jindal Global Law Review*, 8, 127-160; Li, Y., & Lee, N. (2016). European standards in Chinese courts—a case of SEP and FRAND disputes in China. In *Governance of Intellectual Property Rights in China and Europe* (pp. 266-286). Edward Elgar Publishing.

²² Gabison, G. A. (2019). Worldwide FRAND Licensing Standard. *Am. U. Bus. L. Rev.*, 8, 139.

3. ASSESSING THE EU LEGAL FRAMEWORK ON FRAND LICENSING

3.1 FRAND Licensing in the EU

In the EU, the legal basis for FRAND licensing comes primarily from legislation, case law and policy. These legal foundations are the ones primarily used in FRAND licensing litigation.²³ In addition to this, the EU's FRAND framework has also been combined and developed by judicial decisions and SSO policy, which together create a complex set of obligations for SEP holders and implementers.

To provide a detailed and nuanced understanding of the EU legal framework for FRAND licensing, this section examines the relevant EU law and the national laws of two EU Member States: Germany and Estonia. The choice of these two countries is deliberate and aims to highlight the different approaches to FRAND licensing within the EU. Not only has Germany long been an influential player in the field of IP law, but German courts have also decided most of the EU-wide cases related to FRAND licensing and have been instrumental in improving the EU legal framework for SEP licensing.²⁴ Estonia, on the other hand, is an emerging center for start-ups and innovative technologies, and as a result of the country's focus on technology and the adoption of many policies that encourage the development of technology companies, an increasing number of international companies have established subsidiaries in the country, including Ericsson.

Over the years, the development of the FRAND licensing framework for SEPs in the EU has been driven primarily by case law from various European courts. The most notable case law on FRAND licensing is the CJEU decision in *Huawei v ZTE*. This case established a framework for SEP holders

²³ Tsang, K. F., & Lee, J. A. (2019). Unfriendly Choice of Law in FRAND. *Va. J. Int'l L.*, 59, 220.

²⁴ Tsilikas, H. (2020). Emerging patterns in the judicial determination of FRAND rates: comparable agreements and the top-down approach for FRAND royalties determination. *GRUR International*, 69(9), 885-892.

and implementers to negotiate FRAND licenses in good faith and to determine injunctive relief for infringements of FRAND-based SEPs, thereby indirectly providing a framework for SEP holders and implementers to follow in line with FRAND commercial practice, as well as a framework to populate subsequent case law.²⁵

Since *Huawei v ZTE*, national courts in the EU have continued to contribute to the framework of FRAND licensing obligations based on the framework established by the CJEU in the *Huawei v ZTE*. Through these cases, the CJEU has progressively developed and refined the FRAND concept, helping SEP holders and implementers to clarify the key issues to be assessed during the negotiation phase: determining the parties' obligations when negotiate SEP license agreements in FRAND terms. In addition, SSO policies have played a key role in shaping the FRAND framework, as the SSOs are the first policy issuer a patent holder approaches before a patent becomes a SEP. While SSO policies do not constitute a legislation nor a legal advice²⁶, they are influential in shaping the behavior of market participants. This section aims to provide an in-depth assessment of the EU legal framework for FRAND licensing, with a particular focus on the definitions and obligations that form the core of the FRAND commitment.

3.2 EU Law

The contract law in the EU, including Principles of European Contract Law (PECL) and national contract law, encompass general principles that are applicable to FRAND licensing agreements. The Article 1:201 of PECL sets forth general principles during the contract concluding phase, namely good faith and fair dealing, which necessitate that parties act in good faith during negotiation, formation, and performance of their contractual obligations. In the context of FRAND licensing, this entails disclosing pertinent patent information, offering reasonable licensing terms, and engaging in genuine negotiations—embodying reasonableness and non-discrimination in FRAND. Another fundamental principle of PECL is the obligation to perform according to a common standard of reasonableness,

²⁵ Dornis, T. W. (2020). Standard-essential patents and FRAND licensing—At the crossroads of economic theory and legal practice. *Journal of European Competition Law & Practice*, 11(10), 575-591.

²⁶ CEN-CENELEC. (2019). CEN Workshop Agreement 95000: Core Principles and Approaches for Licensing of Standard Essential Patents. Retrieved from <https://www.cencenelec.eu/media/CEN-CENELEC/CWAs/ICT/cwa95000.pdf>.

signifying that parties should offer licensing terms in line with industry standards and practices within the scope of a FRAND license. Similarly, the German Civil Code (BGB) incorporates general contractual principles applicable to FRAND licensing agreements, such as the Treu und Glauben (allegiance and faith) principle stipulated in the Article 242, which parallels the PECL's good faith requirement and mandates that parties act in good faith during negotiation and performance of the contract. Furthermore, the Störung der Geschäftsgrundlage (change of circumstances) doctrine in the Article 313 of the BGB permits contract adjustments or termination if significant changes occur in the contract's underlying assumptions. In the context of FRAND, this doctrine could be relevant if changes arise in the patent's essentiality or industry practices affecting licensing terms. Likewise, the Estonian Obligations Act includes general principles related to FRAND licensing agreements, such as the principle of good faith in the Article 6. As with the PECL and German contract law, Estonian law requires parties to act in good faith during negotiation, formation, and performance of contractual obligations, which can be applied to FRAND licenses.

The European Patent Convention (EPC) indirectly addresses FRAND licensing obligations for SEP holders and implementers, predominantly through its provisions on patentability and enforcement. Article 52 of the EPC delineates patentability conditions, emphasizing novelty, inventiveness, and industrial applicability. These criteria establish the foundation for determining which patents qualify as SEPs, thereby setting the context for FRAND licensing negotiations. The legal remedies available to patentees following infringement are set out in EU national patent laws, which are the main part of the reference for various SEP licensing actions. Section 139 of the German Patent Law provides for legal remedies available to the patentee following patent infringement including injunctive relief, destruction of infringing goods, provision of accounts, damages, recall and eventual removal of the infringing product from the channels of commerce. Many scholars believe that the German courts provide a favorable forum for patentees²⁷, because the issue of infringement of asserted patents in German patent litigation is dealt with separately from the issue of validity in separate proceedings, as well as the fact that German courts deal with a large number of infringement cases resulting in reduced trial times and increased predictability.²⁸ Similarly, Section 53 of the Estonian Patent Act also

²⁷ Geradin, D., & Katsifis, D. (2022). The Use and Abuse of Anti-Suit Injunctions in SEP Litigation: Is There a Way Forward?. *GRUR International*, 71(7), 603-617.

²⁸ Hess, F. K. (2022). US anti - suit injunctions and German anti - anti - suit injunctions in SEP disputes. *The Journal of World Intellectual Property*, 25(2), 536-555.

provides for legal remedies available to the patentee following infringement, which include compensation for damage caused by infringing use, as well as injunctive relief.

As stipulated in Article 102 of the TFEU and Section 19 of the German Act Against Restraints of Competition (GWB), abuse of dominance serves as a legal foundation for the FRAND litigations. The abuse of dominance arises when the SEP holder occupies a dominant position within the relevant antitrust market and either refuses to grant a license under FRAND terms or seeks injunctive relief without offering a license. However, given the indispensable nature of the SEP, which cannot be circumvented or supplanted by alternative solutions, it is highly probable that the SEP holder is considered to be in a dominant position. At the same time, Article 16 of the Estonian Competition Act deals with abuse of dominant position, which may be applied if the SEP holder with a dominant market position engages in anti-competitive behavior such as discriminatory licensing practices, excessive royalty rates or refusal to license. But due to the lack of domestic case law, it is difficult to identify trends and preferences regarding FRAND licensing obligations in Estonia. Therefore, if a FRAND licensing case arises, Estonian courts may refer to the case law of the CJEU or other intra-EU courts.

3.3 The Principles Established in Huawei v ZTE

Given the unique characteristics of SEPs, implementers often utilize them before obtaining licenses. Consequently, when an SEP holder discovers that an implementer requires a license, they may initiate an action for an injunction. The 2009 German Federal Court case, Orange Book standard, first addressed the issue of granting injunctions. The ruling established that, in extraordinary circumstances, alleged patent infringers could invoke competition law-based defenses to thwart injunctions. Such defenses include 1) unconditionally offering to enter into a licensing agreement with the SEP holder and 2) The terms of the agreement require the implementer to behave as if it had a license, for example, by paying royalties to an escrow account and waiving the right to challenge the patent.²⁹ Nonetheless, European Commission (EC) in related proceedings in several EU Member States, concluding that

²⁹ Judgment of 6 May 2009, Federal Court of Justice of Germany, Case KZR 39/06.

whether the SEP holder had abused its dominant position by seeking an injunction is depending on the infringer's willingness to negotiate a license.³⁰

The FRAND licensing framework was further elucidated following the 2015 *Huawei v ZTE* case. Huawei was granted a German telecommunications patent based on a European patent (EP 2 090 050 B 1) and informed the European Telecommunications Standards Institute (ETSI) that the patent was essential to the Long Term Evolution (LTE) standard, committing to license it to third parties under FRAND terms.³¹ Although the parties discussed infringement and the possibility of a FRAND-based license, no agreement was reached, leading Huawei initiated infringement proceedings in the District Court of Düsseldorf against ZTE, which sold LTE-based telecommunications products in Germany (and thus utilized Huawei's patents) without paying royalties.³² And seeking an injunction against infringement, product recall, account provision, and damages award.³³

The Düsseldorf Regional Court determined that applying the Orange Book standard to the Huawei-ZTE dispute would result in granting the requested injunction.³⁴ However, adopting the approach according to the EC could potentially dismiss Huawei's injunction action, contingent upon what qualifies as a "willing licensee," based on Huawei's competition law defense under Article 102 TFEU.³⁵ Therefore, the Düsseldorf Regional Court referred several questions to the CJEU for clarification on the conditions under which a dominant entity may initiate an infringement action for dominant position abuse.³⁶

In November 2014, the Advocate General delivered an opinion in the CJEU proceedings, concluding that an SEP holder must notify the infringer of the infringement and furnish a written license offer under FRAND terms before pursuing an injunction.³⁷ This position was subsequently endorsed and adopted by the CJEU. First, the CJEU differentiated between Huawei's sought remedies, namely an

³⁰ Judgment of the Court of 16 July 2015, Court of Justice of the European Union, Case C-170/13, *Huawei Technologies Co. Ltd v ZTE Corp., ZTE Deutschland GmbH*, para. 34.

³¹ *Ibid.*, para. 22.

³² *Ibid.*, para. 25.

³³ *Ibid.*, para. 27.

³⁴ *Ibid.*, para. 30.

³⁵ *Ibid.*, para. 34.

³⁶ *Ibid.*, para. 29.

³⁷ Wathelet, M. (2014). Opinion of Advocate General Wathelet. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62013CC0170>.

injunction or product recall, and the provision of accounts and damages. Since seeking accounts and damages did not directly impact the market presence of compliant products manufactured by competitors, such requests did not contravene Article 102 TFEU.³⁸ Second, the CJEU determined that an SEP holder who has made a FRAND commitment to a standardization body and seeks an injunction or product recall would not be abusing its dominant position if certain conditions are met.³⁹ These conditions include alerting the alleged infringer of the infringement by identifying the relevant patent and specifying the infringement, and engaging with the infringer who has expressed a willingness to enter a FRAND-based license agreement.⁴⁰ The infringer is not obligated to present a specific written license offer detailing the royalty and its calculation method. However, if the infringer continues to use the patent and does not diligently respond to the offer in good faith and in line with established commercial practices, it may be deemed non-compliant with objective factors and potentially engaging in delaying tactics. Third, if the infringer deems the proposed terms incompatible with the patent holder's FRAND commitment and rejects the SEP holder's license offer, they must submit a specific written counteroffer concerning FRAND terms.⁴¹ If the counteroffer is refused and the infringer has utilized the relevant SEP without a license, they are required to provide suitable security in accordance with accepted commercial practices, such as offering a bank guarantee or depositing the necessary funds. The security calculation must encompass various factors, including "the number of past uses of the SEP," and the alleged infringer must be capable of accounting for these uses.⁴² Lastly, if the parties fail to reach an agreement after the infringer's counteroffer, the CJEU stipulates that they may jointly request an independent third party to promptly determine royalty amounts.⁴³ Furthermore, the CJEU clarified that it is permissible for an infringer to contest the validity, necessity, and actual use of the SEP holder's patent concurrently with license negotiations.⁴⁴

The ECJ's ruling in *Huawei v ZTE* establishes a procedural framework that balances the interests of SEP holders seeking injunctive relief and alleged infringers. The decision effectively implements the

³⁸ Judgment of the Court of 16 July 2015, Court of Justice of the European Union, Case C-170/13, *Huawei Technologies Co. Ltd v ZTE Corp., ZTE Deutschland GmbH*, para. 47.

³⁹ *Ibid.*, para. 46.

⁴⁰ *Ibid.*, para. 63.

⁴¹ *Ibid.*, para. 66.

⁴² *Ibid.*, para. 67.

⁴³ *Ibid.*, para. 67.

⁴⁴ *Ibid.*, para. 69.

EC's concept of safe harbors, further constraining accused infringers' conduct in response to FRAND proposals from SEP holders.

3.4 Clarities Provided: Post Huawei Cases

The *Huawei v ZTE* decision clarifies the availability of injunctive relief in European law for infringements of FRAND-based SEPs. At the same time, the Court provided a legal framework covering the period from the sending of infringement notices, the determination of intent, the issuance of offers and counteroffer, and finally, the confirmation of agreements or the provision of security. The framework focuses on the conduct of the parties in the negotiations, considers the willingness of both parties and thus sets out some of the obligations that the negotiating parties need to comply with, through which the compliance of the party's conduct with FRAND can be judged. Since the *Huawei v ZTE* decision was issued in 2015, national courts in the EU have been steadily exploring the scope of these obligations. The four steps set out in the *Huawei* case are now being progressively refined by national case law, including:

- 1) the form and content of infringement notices for SEP holders;
- 2) how the "will" referred to in *Huawei* should be determined;
- 3) what should be included in the SEP holder's offer in order to be deemed to meet the FRAND requirements; and
- 4) the obligation to respond to offers and counteroffers.

This section will explore how the courts within the EU have defined these obligations and what obligations have been added to make negotiations more FRAND compliant in relation to these steps and corresponding obligations.

3.4.1 Infringement Notice

The *Huawei* case suggested that the SEP holder needed to mention the infringed patent and the manner in which the implementor had done so in a notice to the implementor, many details of which have been refined by subsequent case law, mainly by German courts, with some clarification given by

courts in some EU countries such as France, Italy and the Netherlands. As well as a few pre-Brexit United Kingdom (UK) court decisions are the main source of reference. Firstly, a notice of infringement is a mandatory condition that must be fulfilled by the SEP holder before an infringement action can be brought against the infringer. The exact content of such a notice depends on all the circumstances of the case.

Firstly, if the SEP holder has already explicitly indicated their adherence to FRAND licensing commitments, the notice need not contain the original written FRAND statement or evidence of a FRAND declaration during the standard-setting process.⁴⁵ Secondly, the notice must encompass specific details, such as: (1) identification of the infringed patent, including its number⁴⁶; (2) notification that the patent has been declared a standard-essential patent⁴⁷; (3) mention of the relevant standard⁴⁸; (4) information on the infringer's use of the patented technology⁴⁹; and (5) an outline of the technical features in the disputed implementation scheme that utilize the patent.⁵⁰ The degree of detail is contingent upon the case-specific circumstances, particularly the infringer's technical expertise (or external expertise acquired through reasonable efforts). Nonetheless, this information is not subject to the same level of verification as facts presented with claims in patent litigation.⁵¹ Thirdly, in *Wiko v Sisvel*, the SEP's application date was mandated to be included in the infringement notice. Furthermore, the judgment also added that the notice should include instructions for the use of the device embodying the patents and the consequences of the unauthorized use, as well as providing the infringer with information about its choice to challenge the validity of the information transmitted and the patents at issue.⁵² Finally, claim charts are considered an "adequate mean" for an infringement notice, although they are not deemed obligatory.⁵³

⁴⁵ Judgment of 8 January 2016, Regional Court (Landgericht) Mannheim, Case 7 O 96/14, *Pioneer v Acer.*, para. 109.

⁴⁶ Judgment of 31 March 2016, Regional Court (Landgericht) of Düsseldorf, Case 4a O 126/14, *Saint Lawrence v Vodafone.*, para. 193.

⁴⁷ Judgment of 26 January 2016, Regional Court (Landgericht) Mannheim, Case 7 O 66/15, *NTT DoCoMo v HTC.*, para. 65-69.

⁴⁸ *Ibid.*, para. 65-69.

⁴⁹ *Ibid.*, para. 65-69.

⁵⁰ *Ibid.*, para. 65-69.

⁵¹ Judgment of 7 May 2019, The Hague Court of Appeal, Case 200.221.250/01, *Koninklijke Philips N.V. v Asustek Computers INC.*, p. 4.172-4.179.

⁵² Judgment of 20 September 2016, Commercial Court of Marseille, Case RG: 2016F01637, *Wiko v Sisvel*, p. 4.172-4.179.

⁵³ Judgment of 9 December 2020, Higher Regional Court (Oberlandesgericht) of Karlsruhe, Case 6 U 103/19, *Sisvel v Wiko*, p. 293.

German case law also sets forth requirements concerning the timing of infringement notices. The *Saint Lawrence v Vodafone* case stipulated that the SEP holder must serve the infringement notice prior to filing a lawsuit and, at the latest, before prepaying costs.⁵⁴

Furthermore, the infringement notice can be issued by the SEP holder themselves or by any other affiliated company within the same corporate group, particularly the SEP holder's parent company. Generally, delivering the notice to the infringer's parent company suffices⁵⁵, except in instances where the parent company is unlikely to forward the letter to the impacted subsidiary.⁵⁶ If the SEP holder solely sues the infringer, an infringement notice sent to the infringer's parent company deemed fails to justify the Huawei requirements.⁵⁷ In certain situations, the SEP holder need not send the notice themselves; for example, a patent pool authorized to undertake legal action concerning the licensing of managed patents may issue the notice.⁵⁸ Moreover, it can be reasonably assumed that the implementer is already cognizant of the infringement in cases where the SEP holder is not required to send the notice by themselves.⁵⁹

3.4.2 Determination of "Willingness"

In *Unwired Planet v Huawei*, the court referred to the *Huawei v ZTE* case, clarifying that the requirement of being "willing to enter into a license" pertains to a general willingness. A willing licensee should be amenable to accepting a FRAND license under any fact-based FRAND terms.⁶⁰ Implementers are obligated to unambiguously and explicitly convey their readiness to enter into a license under FRAND terms and subsequently engage in goal-oriented licensing negotiations. Merely contemplating the signing of a licensing agreement or participating in negotiations is not adequate.⁶¹ Nonetheless, it should not be assumed that an implementer reluctant to participate in licensing

⁵⁴ Judgment of 31 March 2016, Regional Court (Landgericht) of Düsseldorf, Case 4a O 126/14, *Saint Lawrence v Vodafone*., para. 195.

⁵⁵ Judgment of 30 October 2019, Higher Regional Court (Oberlandesgericht) of Karlsruhe, Case 6 U 183/16, *Philips v Wiko*., para. 111.

⁵⁶ Judgment of 15 November 2018, Regional Court (Landgericht) of Düsseldorf, Case 4a O 17/17, *Tagivan (MPEG-LA) v Huawei*., para. 343.

⁵⁷ Judgment of 18 January 2016, Tribunale Ordinario di Torino, Case 30308/20215 R.G., *Sisvel v ZTE*., para. 343.

⁵⁸ Judgment of 7 May 2020, Regional Court (Landgericht) of Düsseldorf, Case 4c O 44/18, *HEVC (Dolby) v MAS Elektronik*., para. 229.

⁵⁹ *Ibid.*, para. 233.

⁶⁰ Judgment of 4 May 2017, [2017] EWHC 711 (Pat), Case HP-2014-000005, *Unwired Planet v Huawei*., para. 124.

⁶¹ Judgment of 2 March 2021, District Court (Landgericht) of Mannheim, Case 2 O 131/19, *LG v TCL*., para. 124.

negotiations is unwilling to obtain a license or that their willingness (or unwillingness) at a specific moment will remain constant.⁶² Additionally, depending on the case-by-case's context, a SEP implementer's willingness to secure a FRAND license may even be implied or informal.⁶³ To establish a "willingness" intent to obtain a license, an assessment of the implementer's comprehensive behavior is necessary.⁶⁴

Besides evaluating an implementer's willingness to procure a FRAND license, case law highlights other factors that can indicate an implementer's willingness to do so, such as the response time and content. Although the timeframe for a SEP implementer to declare their willingness depends on the circumstances, German courts stipulated that a willing implementer should be expected to seek a license promptly⁶⁵, which could be an important indicator of willingness (or unwillingness). With regard to timing, if the SEP holder's infringement notice only contains the minimum necessary information, a response is anticipated within three to five months.⁶⁶ If the infringement notice surpasses the minimum requirement, a swifter response may be needed in certain instances.⁶⁷ This suggests that the more comprehensive the infringement notice, the less time the implementer has, in order to express their intent to engage a FRAND licensing agreement. If the implementer delays their declaration and response, the court ought to take into account the implementer's willingness statement made during ongoing infringement litigation, but the implementer must adopt additional measures to address the delay.⁶⁸

Furthermore, case law delineates the circumstances under which an implementer can be considered unwilling to obtain a license. These scenarios include: 1) the implementer engaging in non-FRAND negotiations and refusing any improvements to the proposal⁶⁹; 2) the implementer persistently raising

⁶² Judgment of 9 December 2020, Higher Regional Court (Oberlandesgericht) of Karlsruhe, Case 6 U 103/19, *Sisvel v Wiko.*, para. 301.

⁶³ Judgment of 7 May 2020, Regional Court (Landgericht) of Düsseldorf, Case 4c O 44/18, *HEVC (Dolby) v MAS Elektronik.*, para. 237.

⁶⁴ *Ibid.*, para. 763.

⁶⁵ Judgment of 9 December 2020, Higher Regional Court (Oberlandesgericht) of Karlsruhe, Case 6 U 103/19, *Sisvel v Wiko.*, para. 303.

⁶⁶ Judgment of 11 July 2018, Regional Court (Landgericht) of Düsseldorf, Case 4c O 81/17, *Intellectual Ventures v Vodafone.*, para. 207.

⁶⁷ *Ibid.*, para. 207.

⁶⁸ Judgment of 2 March 2021, District Court (Landgericht) of Mannheim, Case 2 O 131/19, *LG v TCL.*, para. 127.

⁶⁹ *Ibid.*, para. 126.

identical issues without providing "constructive remarks"⁷⁰; 3) the implementer employing delaying tactics that can subsequently be "revoked" with minimal effort⁷¹; 4) directing the SEP holder to a supplier as a suitable licensee.⁷²

In conclusion, the primary determinants of willingness include the expression of intent to secure a license as well as the timing and content of responses. Upon receiving an infringement notice, implementers must not remain unresponsive, as a lack of response is likely an implication of an unwillingness to obtain a license.⁷³

3.4.3 To Provide "A FRAND Complaint Offer"

3.4.3.1 Royalty Rate

Case laws have established that the concept of FRAND in SEP licensing is to be interpreted as a flexible range. Customarily, FRAND is ascertained through bilateral negotiations in good faith between the SEP holder and the implementer, with due consideration given to the particularities of each case.⁷⁴ It has also been generally recognized that a single FRAND-compliant royalty rate does not exist.⁷⁵ Nevertheless, in *Unwired Planet v Huawei*, the UK court posited the existence of only one set of FRAND terms, including royalty rates, referred to as the "true FRAND" terms. The fact that the initial offer's rate surpasses the "true FRAND" rate does not inherently suggest that the SEP holder has failed to adhere to a FRAND approach.⁷⁶ In later cases, the UK High Court adopted a divergent interpretation, leaning towards the German court's viewpoint, asserting that various sets of terms could qualify as FRAND under specific circumstances. The court generally designates one set of terms as FRAND, which the patent holder is then obligated to offer to the implementer. If the court deems two

⁷⁰ Judgment of 7 May 2020, Regional Court (Landgericht) of Düsseldorf, Case 4c O 44/18, *HEVC (Dolby) v MAS Elektronik.*, para. 764.

⁷¹ Judgment of 30 October 2020, Regional Court (Landgericht) of Munich I, Case 21 O 11384/19, *Conversant v Daimler.*, para. 317.

⁷² *Ibid.*, para. 334-336.

⁷³ *Ibid.*, para. 340.

⁷⁴ Judgment of 9 December 2020, Higher Regional Court (Oberlandesgericht) of Karlsruhe, Case 6 U 103/19, *Sisvel v Wiko*, para. 311-313.

⁷⁵ Judgment of 7 May 2020, Regional Court (Landgericht) of Düsseldorf, Case 4c O 44/18, *HEVC (Dolby) v MAS Elektronik.*, para. 314.

⁷⁶ Judgment of 4 May 2017, [2017] EWHC 711 (Pat), Case HP-2014-000005, *Unwired Planet v Huawei.*, para. 164.

distinct sets of terms to be FRAND, the SEP holder satisfies its FRAND commitment by offering either set to the implementer.⁷⁷

Regarding the timing aspect, the submission of an offer may exhibit greater flexibility compared to the implementer's expression of their willingness. Should the implementer fail to promptly convey a willingness to enter a licensing agreement, the SEP holder can present a licensing offer with FRAND terms amidst the ongoing legal action against the implementer.⁷⁸ Moreover, the SEP holder's obligations, including the responsibility to grant a FRAND license, only materialize once the implementer has demonstrated a willingness to secure a FRAND license.⁷⁹

Conversely, in terms of content, especially with respect to royalty rates, the requirements may be more stringent. Primarily, the implementer is obligated to evaluate whether the SEP holder's offer aligns with FRAND, irrespective of the offer's content satisfying FRAND criteria in every respect.⁸⁰ Offers marginally exceeding the FRAND threshold do not fulfill the stipulations delineated in the Huawei case.⁸¹ The court presiding over the injunction proceedings must ultimately assess the FRAND compatibility of the SEP holder's offer.⁸² A cursory evaluation of the SEP holder's offer being evidently non-FRAND is deemed inadequate.⁸³

Secondly, the royalty rate amount must exhibit adequate transparency, such as by referencing extant standard licensing schemes or indicating alternative reference values from which the requisite royalty rate can be inferred.⁸⁴

⁷⁷ Judgment of 23 October 2018, UK Court of Appeal, Case A3/2017/1784, [2018] EWCA Civ 2344, *Unwired Planet v Huawei.*, para. 121.

⁷⁸ Judgment of 31 March 2016, Regional Court (Landgericht) of Düsseldorf, Case 4a O 73/14, *Saint Lawrence v Vodafone.*, para. 222.

⁷⁹ Judgment of 24 November 2020, Federal Court of Justice (Bundesgerichtshof), Case KZR 35/17, *Sisvel v Haier.*, para. 56.

⁸⁰ *Ibid.*, para. 56.

⁸¹ Judgment of 31 May 2016, Higher Regional Court (Oberlandesgericht) of Karlsruhe, Case 6 U 55/16, *Pioneer v Acer.*, para. 29-36.

⁸² *Ibid.*, para. 29-36.

⁸³ *Ibid.*, para. 29-36.

⁸⁴ Judgment of 17 November 2016, Regional Court (Landgericht) of Mannheim, Case 7 O 19/16, *Philips v Archos.*, p. 293.

Thirdly, in terms of the licensing offer, it is adequate for the SEP holder's initial proposal to be FRAND for a "generic licensee." The implementer should not anticipate that the offer will be tailored to the particular circumstances of the individual case.⁸⁵ To demonstrate compliance with FRAND requirements, an offer satisfying the Huawei case requirements will be presented only when the SEP holder furnishes the SEP implementer with all necessary information to evaluate the offer's FRAND conformity. Specifically, the SEP holder must ensure transparency of the requested patent royalty amount, based on market-implemented standard licensing plans or actual rates paid by third parties to patent pools, including patents associated with the standard. Information about comparable agreements is required to assess the non-discrimination of the offer.⁸⁶

Generally, supplying an adequate number of existing license agreements with third parties suffices to prove that the proposed (standard) royalty rate has been market-accepted, as numerous licenses granted under standard licensing agreements robustly suggest that the fundamental licensing terms are equitable and reasonable.⁸⁷ Providing all existing comparable agreements is superior to alternative methods for ascertaining the FRAND compliance of the offer, according to the German court. Furthermore, the SEP holder must submit court decisions regarding whether rates agreed upon in analogous agreements are FRAND compliant, provided such rulings exist. If there are no or insufficient comparable agreements, the SEP holder must additionally present their awareness of decisions concerning the validity and/or infringement of pertinent patents, alongside agreements reached by other parties in the same or similar technical fields⁸⁸, except when submitting such agreements would breach contractual confidentiality obligations. Nevertheless, agreeing to extensive confidentiality clauses generally precludes the SEP holder (and/or their successors) from invoking the confidentiality of similar licenses in ongoing court proceedings.⁸⁹ This does not imply that the SEP holder must provide the entire content of all executed license agreements. Only relevant agreements should be disclosed, considering well-defined product categories. Licenses with cross-licensing

⁸⁵ Judgment of 9 December 2020, Higher Regional Court (Oberlandesgericht) of Karlsruhe, Case 6 U 103/19, *Sisvel v Wiko*, para. 308-310.

⁸⁶ Judgment of 28 September 2018, District Court (Landgericht) of Mannheim, Case 7 O 165/16, *IP Bridge v HTC*, para. 27.

⁸⁷ Judgment of 7 May 2020, Regional Court (Landgericht) of Düsseldorf, Case 4c O 44/18, *HEVC (Dolby) v MAS Elektronik.*, para. 255.

⁸⁸ Judgment of 11 July 2018, Regional Court (Landgericht) of Düsseldorf, Case 4c O 81/17, *Intellectual Ventures v Vodafone.*, para. 258-264.

⁸⁹ Judgment of 22 March 2019, Higher Regional Court (Oberlandesgericht) of Düsseldorf, Case I-2 U 31/16, *Intellectual Unwired Planet v Huawei.*, para. 220.

components are immaterial, especially when the implementer possesses no patents.⁹⁰ Compliance with the Huawei case requirements is not universal; if the standard-essential patent holder sues the implementer solely, the license agreement proposed by the standard-essential patent holder to the implementer's parent company is not obliged to fulfill Huawei's requirements.⁹¹

When parties inevitably depend on revealing confidential information to specify FRAND license offers, jurisprudence also prescribes requirements for confidential information. They must 1) identify such information and explicitly explain why it constitutes a trade secret; 2) outline the measures employed thus far to safeguard the confidentiality of the relevant information; 3) demonstrate, in a substantiated and verifiable manner (for each piece of information), the specific adverse consequences that would result if the information were disclosed; and 4) clarify the degree of certainty with which the aforementioned adverse factors are anticipated to occur.⁹²

3.4.3.2 Global Portfolio Licensing

Regarding commercial and industry practices, German case law posits that an offer for a global portfolio license generally adheres to the Huawei framework and does not contravene competition law, as it aligns with universally acknowledged business practices within their respective global standard application domains.⁹³ Nevertheless, certain circumstances in individual cases may necessitate alternative approaches, such as circumscribing the license's geographical scope. To determine whether the (geographical) purview of the license agreement furnished by the SEP holder accords with FRAND, one must consider the widely accepted business practices within the pertinent field.⁹⁴ A global license offer may be deemed FRAND, and in some instances, only a global or at minimum, a multi-regional license qualifies as FRAND.⁹⁵ However, given that willing and reasonable

⁹⁰ Judgment of 7 May 2020, Regional Court (Landgericht) of Düsseldorf, Case 4c O 44/18, *HEVC (Dolby) v MAS Elektronik.*, para. 253.

⁹¹ Judgment of 18 January 2016, Tribunale Ordinario di Torino, Case 30308/20215 RG, *Sisvel v ZTE.*, para. 3.

⁹² Judgment of 11 July 2018, Regional Court (Landgericht) of Düsseldorf, Case 4c O 81/17, *Intellectual Ventures v Vodafone.*, para. 248.

⁹³ Judgment of 9 November 2018, Regional Court (Landgericht) of Düsseldorf, Case 4a O 15/17, *Fraunhofer-Gesellschaft (MPEG-LA) v ZTE.*, para. 207.

⁹⁴ Judgment of 31 March 2016, Regional Court (Landgericht) of Düsseldorf, Case 4a O 73/14, *Saint Lawrence v Vodafone.*, para. 225.

⁹⁵ Judgment of 23 October 2018, UK Court of Appeal, Case A3/2017/1784, [2018] EWCA Civ 2344, *Unwired Planet v Huawei.*, para. 56.

parties would reach consensus on a global portfolio license, implementers who insist on a license restricted to a single market are not in compliance with FRAND.⁹⁶

3.4.3.3 Non-Discrimination Principle

In ascertaining if an SEP holder's offer aligns with FRAND, the non-discrimination obligation only pertains to similarly positioned implementers.⁹⁷ A conduct is deemed discriminatory solely if, based on the aggregate circumstances of each case, the SEP holder could also feasibly target other infringers by enforcing its patent rights.⁹⁸ Generally, a subsequent patent holder is constrained by the original patent holder's actual licensing practices, and Art. 102 TFEU does not institute a "most favored licensee" principle, which would necessitate that the patent holder extend identical terms to all licensees.⁹⁹ Deviations from the established "licensing concept" are permissible only if (existing and new) licensees are not subjected to discrimination through unfavorable conditions (I-2 U 31/16). In the initial phases of standard implementation, the SEP holder may be unable to address a multitude of infringers while exercising its rights. In such scenarios, prioritizing infringers with market influence appears reasonable.¹⁰⁰ Moreover, employing sales volume as a discount criterion is not intrinsically discriminatory, particularly when each (potential) licensee is granted discounts under equivalent conditions.¹⁰¹

In conclusion, the non-discrimination aspect of the SEP holder's FRAND commitment does not entail a so-called "hard" component, which would obligate the patent holder to provide the same rates to all potential licensees. The FRAND commitment can preclude the SEP holder from procuring rates exceeding a "benchmark" rate that reflects the fair valuation of its patents, but it does not hinder the patent holder from issuing licenses at reduced rates.¹⁰²

⁹⁶ Judgment of 4 May 2017, [2017] EWHC 711 (Pat), Case HP-2014-000005, *Unwired Planet v Huawei*, para. 572.

⁹⁷ Judgment of 11 July 2018, Regional Court (Landgericht) of Düsseldorf, Case 4c O 81/17, *Intellectual Ventures v Vodafone*, para. 248.

⁹⁸ *Ibid.*, para. 248.

⁹⁹ *Ibid.*, para. 267.

¹⁰⁰ Judgment of 7 May 2020, Regional Court (Landgericht) of Düsseldorf, Case 4c O 44/18, *HEVC (Dolby) v MAS Elektronik*, para. 318.

¹⁰¹ Judgment of 15 November 2018, Regional Court (Landgericht) of Düsseldorf, Case 4a O 17/17, *Tagivan (MPEG-LA) v Huawei*, para. 583.

¹⁰² Judgment of 23 October 2018, UK Court of Appeal, Case A3/2017/1784, [2018] EWCA Civ 2344, *Unwired Planet v Huawei*, para. 195.

3.4.4 The Obligation to Respond and Counter Offer

3.4.4.1 Obligation to Respond

The *Sisvel v Haier* decision posits that implementers must expeditiously respond to the SEP holder's licensing offer, even if it is not FRAND-compliant.¹⁰³ Nevertheless, this was overturned in the later judgement, stated that if the licensing terms offered by the SEP holder do not adhere to FRAND standards, the standard implementer is not obligated to respond to the licensing proposal.¹⁰⁴ In such cases, implementers are not only required to respond, but also to submit a FRAND counteroffer, irrespective of the FRAND status of the SEP holder's previous licensing proposal. The implementer's response obligation is activated when the SEP holder's offer formally encompasses all information necessary (notably regarding royalty calculations) for the implementer to present a FRAND counteroffer.¹⁰⁵ This duty signifies the implementer's due diligence obligation, which arises from the principle of good faith and well-established business practices in the relevant commercial field.¹⁰⁶

But German courts seemingly lack a unified position on this issue. In the *NTT DoCoMo v HTC* and *Philips v Archos* cases, a compromise was suggested, allowing for a lack of response when the SEP holder's proposal is manifestly non-FRAND based on a cursory assessment.¹⁰⁷

3.4.4.2 Implementer's Counteroffer

A counteroffer submitted by the implementer must be "specific" in order to satisfy the *Huawei* case and FRAND requirements. This entails: 1) delineating the royalty amount without depending on an

¹⁰³ Judgment of 3 November 2015, Regional Court (Landgericht) of Düsseldorf, Case 4a O 93/14, *Sisvel v Haier.*, para. 98-101.

¹⁰⁴ Judgment of 13 January 2016, Higher Regional Court (Oberlandesgericht) of Düsseldorf, Case 15 U 65/15, *Sisvel v Haier.*, para. 23-30.

¹⁰⁵ Judgment of 9 December 2020, Higher Regional Court (Oberlandesgericht) of Karlsruhe, Case 6 U 103/19, *Sisvel v Wiko*, para. 311.

¹⁰⁶ Judgment of 26 January 2016, Regional Court (Landgericht) Mannheim, Case 7 O 66/15, *NTT DoCoMo v HTC.*, para. 59-69.

¹⁰⁷ *Ibid.*, para. 59-69., Judgment of 17 November 2016, Regional Court (Landgericht) of Mannheim, Case 7 O 19/16, *Philips v Archos*, para. 80.

independent third party for a later determination¹⁰⁸; 2) a counteroffer restricted to a single market license is non-FRAND, particularly if the implementer (or its affiliated corporate group) also markets products utilizing the relevant SEP in other markets¹⁰⁹; 3) a counteroffer must adequately justify its FRAND status in light of the SEP holder's terms, otherwise it is non-FRAND, and the counteroffer ought to propose all terms, not solely the royalty rate¹¹⁰; 4) a counteroffer limited to a license encompassing only a single member's patent portfolio in the patent pool and/or establishing different royalty rates for distinct regions without a factual basis is non-FRAND.¹¹¹

In relation to the counteroffer timeline, the *IP Bridge v HTC* case provides more comprehensive guidance. The SEP implementer's obligation to submit a FRAND counteroffer to the SEP holder arises only when the SEP holder supplies all information required to evaluate the proposal's FRAND compliance. Prior to the initiation of infringement proceedings by the SEP holder, the SEP implementer should be granted adequate time to assess the SEP holder's proposal and eventually present a counteroffer.¹¹² Concurrently, counteroffers made post-infringement proceedings are generally deemed unacceptable. In exceptional circumstances, if the implementer demonstrates willingness and constructiveness in pre-litigation negotiations with the SEP holder, such a counteroffer may be considered.¹¹³

In determining the counteroffer rate, *Conversant v Daimler* case proposed a top-down approach in royalty calculations. However, it is essential to recognize that utilizing the total number of declared SEPs (as opposed to the actual quantity of essential patents) as the foundation for determining the patent holder's SEP share is inconsistent with FRAND principles.¹¹⁴

¹⁰⁸ Judgment of 27 November 2015, Regional Court (Landgericht) of Mannheim, Case 2 O 106/14, *Saint Lawrence v Deutsche Telekom.*, para. 167-169.

¹⁰⁹ Judgment of 31 March 2016, Regional Court (Landgericht) of Düsseldorf, Case 4a O 73/14, *Saint Lawrence v Vodafone.*, para. 225.

¹¹⁰ Judgment of 7 May 2020, Regional Court (Landgericht) of Düsseldorf, Case 4c O 44/18, *HEVC (Dolby) v MAS Elektronik.*, para. 754.

¹¹¹ Judgment of 15 November 2018, Regional Court (Landgericht) of Düsseldorf, Case 4a O 17/17, *Tagivan (MPEG-LA) v Huawei.*, para. 617.

¹¹² Judgment of 28 September 2018, District Court (Landgericht) of Mannheim, Case 7 O 165/16, *IP Bridge v HTC*, para. 28.

¹¹³ Judgment of 30 October 2020, Regional Court (Landgericht) of Munich I, Case 21 O 11384/19, *Conversant v Daimler.*, para. 355.

¹¹⁴ *Ibid.*, para. 352.

3.4.4.3 Provision of Security

Ultimately, when the parties fail to reach an agreement and conclude a license, the *Sisvel v Haier* case suggests that the implementer is obligated to clarify their patent royalty and provide security for potential royalties, both based on their counteroffer. The implementer is required to fulfill this obligation after their initial counteroffer is rejected, regardless of whether further offers and counteroffers are presented. Meeting this obligation more than a month after the rejection of the implementer's first counteroffer falls short of the *Huawei* case's requirements.¹¹⁵ According to *Pioneer v Acer* case, this obligation appears to be inescapable – the implementer's discontinuation of SEP royalty does not absolve them of their responsibility to provide security for past royalty.¹¹⁶

3.5 The EU Approach

In 2017, the EC released the EU Approach, which primarily addressed the *Huawei-ZTE* licensing negotiation framework. The EU Approach emphasizes that prospective licensors must furnish potential licensees with a "sufficiently detailed" notice of infringement, encompassing the identification of the relevant standard, the allegedly infringed patent, the purportedly infringing products, the proposed royalty calculation, and supporting evidence showcasing the non-discriminatory nature of the royalty rate.¹¹⁷ Additionally, the EU Approach proposes that security amounts, including damages, be established to discourage patent hold-outs, and it endorses international portfolio licenses when aligned with accepted commercial practices in the field.¹¹⁸ Moreover, the EU Approach asserts that counteroffers should be "concrete and specific," with the "timeliness" of the counteroffer subject to a fact-specific inquiry, partly influenced by the number of SEPs claimed and the infringement notice's level of detail.¹¹⁹ Finally, the EU Approach underscores

¹¹⁵ Judgment of 3 November 2015, Regional Court (Landgericht) of Düsseldorf, Case 4a O 93/14, *Sisvel v Haier.*, para. 103-111.

¹¹⁶ Judgment of 8 January 2016, Regional Court (Landgericht) Mannheim, Case 7 O 96/14, *Pioneer v Acer.*, para. 134.

¹¹⁷ European Commission. (2017). Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee: Setting out the EU approach to Standard Essential Patents (COM (2017) 712 final). Retrieved 30 March 2023, from

<https://ec.europa.eu/docsroom/documents/26583/attachments/1/translations/en/renditions/native>

¹¹⁸ *Ibid.*

¹¹⁹ *Ibid.*

that injunctive relief ought to be effective, proportionate, and dissuasive, following Article 3(2) of the IP Enforcement Directive.¹²⁰

3.6 SSOs' Policies

SSOs establish policies and guidelines that govern the use of SEPs under FRAND licensing terms. These policies aim to balance the interests of patent holders and implementers by fostering a willingness between SEP holders to offer SEPs and SEP implementers, and a willingness between SEP implementers to counteroffer SEP holders.

SSOs in the EU, such as CEN-CENELEC and ETSI have implemented policies to guarantee the disclosure of essential patents during the creation of standards and technical specifications. For instance, CEN-CENELEC Guide 8:2019 (Guide) mandates that technical experts disclose any patents they deem critical for a proposed deliverable. This level of transparency fosters a cooperative environment in which SEP holders are more inclined to grant licenses to patent implementers.¹²¹

In addition to the Guide and in order to offer best practices for the SEP licensing process, CEN-CENELEC released two Workshop Agreements in June 2019, namely "Principles and Guidance for Licensing Standard Essential Patents in 5G and the Internet of Things (IoT), including the Industrial Internet" (CWA 17431) and "Core Principles and Approaches for Licensing of Standard Essential Patents" (CWA 95000).

Developed and approved by consensus among organizations responsible for its content, such as Ericsson and Qualcomm, CWA 17431, presents four primary principles for the SEP licensing process: access to all, good faith, protection of confidentiality, and fair and reasonable compensation.¹²² The

¹²⁰ Miadzedskaya, L. (2019). Encouraging Frand-ly Negotiations: A Comparison of the United States and European Approaches to Allowing Injunctive Relief in Cases Involving Frand-Encumbered Standard-Essential Patents. *Wash. U. Global Stud. L. Rev.*, 18, 723.

¹²¹ CEN-CENELEC. (2019). Guide 8: Guidelines for the implementation of the common policy on patents (and other statutory property rights based on inventions) (Issue 2). Retrieved 30 March 2023, from <https://www.cencenelec.eu/media/Guides/CEN-CLC/cencleguide8.pdf>

¹²² CEN-CENELEC Workshop Agreement. (2019). Principles and guidance for licensing Standard Essential Patents in 5G and the Internet of Things (IoT), including the Industrial Internet (CWA 17431). Retrieved from <https://www.ipeurope.org/wp-content/uploads/2019/09/CWA17431.pdf>, p. 7-8.

guidance for these principles serves as a valuable reference for SEP negotiations. Furthermore, CWA 17431 addresses frequently asked questions related to SEP licensing and negotiation, particularly for newcomers to the implementation and utilization of standardized technologies and the licensing of relevant patents.¹²³

CWA 95000 concentrates on providing educational and contextual information on SEP licensing and FRAND applications. It identifies and describes potential challenges for negotiating parties, as well as outlining key behaviors and best practices that parties may opt to follow. The CWA offers a more detailed explanation of the principles and rationale behind SEP licensing, ultimately aiming to assist both seasoned and inexperienced SEP negotiators, and inform other interested stakeholders on how to reach fair agreements that better promote the objectives and interests of the industry, standardization, and, ultimately, consumers. Section 2 of this CWA delineates the core principles of SEP licensing, as identified and agreed upon by CWA participants¹²⁴, including:

- 1) FRAND SEP holders should not threaten, seek or enforce injunctions;
- 2) FRAND licenses should be available to anyone who wants to implement the relevant standard;
- 3) the value of a SEP should be based on its own technical merits and scope and not on downstream value or use;
- 4) neither party to FRAND negotiations should refuse to grant a FRAND license to a patent agreed to be essential because of disagreement over other patents in the portfolio;
- 5) neither party to FRAND negotiations should attempt to force the other party to enter into overly broad confidentiality arrangements; and
- 6) FRAND obligations remain unaffected despite the transfer of patents.

In addition, Section 3 of CWA 95000 provides a practical summary of SEP licensing 'best practices' that embody and support the core principles and help to facilitate the FRAND process and the outcome of conducting bilateral negotiations.¹²⁵

¹²³ *Ibid.*, p. 9-16.

¹²⁴ CEN-CENELEC Workshop Agreement. (2019). Core Principles and Approaches for Licensing of Standard Essential Patents (CWA 95000). Retrieved from <https://www.cencenelec.eu/media/CEN-CENELEC/CWAs/ICT/cwa95000.pdf>, p. 9-10.

¹²⁵ *Ibid.*, p. 10-18.

3.7 Conclusion

In summary, the European Union's approach to FRAND licensing is shaped by the interaction of a multifaceted legal framework, policies and guidelines, including national courts within the EU, EU patent law, competition law, contract law, case law of the ECJ and national courts, and EU and SSO policies. Each area contributes to the establishment and enforcement of FRAND commitments, the promotion of innovation and the maintenance of market competition.

First, the EPC and national patent laws indirectly address FRAND licensing obligations by providing a basis for patentability and enforcement in Europe. Germany and Estonia patent laws ensuring fair and reasonable access to patented technologies by incorporating patent protection clauses, thereby promoting the legal remedy framework for infringements in the FRAND licensing process. Second, competition law, including the TFEU and national competition laws, protects some rights of patent implementers and prevents patent holders, in particular SEP holders, from abusing their dominant position. Third, contract law, while not directly addressing FRAND obligations, provides general principles applicable to FRAND licensing agreements, such as good faith and fair dealing. These three areas of law primarily underpin litigation involving SEP and FRAND licensing.

The Huawei v ZTE case provides a negotiating framework for seeking injunctive relief in subsequent FRAND licensing: 1) provide an infringement notice to the implementer when it is determined that it needs a license; 2) determine the implementer's willingness to obtain a license; 3) after determining willingness, the SEP holder must make a FRAND-compliant offer to the implementer; 4) if the offer is not accepted, the implementer must make a counteroffer; and 5) if the parties ultimately fail to reach an agreement, the implementer must provide security commensurate with its use. Failure to comply with FRAND at any stage allows for injunctive relief to be sought in court.

However, numerous details of this negotiation framework require clarification, including but not limited to: what information should be included in the notice of infringement, how "willingness" is defined, and what offers and negotiation steps are FRAND-compliant. Recent case law has further clarified the above issues. First, courts have clarified the information and timing requirements for

infringement notices, including identifying the infringed patents and informing the implementer of the infringing technologies, as well as requiring that the infringement notice be issued before initiating litigation. Second, to determine the implementer's willingness, courts will consider not only the implementer's willingness to obtain a FRAND license, but also the timeliness of its response and the FRAND compliance of the content, and list several scenarios where implementers will be deemed "unwilling". Thirdly, the SEP holder's offer must include a FRAND-compliant royalty and demonstrate its compliance with FRAND commitments. In addition, failure to offer multi-regional or global licenses is often considered non-FRAND. Finally, case law requires the implementer's counteroffer to be FRAND-compliant and provides a methodology for calculating it. However, there are divergent interpretations of certain case law; for example, some judgments hold that the implementer is required to respond to the offer regardless of whether it complies with FRAND terms, while others hold that a response is not required if the offer does not comply with FRAND terms.

Finally, the EU approach and SSO policies, including CWA 17431 and CWA 95000, launched in 2019, promote transparency, cooperation and collaboration between parties involved in the development of standards and technical specifications. The principles and related explanations provided serve as a guide for SEP licensing negotiations. However, this is essentially a summary provided by the organizations in the industry, and some practical issues still lack guidance, such as the lack of a standard for calculating FRAND-compliant royalties, beyond the requirement for transparency in calculations and market acceptance.¹²⁶ In addition, the obligations during FRAND good faith negotiations remain unclear, and whether suppliers in the supply chain have the right to request a FRAND license. Coupled with the fact that case law diverges on many issues, this leads to a lack of stability and predictability in SEP negotiations and court decisions, ultimately increasing the risk of patent hold-up and hold-out.

¹²⁶ Koundinya, S. (2020). Patent Pools: An 'Industry Solution' to SEP disputes in 5G and Internet of Things-A quest for a successful Digital Single Market. *Available at SSRN 3796908*.

4. COMPARATIVE STRATEGIES FOR FRAND LICENSING: EU, US, AND CHINA

4.1 Introduction

In the previous section, current EU legislation, case law in recent years and indicative documents given by the SSO are examined. And it is certain that the EU has made many advances towards SEP licensing under FRAND requirements. However, current EU challenges related to FRAND licensing still exist, including: 1) SEP royalties that comply with FRAND are still unclear; 2) how to clearly define the “willingness” to obtain a license; and 3) at which level of the supply chain a license can be obtained. With limited reference materials, a comparative analysis of the framework currently integrated by other jurisdictions is likely to provide a breakthrough point to address current challenges and avoid stagnation in development.

Both the US and China are actively developing technology in this day and age and have the world's leading volume of SEPs.¹²⁷ As a result, both jurisdictions have also dealt with and experienced much SEP-related litigation and thus developed their unique legal frameworks and strategies to address the challenges in FRAND licensing. Also due to their key role in the global technology market, a comparative analysis with the US and Chinese FRAND licensing judicial frameworks and the EU may be the best option. Therefore, this chapter attempts to complement the development of the EU FRAND licensing framework by examining the measures taken by US and China to address the FRAND-related issues mentioned above and to mitigate SEP hold-up and hold-out.

In this chapter, the approaches US and China related to FRAND licensing will be assessed, including relevant legislation, judicial decisions, and the similarities and differences between these jurisdictions

¹²⁷ von Laer, M., Blind, K., & Ramel, F. (2022). Standard essential patents and global ICT value chains with a focus on the catching-up of China. *Telecommunications Policy*, 46(2), 102110.

and the EU with respect to SEP royalties calculation under FRAND terms, SEP licensing negotiations and FRAND licensing level, in response to the issues mentioned above that require further clarification. Finally, the chapter will summarize the prevailing practices in commercial negotiations and courts with respect to FRAND compliance.

4.2 FRAND Compliant Royalty Rates

Establishing a FRAND-compliant royalty rate has always been complex. In jurisdictions such as the US, the EU, and China, recommendations from SSOs and SDOs, as well as case law, serve as primary guiding sources for FRAND royalty calculation methods.¹²⁸ In contrast, EU cases rarely provide SEP holders and implementers with a clear reference for determining FRAND-compliant royalty calculation methods, and no preferred method is prescribed; instead, parties are generally required to submit a calculation method when seeking injunctive relief.

In the EU, CEN suggest in the CWA 17431 that "fair and reasonable" compensation should be based on the value of the standardized technology to its implementers and that there is no single rule for royalties in SEP licensing.¹²⁹ In the Workshop Agreement, CEN-CENELEC also provides common royalty calculation clauses – which depend entirely on the practices, circumstances, and technologies of SEP holders. Royalties are structured as unit costs, percentages of the net selling rate of the licensed product or service, or lump-sum payments. Similarly, a calculation method may include an upper or lower limit, with percentages, per-unit ratios, or lump-sum rates adjustable based on sales volume.¹³⁰ In contrast, in CWA 95000, CEN-CENELEC believes that the value of an SEP should be based on its technical merits and scope, not on downstream value or use¹³¹, but should reflect the value of the "smallest patentable component" as a basis and be further apportioned in cases of excessive

¹²⁸ Scott Bosworth, D., Mangum III, R. W., & Matolo, E. C. (2018). FRAND commitments and royalties for standard essential patents. *Complications and Quandaries in the ICT Sector: Standard Essential Patents and Competition Issues*, 19-36.

¹²⁹ CEN-CENELEC Workshop Agreement. (2019). Principles and guidance for licensing Standard Essential Patents in 5G and the Internet of Things (IoT), including the Industrial Internet (CWA 17431). Retrieved from <https://www.ipeurope.org/wp-content/uploads/2019/09/CWA17431.pdf>, p. 8.

¹³⁰ *Ibid.*, p. 13.

¹³¹ CEN-CENELEC. (2019). CEN Workshop Agreement 95000: Core Principles and Approaches for Licensing of Standard Essential Patents. Retrieved from <https://www.cencenelec.eu/media/CEN-CENELEC/CWAs/ICT/cwa95000.pdf>, p. 9.

inclusiveness.¹³² In the recently revised IEEE SA Standards Committee bylaws, the guidance given to potential licensors is more specific, offering three optional factors for reasonable rates¹³³: 1) The contribution of the invention or innovative feature claimed in the essential patent claim to the value of the relevant functionality of the smallest saleable compliant implementation, or another appropriate value level of compliant implementation. 2) The value contributed by the essential patent claim to the smallest saleable compliant implementation or another appropriate value level of the compliant implementation, considering the value contributed by all essential patent claims practiced in the same IEEE standard. 3) Existing licenses covering the use of the essential patent claim, where the circumstances and resulting licenses have sufficient comparability to the expected license circumstances. The Chinese SSO system may differ from those in the EU and the US, as the overall provisions of both CESI and CCSA are proposed by MIIT. In MIIT's newly introduced Industry Standardization Organization Intellectual Property Policy Template, Article XI states that the value of essential rights claims for compatible parts should be evaluated based on the smallest component or device that complies with the final standard and adopts the relevant essential rights claims.¹³⁴ This is in stark contrast to the recommendations of IEEE and CEN-CENELEC.

Moreover, MIIT¹³⁵, IEEE¹³⁶, and CWA 95000¹³⁷ all indicate that a "reasonable rate" should refer to appropriate compensation for the patent holder's implementation of essential patent claims, excluding compensation for innovations or features not present in the essential patent rights claims, such as the value generated by incorporating the technology of the essential patent claim into the standard, if any.

¹³² *Ibid.*, p. 15.

¹³³ IEEE Standards Association. (2022). IEEE SA Standards Board Bylaws. Retrieved from <https://standards.ieee.org/wp-content/uploads/import/governance/bog/resolutions/september2022-updates-sasb-bylaws.pdf>, p. 2.

¹³⁴ China's Ministry of Industry and Information Technology. (2015). Industry Standardization Organization Intellectual Property Policy Template., p. 4-5.

¹³⁵ *Ibid.*, p. 4-5.

¹³⁶ IEEE Standards Association. (2022). IEEE SA Standards Board Bylaws. Retrieved from <https://standards.ieee.org/wp-content/uploads/import/governance/bog/resolutions/september2022-updates-sasb-bylaws.pdf>, p. 2.

¹³⁷ CEN-CENELEC. (2019). CEN Workshop Agreement 95000: Core Principles and Approaches for Licensing of Standard Essential Patents. Retrieved from <https://www.cencenelec.eu/media/CEN-CENELEC/CWAs/ICT/cwa95000.pdf>, p. 9.

In US case law, the Georgia-Pacific case established the mainstream framework for determining damages in patent infringement disputes.¹³⁸ The Federal Trade Commission recommends that courts use the concept of hypothetical negotiation as an appropriate framework for determining reasonable royalties¹³⁹, while viewing other Georgia-Pacific factors as categories of information potentially relevant to such negotiation outcomes. This approach aims to determine the royalties that would have been agreed upon if the parties had successfully negotiated before the infringement occurred. In the Microsoft v Motorola case, 15 factors were adapted to determine FRAND royalty rate factors¹⁴⁰: 1) royalties received by the patent holder for FRAND licenses of the same patent; 2) license royalties paid by the licensee for the use of similar patents; 3) the nature and scope of the license; 4) the value of the patent, in comparison to the importance of its contribution to the standard relative to other patents involved in the standard; 5) the term of the license (must be consistent with the patent term); 6) the profitability of the product, its commercial success, and its current popularity, considering only the value of the patented technology and not the value associated with incorporating the technology into the standard; 7) the usefulness and advantages of the patented technology compared to alternative technologies available during the period before the standard was adopted; 8) the nature of the patent invention, its importance in the licensed product, and its contribution to the product's users; 9) the extent and value of the patent holder's use of the patent; 10) the usual profit share of basic patent licensing activities for the company or similar companies; 11) the profit share attributable to the invention, excluding any consideration of non-patented elements, manufacturing costs, commercial risks, significant features or improvements added by the licensee, or the value of merging the patent into the standard; 12) expert testimony; 13) the amount that the patent holder and licensee would have agreed upon if they had reasonably and voluntarily sought an agreement; 14) public interest; 15) the risk of royalty stacking, i.e., the need for other licenses to implement the standard.¹⁴¹ This is the most comprehensive consideration of SEP royalties to date.¹⁴² However, if an enterprise wishes to use this approach to establish FRAND-compliant royalties, a large number of factors may prolong negotiation

¹³⁸ Judgment of 28 May 1970, United States District Court, S. D. New York., Case 318 F. Supp. 1116 (S.D.N.Y. 1970), *Georgia-Pacific Corp. v United States Plywood Corp.*

¹³⁹ Ramirez, E., & Kimmel, L. (2011). A Competition Policy Perspective on Patent Law: The Federal Trade Commission's Report on the Evolving IP Marketplace. *The antitrust source*, 1-10.

¹⁴⁰ Maldonado, K. (2014). Breaching RAND and reaching for reasonable: Microsoft v Motorola and standard-essential patent litigation. *Berkeley Tech. LJ*, 29, 419.

¹⁴¹ Judgment of 14 May 2012, United States Court of Appeals for the Ninth Circuit, Case 696 F.3d 872 (9th Cir. 2012), *Microsoft Corp. v Motorola Inc.*

¹⁴² Heiden, B. (2016). The viability of FRAND: How the seminal landmark Microsoft ruling could impact the value of standard essential patents and the future of telecom standards. *Telecommunications Policy*, 40(9), 870-887.

time, leading to hold-out. If a court wishes to adopt this approach to assess royalties, it would be entirely up to the court to decide whether a factor or piece of evidence is relevant.

In fact, whether it is China, the United States, or the EU, their FRAND licensing royalty rate calculation approaches all adopt, to a greater or lesser extent, elements of a hypothetical negotiation (see table 4.1). To ascertain whether royalties are FRAND-compliant, the EU (primarily Germany) case law primarily focuses on the non-discrimination principle, that is, "similarly situated licensees" and non-discriminatory treatment, which is the comparable approach.¹⁴³ This method mainly concentrates on factors 1 and 2 outlined in the Georgia-Pacific case, attempting to use comparable licensing agreements and other technologies to individually assess the value of the demanded SEP¹⁴⁴, and apparently, this approach is considered by European courts to take precedence over other methods in determining the FRAND conformity of an offer.¹⁴⁵ However, European courts have also stated that if there are few or no prior or available licensing agreements, the SEP holder must (additionally) submit the decisions they are aware of regarding the validity and/or infringement of the relevant patents, as well as agreements reached by other parties in the same or comparable technological fields.¹⁴⁶ In this case, if it is necessary to prove the "same technological field" or "relevant patents," there is a high probability that this proof will revert to factors 3 to 8 in the hypothetical negotiation. However, there is currently no evidence that EU and UK SEP case law has applied factors 3 to 8. Instead, it requires the disclosure of the calculation methodologies for the SEP holder's offer and the implementor's counteroffer.¹⁴⁷ Then, in the Unwired Planet v Huawei case, Judge Birss proposed a top-down analysis of the total royalties brought by the disputed standard and SEP, that is, determining the total number of SEPs covering each standard (the denominator) and then identifying the licensee's share in these SEPs (the numerator).¹⁴⁸ This approach is generally used in conjunction with the

¹⁴³ Leistner, M. (2018). FRAND patents in Europe in the post-Huawei era: A recent report from Germany.

¹⁴⁴ Almajed, B., & Malkawi, B. (2022). Royalty rate determination in patent infringement cases: the USA and China compared. *Journal of Intellectual Property Law & Practice*, 17(1), 14-21.

¹⁴⁵ Tsilikas, H. (2020). Emerging patterns in the judicial determination of FRAND rates: comparable agreements and the top-down approach for FRAND royalties determination. *GRUR International*, 69(9), 885-892.

¹⁴⁶ Judgment of 11 July 2018, Regional Court (Landgericht) of Düsseldorf, Case 4c O 81/17, *Intellectual Ventures v Vodafone*, para. 258-264.

¹⁴⁷ Judgment of 9 December 2020, Higher Regional Court (Oberlandesgericht) of Karlsruhe, Case 6 U 103/19, *Sisvel v Wiko*, para. 311.

¹⁴⁸ Garcia-Bennett, R. (2020). Judicial Determination of FRAND Royalties: the English High Court's Valuation in Unwired Planet v Huawei. Moving Away from Mainstream Economic Valuation Approaches? Who Should Determine FRAND Royalties and How? *Iudex non Calculat? Huawei. Moving Away from Mainstream Economic Valuation Approaches*, p. 30-43.

comparable approach, i.e., comparing the top-down royalty with the same individual SEP royalty.¹⁴⁹ This method was also adopted in the United States in the TCL v Ericsson case.¹⁵⁰

Chinese courts seem to adopt the hypothetical negotiation approach, top-down approach, and comparable approach simultaneously. In the standard-essential patent royalty dispute between Huawei and IDC, the royalty rate demanded by IDC from Huawei was significantly higher than that of Apple, and Huawei believed that IDC constituted discrimination.¹⁵¹ The Guangdong High Court endorsed this statement. The Guangdong High Court pointed out that under substantially similar trading conditions, substantially similar royalties should be charged, or substantially similar royalty rates should be used.¹⁵² In addition, the 2019 Guangdong Supreme People's Court Working Guidelines on Handling Standard Essential Patent Dispute Cases (Trial) (Working Guidelines) stipulate the methods and factors that courts can use when considering SEP royalties.¹⁵³ The approaches include: 1) referring to comparable licensing agreements¹⁵⁴; 2) analyzing the market value of the standard essential patents involved in the case¹⁵⁵; 3) referring to licensing information in comparable patent pools¹⁵⁶; and 4) other methods.¹⁵⁷ It should be noted that the top-down approach here does not simply refer to calculating the royalty share but more broadly includes various factors: 1) the contribution of the standard essential patent involved in the case to the sales and profits of the product, which does not include the impact of the patent being included in the standard¹⁵⁸; 2) the contribution of the standard essential patent involved in the case to the standard¹⁵⁹; 3) the advantages of the patented technology over other alternative technologies before the standard was established¹⁶⁰; 4) the total standard essential patent royalties paid for products using the standard essential patent involved in the

¹⁴⁹ *Ibid.*, p. 18-27.

¹⁵⁰ Judgment of 14 April 2020, United States Court of Appeals for the Federal Circuit. Case 2013-1625. *Ericsson, Inc. and Telefonaktiebolaget LM Ericsson v D-Link Systems, Inc., et al.*

¹⁵¹ Judgment of 21 March 2018, Shenzhen Intermediate People's Court. Case 粤高法民三终字第 305 号, *Huawei Technologies Co., Ltd. v InterDigital Technology Corporation.*

¹⁵² *Ibid.*

¹⁵³ Guangdong High People's Court. (2018). Guangdong Supreme People's Court Working Guidelines on Handling Standard Essential Patent Dispute Cases (Trial)

¹⁵⁴ *Ibid.*, p. 8.

¹⁵⁵ *Ibid.*, p. 8.

¹⁵⁶ *Ibid.*, p. 8.

¹⁵⁷ *Ibid.*, p. 8.

¹⁵⁸ *Ibid.*, p. 11.

¹⁵⁹ *Ibid.*, p. 11.

¹⁶⁰ *Ibid.*, p. 11.

case¹⁶¹; and 5) other relevant factors.¹⁶² This approach can be considered a hybrid of the hypothetical negotiation approach and the top-down approach.¹⁶³

Finally, it seems that Europe¹⁶⁴, the United States¹⁶⁵, and China¹⁶⁶ all mention a point raised by SSOs, namely that patent holders can only obtain royalties based on the value of their patents and cannot derive additional benefits from the standard itself.

Using the comparable approach is indeed convenient and can prove that FRAND rates are "highly probative, given the sophistication of the market and the amount of resources and time that the industry devotes to negotiations".¹⁶⁷ However, when there is a lack of such evidence and resources, other factors will inevitably come into play. Given that the EU currently only requires the calculation method for rates when SEP holders seek injunctions, the absence of a general FRAND licensing rate calculation framework may complicate matters and lead to contradictory judgments. Although it is understandable that courts are reluctant to infringe upon contractual freedom, a general royalty calculation framework should be provided.

4.3 FRAND Compliant Commercial Practice

In FRAND licensing, commercial practices within the European Union primarily encompass the negotiation process (Huawei framework), the determination of "willingness" derived from the Huawei framework, offer-counter offer obligations, conditions for seeking injunctions by SEP holders, and license portfolio practices.

¹⁶¹ *Ibid.*, p. 11.

¹⁶² *Ibid.*, p. 11.

¹⁶³ Scarff, J. (2019). Injunction Rights and the FRAND Conduct Duty in China: A False Dawn for Standard-Essential Patent Holders or a Chance for a New East Asian Consensus?. Available at SSRN 3403031.

¹⁶⁴ Judgment of 30 October 2020, Regional Court (Landgericht) of Munich I, Case 21 O 11384/19, *Conversant v Daimler*.

¹⁶⁵ Judgment of 14 April 2020, United States Court of Appeals for the Federal Circuit. Case 2013-1625. *Ericsson, Inc. and Telefonaktiebolaget LM Ericsson v D-Link Systems, Inc., et al.*

¹⁶⁶ Judgment of 21 March 2018, Shenzhen Intermediate People's Court. Case 粤高法民三终字第 305 号, *Huawei Technologies Co., Ltd. v InterDigital Technology Corporation*.

¹⁶⁷ Judgment of 31 August 2021, United States Court of Appeals, Fifth Circuit. Case 773 F.3d 1201, 1209 (Fed. Cir. 2014). *HTC CORPORATION; HTC America, Incorporated, Plaintiffs-Appellants, v TELEFONAKTIEBOLAGET LM ERICSSON; Ericsson, Incorporated, Defendants-Appellees*.

First, according to the European Union court's ruling on the Huawei v ZTE case, SEP holders cannot initiate injunction procedures or demand product recalls against accused infringers without prior notice or consultation, provided they comply with FRAND commitments.¹⁶⁸ Otherwise, this would be considered an abuse of the dominant position as stipulated in Article 102 of the Treaty on the Functioning of the European Union.¹⁶⁹ For this reason, the court introduced a FRAND-compliant negotiation framework outlining the specific steps for SEP implementers and holders during licensing negotiations.¹⁷⁰ This framework summarizes several SEP negotiation practices and provides a model for assessing FRAND injunction relief based on the parties' behavior: (1) before initiating litigation, the SEP holder notifies the alleged infringer of the infringement by explaining the infringed patent and the manner of infringement¹⁷¹; (2) the infringer must express willingness to sign a license agreement on FRAND terms¹⁷²; (3) the SEP holder submits a specific written offer for such licensing to the infringer, detailing the royalties and their calculation¹⁷³; (4) if planning to counteroffer, the infringer must submit a specific counteroffer to the SEP holder based on FRAND terms¹⁷⁴; (5) if the implementer uses the SEP before signing the license agreement, the implementer must provide appropriate security for their past and future use of the SEP, such as bank guarantees or deposits for SEP royalties.¹⁷⁵ If no agreement is reached at the final step and the accused infringer continues to use the patent in question, the offer has not been responded to in good faith and according to recognized commercial practices.¹⁷⁶

The Draft Policy Statement on Licensing Negotiations and Remedies for Standard Essential Patents Voluntarily Complying with FRAND Commitments, released by the United States Patent and Trademark Office (USPTO), the National Institute of Standards and Technology (NIST), and the Department of Justice's Antitrust Division (DOJ), outlines a series of factors to be considered in

¹⁶⁸ Banasevic, N., & Bobowiec, Z. (2023). SEP-Based Injunctions: How Much Has the Huawei v ZTE Judgment Achieved in Practice. *Journal of European Competition Law & Practice*.

¹⁶⁹ *Ibid.*

¹⁷⁰ *Ibid.*

¹⁷¹ Judgment of the Court of 16 July 2015, Court of Justice of the European Union, Case C-170/13, *Huawei Technologies Co. Ltd v ZTE Corp., ZTE Deutschland GmbH.*, para. 61.

¹⁷² *Ibid.*, para. 63.

¹⁷³ *Ibid.*, para. 63.

¹⁷⁴ *Ibid.*, para. 66.

¹⁷⁵ *Ibid.*, para. 67.

¹⁷⁶ Makris, S., & Tsilikas, H. (2021). Standard Essential Patents and Injunctions: The Key Role of Good Faith in Major Jurisdictions. *IEEE Communications Standards Magazine*, 5(4), 124-128.

FRAND licensing negotiations¹⁷⁷: 1) the obligation of SEP holders to notify of infringement¹⁷⁸; 2) the obligation to provide information¹⁷⁹; 3) the obligation to make a FRAND licensing offer¹⁸⁰; and 4) the obligation for the implementer to demonstrate their status as a "willing potential licensee under FRAND terms."¹⁸¹ This is essentially similar to the steps proposed in the Huawei case, with the primary difference being the remedies available. Injunctions are rarely granted by US courts, but they are not uncommon in Germany and other EU jurisdictions. Although this could be due to the preferences of SEP holders, it is a fact that US courts are reluctant to grant injunctions in SEP cases¹⁸², while German courts interpret the CJEU's ruling in the Huawei v ZTE case as allowing for injunction remedies in more circumstances.¹⁸³ China's approach in this regard may be more vague, introducing the concept of "commercial practice" prior to seeking an injunction after providing notice of infringement. Article 10 of the Working Guidelines stipulates that, when a standard essential patent holder requests to cease the implementation of the standard essential patent, the court should make a judgment on the subjective fault of the standard essential patent holder and the implementer in accordance with the principles of fairness, reasonableness, non-discrimination, and relevant commercial practices, to determine whether to support the request to stop the implementation of the standard essential patent.¹⁸⁴

Secondly, the concept of "willingness" mentioned in the Huawei case has been refined in recent years by many EU national courts and mainly encompasses the implementer's willingness to obtain a FRAND license, the timing of the response, and the content of the response.¹⁸⁵ Firstly, the implementer must clearly and explicitly declare their willingness to sign a license under FRAND terms, which can be implied and then participate in licensing negotiations in a goal-oriented

¹⁷⁷ US Department of Justice, Antitrust Division, US Patent and Trademark Office, & National Institute of Standards and Technology. (2021). Draft policy statement on remedies for standards-essential patents subject to voluntary F/RAND commitments. Retrieved from <https://www.justice.gov/atr/page/file/1453471/download>

¹⁷⁸ *Ibid.*, p. 5.

¹⁷⁹ *Ibid.*, p. 5-6.

¹⁸⁰ *Ibid.*, p. 6.

¹⁸¹ *Ibid.*, p. 6.

¹⁸² Colangelo, G., & Torti, V. (2022). Anti-suit injunctions and geopolitics in transnational SEPs litigation. *Forthcoming in European Journal of Legal Studies*.

¹⁸³ Hess, F. K. (2022). US anti - suit injunctions and German anti - anti - suit injunctions in SEP disputes. *The Journal of World Intellectual Property*, 25(2), 536-555.

¹⁸⁴ Guangdong High People's Court. (2018). Guangdong Supreme People's Court Working Guidelines on Handling Standard Essential Patent Dispute Cases (Trial)

¹⁸⁵ Banasevic, N., & Bobowiec, Z. (2023). SEP-Based Injunctions: How Much Has the Huawei v ZTE Judgment Achieved in Practice. *Journal of European Competition Law & Practice*.

manner.¹⁸⁶ Although the timeframe in which an SEP implementers must declare their willingness depends on the specific circumstances, German courts have also stated that a willing implementer should be expected to seek a license as soon as possible¹⁸⁷, and the more detailed the infringement notice, the less time the implementer has to express their willingness to sign a FRAND license agreement¹⁸⁸. At the same time, case law has also clarified what implementer responses can indicate a lack of willingness to obtain a license: 1) the implementer engages in non-FRAND bargaining and refuses to make any improvements to the counteroffer¹⁸⁹; 2) the implementer repeats questions on the same subject without "constructive comments"¹⁹⁰; 3) the implementer's delay tactics can be "withdrawn" without much effort at a later point in time¹⁹¹; 4) directing the SEP holder to a supplier as the appropriate licensee, even if the implementer is willing to obtain a license (but only for products unwilling to obtain a license from the supplier).¹⁹² The US determination is similar, with US courts considering willingness to be primarily reflected in the timing and content of the response to the SEP holder's offer. In *Apple v Motorola*, the Federal Circuit provided two examples of an implementer's behavior that indicates they are not a voluntary licensee: (1) unilaterally rejecting an offer when the implementer knows that the royalty rate is FRAND¹⁹³; (2) unreasonably delaying negotiations with the same effect, but US courts have not provided a rough response time for reference as German courts.¹⁹⁴ In the *Huawei v Samsung* case, the Chinese court considered Samsung's bundling of SEPs and non-SEPs for licensing, its lack of active response, its unjustified refusal of Huawei's arbitration proposal, and its pricing that exceeded and did not conform to "commercial practice."¹⁹⁵ In addition, Article 11 of the Working Guidelines¹⁹⁶ proposes a fault mechanism, which examines (1) the overall

¹⁸⁶ Judgment of 24 November 2020, Federal Court of Justice (Bundesgerichtshof), Case KZR 35/17, *Sisvel v Haier.*, para. 56.

¹⁸⁷ Judgment of 9 December 2020, Higher Regional Court (Oberlandesgericht) of Karlsruhe, Case 6 U 103/19, *Sisvel v Wiko.*, para. 303.

¹⁸⁸ Judgment of 31 March 2016, Regional Court (Landgericht) of Düsseldorf, Case 4a O 73/14, *Saint Lawrence v Vodafone.*, para. 222.

¹⁸⁹ Judgment of 2 March 2021, District Court (Landgericht) of Mannheim, Case 2 O 131/19, *LG v TCL.*, para. 127.

¹⁹⁰ Judgment of 7 May 2020, Regional Court (Landgericht) of Düsseldorf, Case 4c O 44/18, *HEVC (Dolby) v MAS Elektronik.*, para. 764.

¹⁹¹ Judgment of 30 October 2020, Regional Court (Landgericht) of Munich I, Case 21 O 11384/19, *Conversant v Daimler.*, para. 317.

¹⁹² *Ibid.*, para. 352.

¹⁹³ Judgment of 25 April 2014, United States Court of Appeals, Federal Circuit., Case 757 F. 3d 1286, *Apple Inc. v Motorola, Inc.*, para. 1332.

¹⁹⁴ *Ibid.*, para. 1342

¹⁹⁵ Judgment of 11 January 2018, Shenzhen Intermediate People's Court. Case 粤 03 民初 840 号, *Huawei v Samsung.*

¹⁹⁶ Guangdong High People's Court. (2018). Guangdong Supreme People's Court Working Guidelines on Handling Standard Essential Patent Dispute Cases (Trial)

negotiation process between the parties¹⁹⁷; (2) the time, manner, and content of the negotiations of all parties involved¹⁹⁸; (3) the reasons for the breakdown or deadlock in the negotiations¹⁹⁹; and (4) other circumstances.²⁰⁰ Since the court mainly examines who is at fault in these four items, this mechanism can be considered as a mechanism for determining the implementer's "unwillingness."²⁰¹

Third, global licensing is in compliance with FRAND which seems to be commonly favored by the EU, UK, US and China. Courts in different jurisdictions have held that when an SEP is available worldwide, there is no reason why the SEP holder should not grant a global license to the implementer in the context of globalization of technology commerce²⁰², and (unless the implementer's commercial activity is in only one country) granting a license to a single geographically limited SEP is inconsistent with FRAND commitments.²⁰³ In *Saint Lawrence v Vodafone*, it was mentioned that a worldwide license meets the requirements of the Huawei framework, and that it does not violate competition law.²⁰⁴ In the United States, the court in *Microsoft Corp. v Motorola Inc.* clarified that the patent holder will grant licenses to unrestricted applicants on a worldwide basis, in a non-discriminatory manner, and on reasonable terms and conditions.²⁰⁵ The Guangdong High Court in China, in its 2013 case *Huawei v IDC*, briefly noted that global licensing is a common and widely used transaction model in the marketplace, and that this practice is consistent with the principle of efficiency and contributes to cost reduction and thus consumer welfare.²⁰⁶

In summary, as table 4.2 indicated, the framework and steps provided by the Huawei case primarily pertain to commercial practices. However, SEP licensing negotiations generally commence with infringement notifications and transpire under unequal relationships between the involved parties,

¹⁹⁷ *Ibid.*

¹⁹⁸ *Ibid.*

¹⁹⁹ *Ibid.*

²⁰⁰ *Ibid.*

²⁰¹ Lau, J. (2021). FRAND Defenses Against the Grant of Injunctive Relief: Applying Huawei v ZTE in Singapore and China. *Asian Journal of Comparative Law*, 16(1), 33-60.

²⁰² Judgment of 23 October 2018, UK Court of Appeal, Case A3/2017/1784, [2018] EWCA Civ 2344, *Unwired Planet v Huawei*, para. 56.

²⁰³ Judgment of 4 May 2017, [2017] EWHC 711 (Pat), Case HP-2014-000005, *Unwired Planet v Huawei*, para. 572.

²⁰⁴ Judgment of 31 March 2016, Regional Court (Landgericht) of Düsseldorf, Case 4a O 73/14, *Saint Lawrence v Vodafone*, para. 225.

²⁰⁵ Judgment of 14 May 2012, United States Court of Appeals for the Ninth Circuit, Case 696 F.3d 872 (9th Cir. 2012), *Microsoft Corp. v Motorola Inc.*

²⁰⁶ Judgment of 21 March 2018, Shenzhen Intermediate People's Court. Case 粤高法民三终字第 305 号, *Huawei Technologies Co., Ltd. v InterDigital Technology Corporation*.

rendering the spontaneous development of standardized commercial practices challenging. Efforts to reaffirm and bolster the normativity of commercial practices through case law may make ensuring their stability difficult. Currently, the framework concerning commercial practices primarily comprises licensing negotiation steps and the implementers' willingness to obtain licenses. Nevertheless, due to the judiciary's inability to excessively interfere with business freedom, a more reasonable framework might closely resemble the "fault mechanism" proposed by China, which outlines unwillingness practices and considers anything beyond these as willingness. or a framework of behavior that sets the boundaries between willingness and unwillingness.

Accurately addressing the commercial practices in the standard-essential patent industry necessitates not only precise citation and adjustment in judicial proceedings but also the employment of administrative measures to promote the development of good commercial practices. Consequently, obtaining more empirical evidence may help Europe to improve the SEP negotiation and business practice framework, relying not only on case law but also on public consultation, in order to reinforce FRAND licensing negotiation rules and publish a summarized FRAND negotiation guideline.

4.4 FRAND Licensing Level in Multi-Tiered Supply Chains

Scholars generally identify two main contrasting viewpoints regarding SEP licensing tiers, namely "access to all" (ATA) and "license to all" (LTA).²⁰⁷ In Europe, SSOs and courts seem to have reached a consensus in this regard. CWA 17431 notes that licensing a product or service at a single point in the supply chain represents an "efficient approach."²⁰⁸ This approach is further explained in CWA 95000, which states that it aims to ensure SEP royalties are not paid multiple times for the same device due to the SEP being licensed within the supply chain.²⁰⁹ This approach essentially belongs to ATA, as all implementers in the supply chain can access the SEP after it has been licensed. Although this

²⁰⁷ Borghetti, J. S., Nikolic, I., & Petit, N. (2021). FRAND licensing levels under EU law. *European Competition Journal*, 17(2), 205-268.

²⁰⁸ CEN-CENELEC Workshop Agreement. (2019). Principles and guidance for licensing Standard Essential Patents in 5G and the Internet of Things (IoT), including the Industrial Internet (CWA 17431). Retrieved from <https://www.ipeurope.org/wp-content/uploads/2019/09/CWA17431.pdf>, p. 7.

²⁰⁹ CEN-CENELEC Workshop Agreement. (2019). Core Principles and Approaches for Licensing of Standard Essential Patents (CWA 95000). Retrieved from <https://www.cencenelec.eu/media/CEN-CENELEC/CWAs/ICT/cwa95000.pdf>, p. 13.

approach seemingly aligns with the patent exhaustion principle, it may be regarded as an extended version of this principle. According to the patent exhaustion principle, only downstream licenses in the supply chain receive protection, whereas upstream entities might not be protected. However, in this concept, upstream entities are also protected.²¹⁰

In the United States, this topic may be more complex, with no evidence indicating a preference for ATA or LTA, and a greater emphasis on respecting business freedom. Firstly, the Updated IEEE IPR Policy stipulates that the SEP holder's FRAND commitment includes granting a license to an "unrestricted number of Applicants" globally, either for free or at a reasonable rate, for the essential patent rights.²¹¹ While this may appear to imply an LTA intention, merely stating an unlimited number does not prove that IEEE imposes an obligation on SEP holders to license any applicant. In the *Continental v Avanci* case, Continental's antitrust claims were rejected, suggesting that SEP holders can license SEPs to certain companies while refusing licenses to others, meaning SEP holders are not obliged to grant licenses to any company.²¹² This could potentially give SEP holders more significant power, increasing the risk of monopolistic behavior.

Automotive Industry SEP Licensing Guidelines (2022 Edition) in China includes the principle that "any link in the industrial chain is eligible for a license,"²¹³ indicating that Chinese SSOs concur with the German court's approach. However, in the *OPPO Guangdong Mobile Communications Co., Ltd. v Nokia* case, China's Supreme People's Court held that once an SEP holder has made a FRAND licensing commitment, the licensing choice is "no longer about whether to license the implementer but rather about the specific conditions under which the implementer is licensed."²¹⁴ This might imply that the Supreme People's Court of China believes that SEP holders who have made FRAND commitments should naturally allow any implementer to obtain a license and use their technology,

²¹⁰ Borghetti, J. S., Nikolic, I., & Petit, N. (2021). FRAND licensing levels under EU law. *European Competition Journal*, 17(2), 205-268.

²¹¹ IEEE Standards Association. (2022). IEEE SA Standards Board Bylaws. Retrieved from <https://standards.ieee.org/wp-content/uploads/import/governance/bog/resolutions/september2022-updates-sasb-bylaws.pdf>, p. 3.

²¹² Judgment of 21 June 2000, Regional Court (Landgericht) of Düsseldorf, Case No. 20-11032 (5th Cir. 2022), *Continental v Avanci*.

²¹³ China Automotive Engineering Society Intellectual Property Branch, IMT-2020 (5G) Promotion Group, & Automotive Standard Essential Patent Working Group. (2022). 汽车行业标准必要专利许可指引.

²¹⁴ Judgment of 27 October 2022, Chongqing First Intermediate People's Court. Case 渝 01 民初 1232 号, *OPPO v Nokia*.

thus imposing an obligation to license any implementer. However, with this LTA approach, SEP holders are obliged to provide licenses to anyone, which could lead to: 1) excessive compensation for SEP holders if the rates are consistent; 2) non-FRAND rates if they are inconsistent, thereby violating FRAND commitments; and 3) conflicts with the patent exhaustion principle. A potential solution may involve granting licenses to implementers for free, but this would be unfair to SEP holders and could damage their incentives to innovate. Thus, increasing transparency, such as disclosing licensed implementers and clarifying the necessary licensing tiers for supply chain implementers, could help avoid legal ambiguities and improve economic efficiency.

4.5 Conclusion

In summary, there is no universally applicable method for determining FRAND-compliant rates, commercial practices and whether an "all-to-all" (ATA) or "license-to-all" (LTA) approach should be adopted, but these internationally recognized methods can serve as references for standard essential patent (SEP) holders and implementers.

First, different jurisdictions have adopted different methods to determine FRAND royalty rates, including hypothetical negotiations, top-down approaches and comparative methods. Chinese courts have used both top-down and hypothetical negotiation methods and have outlined the factors to be considered in calculating FRAND rates in their published working guidelines. The United States first introduced hypothetical negotiations, listing all possible factors to be considered in calculating FRAND rates, and later case law freely selected some of these factors, while also adopting top-down and comparative methods. Thus, in order to establish a methodology for determining FRAND rates, identifying the factors influencing FRAND rates could be a good starting point, followed by determining the proportion of these factors by industry - although this would require evidence to demonstrate the feasibility of fixed proportionality for calculating rates within the same industry. The United States and China have provided factors that are considered in their case law and policies, as shown in Table 4.2. In this respect, the European Union has yet to provide answers as to which factors are or may be considered.

Second, the FRAND licensing framework and the steps set out in the Huawei case have established the obligations for SEP licensing negotiations, including the sending of infringement notices, offers and counteroffers, and the demonstration of "willingness". These obligations have also been found to be partially mandatory in US and Chinese case law and policy. Therefore, in terms of commercial practices, the question may be how to determine "willingness". In comparison, the European Union has identified some behaviors that can be considered as willingness to license and some behaviors that can be considered as unwillingness, but these behaviors are limited to those observed by courts in specific cases, meaning that other unwilling behaviors are not included in the definition of "unwillingness" in the current EU FRAND licensing framework, leaving ample room for hold-up and hold-out. Both US and Chinese case law and policy have refined the behaviors that are consistent with willingness and then provided assessments to confirm whether implementers are showing unwillingness. In general, however, the determination of FRAND commercial practices in the licensing process requires not only the use of judicial decisions as a reference, but also the consideration of opinions within the industry.

Third, requiring SEP holders to adopt either an ATA or LTA approach may not be consistent with FRAND and patent law principles. Imposing a strict ATA requirement may violate commercial freedom and potentially harm the interests of SEP holders, while requiring LTA and FRAND compliance may necessitate offering free licenses, which may weaken firms' incentives and reduce technological innovation. Collecting royalties from everyone would violate the principle of exhaustion of patent rights. Moreover, allowing SEP holders to freely grant or refuse licenses to anyone, as is the case in the United States, may not be consistent with FRAND principles. Thus, the issue may be less about ATA or LTA and more about the level at which licenses should be granted, as the European Union is leaning towards granting licenses at any level.

The priority, therefore, is to further refine the FRAND negotiating framework by combining industry practice and judicial decisions. Gathering more empirical evidence can promote the improvement of FRAND negotiation rules based on case law and the development of guidelines for FRAND negotiation rules based on these cases. At the same time, such guidelines can facilitate effective licensing agreements and promote technological progress. In this way, it may be possible to strike a balance between the protection of intellectual property rights and the maintenance of market

competition, ultimately promoting fairness and equity in the SEP licensing process and reducing the risks of patent hold-up and hold-out.

5. EVALUATING OF THE IP ACTION PLAN ON FRAND LICENSING

5.1 The IP Action Plan

Owing to the uncertainties surrounding SEP licensing and the ambiguous nature of FRAND obligations, the EC recognizes the necessity for enhanced transparency and predictability in SEP licensing. Consequently, the IP Action Plan, published in November 2020, proposes measures to improve transparency and predictability in SEP licensing. Despite the guidance offered in the 2017 Communication, the EC has observed persistent challenges in the adoption of SEP-protected standards.²¹⁵ Furthermore, as the transition to 5G and beyond progresses, the number of SEPs, SEP holders, and implementers continues to grow. Many new entrants are unfamiliar with SEP licensing but must engage in SEP arrangements. The existing system, particularly for smaller players such as Small and Medium-Sized Enterprises (SMEs) and start-ups in the IoT sector, does not provide all the necessary tools to facilitate swift, effective, and fair SEP licensing agreements.²¹⁶ Prolonged licensing negotiations often result in conflicts and litigation, adversely affecting EU businesses on all fronts, including SEP holders and implementers.

In line with the IP Action Plan's schedule, the EC introduced an initiative titled "Intellectual Property – New Framework for Standard-Essential Patents" on February 14, 2022.²¹⁷ This initiative primarily aims to complement existing EU policy instruments by addressing select SEP-related issues at the EU level, with one policy option involving the development of guiding principles and/or processes to

²¹⁵ European Commission. (2021). Standard Essential Patents. Single Market Economy. Retrieved 1 April 2023, from https://single-market-economy.ec.europa.eu/industry/strategy/intellectual-property/patent-protection-eu/standard-essential-patents_en

²¹⁶ *Ibid.*

²¹⁷ European Commission. (2022). Intellectual property – New framework for standard-essential patents. European Commission - Have Your Say. Retrieved 1 April 2023, from https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13109-Intellectual-property-new-framework-for-standard-essential-patents_en

provide clarity on various aspects of FRAND.²¹⁸ The initiative specifically sought the opinions of various stakeholders, including SEP holders, implementers, patent attorneys, legal practitioners, academics, patent-pool administrators, industry associations, start-ups, SMEs, SDOs, consultants, and policymakers with experience in SEPs.²¹⁹ In this section, the submissions of SSO, namely CEN and CENELEC (Belgium), and two enterprises, including Telefonaktiebolaget LM Ericsson (Sweden) and Nokia (Finland) will be examined to gain insight into the perspectives of these stakeholders. Understanding their opinions may assist in predicting the forthcoming legislative or non-legislative guidelines on clarifying FRAND obligations in SEPs, following the IP Action Plan for FRAND licensing.

5.2 Call for Evidence

SEP licensing and the impacted value chains are typically global in nature, while SEP enforcement remains territorial. It has been identified that both licensing and enforcement are inefficient, necessitating action at the EU level.²²⁰ Actions taken at the Member State level could potentially result in divergent interpretations, partially influenced by whether businesses in those Member States are primarily SEP holders or implementers.²²¹ The initiative aims to foster an efficient and sustainable SEP licensing ecosystem that considers both SEP holders' and implementers' interests. The Commission plans to ensure continued innovation participation in standardization and facilitate access to standardized technology.²²²

The initiative will be based on three policy pillars supported by legislative and non-legislative instruments²²³:

- 1) enhancing SEP transparency,
- 2) providing clarity on FRAND aspects by developing guiding principles and processes, and

²¹⁸ European Commission. (2022). Intellectual property – New framework for standard-essential patents. European Commission - Have Your Say. Retrieved 1 April 2023, from https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13109-Intellectual-property-new-framework-for-standard-essential-patents_en

²¹⁹ *Ibid.*

²²⁰ *Ibid.*

²²¹ *Ibid.*

²²² *Ibid.*

²²³ *Ibid.*

3) boosting enforcement effectiveness and efficiency. The initiative emphasizes the need for transformation in prevailing commercial practices, which often lack consistent and meaningful information concerning FRAND terms and conditions. This transformation will support standard implementers, including start-ups and SMEs, in incorporating licensing expenses into their business models and facilitating licensors' profit projections and attainment.²²⁴

As two of the SSOs in the EU, CEN and CENELEC discussed its contributions, the significance of SEPs, and provided clarifications pertaining to the initiative while referencing the workshop agreements concerning license negotiation, specifically CWA 17431 and CWA 95000.²²⁵ CEN and CENELEC also acknowledged that reaching a consensus on FRAND licensing commercial practices would be challenging.²²⁶ Concurrently, it is evident that SSOs “have no authority over the behavior of the SEP holders” and therefore, do not govern FRAND licensing commercial practices, and can only offer guidance to SEP holders and implementers, as mentioned in the initiative.²²⁷ This approach does not alleviate the challenges faced by stakeholders (particularly SMEs) in pursuit of FRAND-compliant "good faith" and "best practices." Owing to the deficiency of education on FRAND licensing practices for SMEs in the EU, SEP holders and implementers may be unaware of these guidelines. Furthermore, even with the existence of guidelines such as CWA 17431 and CWA 95000 for optimal commercial practices, compliance remains uncertain due to the voluntary nature of adherence and varied interpretations. Notably, courts do not refer to these agreements during disputes. Consequently, SSOs may not be stakeholders in governing the FRAND licensing negotiation process, and new legislative and non-legislative actions proposed by the EC during this initiative may not take their feedback into account, instead focusing on the perspectives of SEP holders and implementers.

As an SEP holder and implementer with the highest R&D intensity among major technology companies in the EU, Nokia supported the initiation and agreed on the need for coherence and balance in FRAND licensing, while evaluating some proposals from the initiative. Nokia's feedback posited that a single-level license is the optimal solution for FRAND licensing obligations in multi-tiered supply chains.²²⁸ First, unrestricted access to licensing without a designated point in the supply chain

²²⁴ *Ibid.*

²²⁵ CEN and CENELEC. (2022). Response to a new framework for standard-essential patents.

²²⁶ *Ibid.*, p. 4.

²²⁷ *Ibid.*, p. 4.

²²⁸ Nokia. (2022). Comments on the DG GROW call for evidence for an impact assessment.

provides minimal incentive for reluctant implementers to negotiate and promptly finalize FRAND licenses, which Nokia identifies as the primary cause of licensing inefficiencies.²²⁹ Second, Nokia contends that obligating SEP holders to 'license to all' would undermine SEP licensing by removing a significant incentive to invest in R&D, discouraging participation in open standards, and substantially increasing the complexities and costs of licensing, assuming such an obligation is even practically or legally feasible.²³⁰ Legally, this should not be possible, as licensing a patent at one level of a value chain precludes licensing at another level, which constitutes double-dipping.²³¹ Nokia ultimately recommended that the Commission recognize the advantages and efficiencies of single-point licensing, where only one identifiable entity in a supply chain requires a license, granting access to both customers and suppliers without necessitating separate individual direct licenses.²³²

Concerning good commercial practices in FRAND licensing negotiation, Nokia argued that more evidence is required to determine whether transparency in FRAND licensing negotiations will genuinely enhance licensing efficiencies, suggesting that transparency might cause more harm than good.²³³ The degree of transparency may also need adjustment, as it could increase costs for both SEP holders and implementers and contribute to hold-out situations. If transparency is proven to enhance licensing efficiencies, an alternative system that reduces costs and time should be implemented.²³⁴

Regarding royalty rate calculations, both Nokia and Ericsson provided limited commentary but emphasized that the EU should develop its own calculation system instead of adopting the Smallest Saleable Patent Practicing Unit (SSPPU) as a reference.²³⁵ This suggests that businesses in the EU anticipates a FRAND-compliant rate-determining system and is prepared to adhere to it.

Consistent with the concerns of a majority of businesses, cost and time efficiency appear to be the primary considerations for SEP holders and implementors during the FRAND licensing negotiation phase. Feedback from Ericsson also underscored that enhancing transparency may not necessarily

²²⁹ *Ibid.*, p. 3.

²³⁰ *Ibid.*, p. 10.

²³¹ *Ibid.*, p. 10.

²³² *Ibid.*, p. 9-10.

²³³ *Ibid.*, p. 9.

²³⁴ *Ibid.*, p. 9.

²³⁵ *Ibid.*, p. 10.

mitigate hold-out issues; however, it could potentially facilitate SEP licensing and yield cost benefits for prospective licensees, contingent on the objectives and degree of transparency.²³⁶ Moreover, they introduced the notion of an impartial, transparent essentiality assessment framework that, under particular conditions, might contribute to improved licensing negotiation outcomes, while taking into consideration due process, the binding character of the assessment, the employment of samples, and associated costs.²³⁷ In summary, both Nokia and Ericsson conveyed apprehensions about transparency and its ramifications for cost and time efficiency in FRAND licensing negotiations, underscoring the necessity for a judicious equilibrium between fostering transparency and safeguarding the interests of SEP holders and implementers.

In conclusion, given the significant influence of SEP holders and implementers in the initiative, the anticipated trend for the EC's adoption in the second quarter of 2023 is to strike a balance between the rights of SEP holders and implementers, while examining the feasibility of single-level licensing in multi-tiered supply chains. The EC may also address stakeholders' questions regarding the role of transparency in mitigating SEP hold-ups and hold-outs, and the efficiency of the entire FRAND licensing process. Subsequently, the EC may attempt to employ legislative action to enhance transparency in FRAND licensing, while preserving cost and time efficiency for both SEP holders and implementers.

5.3 Conclusions and Prospects for IP Action Plan

During the COM(2023)232 - Proposal for a regulation of the European Parliament and of the Council on standard essential patents and amending Regulation (EU) 2017/1001 (COM(2023)232) posted by the EC on April 27, 2023, supplementary protection certificates, compulsory licenses, and standard-essential patents were identified as essential components for the proposed legislative action.²³⁸ Despite the strategic significance of patents, the EU's patent law remains fragmented, prompting the

²³⁶ Telefonaktiebolaget LM Ericsson. (2022). Call for evidence for an impact assessment: Intellectual property - new framework for standard-essential patents., p. 5-6.

²³⁷ *Ibid.*, p. 8.

²³⁸ European Commission. (2023). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on standard essential patents and amending Regulation (EU)2017/1001. Retrieved from https://single-market-economy.ec.europa.eu/system/files/2023-04/COM_2023_232_1_EN_ACT_part1_v13.pdf.

EC to advocate for modernization in order to bolster the resilience of the patent system, support the EU's green and digital transformation, and strengthen the EU's technological sovereignty, particularly concerning emerging technologies.²³⁹ With the proposed regulations adopted, the EC has demonstrated its commitment in the IP Action Plan to enhancing the harmonization of EU patent law and complementing the Unified Patent System, set to launch in June 2023.²⁴⁰

The new SEP regulation aims to establish a balanced framework for SEP transparency with two primary objectives: to ensure that EU SEP holders and implementers innovate, produce, and market products within the EU and maintain competitiveness in non-EU markets²⁴¹; and to ensure that end-users, including SMEs and consumers, benefit from products based on the latest standardized technologies at a reasonable rate, thereby fully rewarding the underlying innovation.²⁴² The initiative seeks to encourage the involvement of European companies in the standards development process and the widespread implementation of such standardized technologies, particularly in the IoT sector.²⁴³

Taking into account the practical concerns raised by enterprises in response to the initiative, the EC seeks to address the protection of SEP holders' and implementers' interests through its targeted solution as part of the IP Action Plan. As a result, the new legislation will include²⁴⁴: 1) SEP registration, database, and essentiality assessment; 2) SEP aggregate royalty; 3) FRAND determination; 4) SME support measures; and 5) establishment of a "competence center" at EUIPO to manage the aforementioned elements (registration, database, essentiality assessment, aggregate royalty, FRAND determination, and SME support services).

The EC's position on issues with FRAND licensing is reflected in its proposals regarding commercial practice, royalty rate, and SME support. Firstly, the EC proposes mandatory registration held by EUIPO, where SEP holders record their SEPs, provide patent and standard details, and submit selected

²³⁹ *Ibid.*, p. 3.

²⁴⁰ European Commission. (2023). Questions and Answers: Proposal for a Regulation on Standard Essential Patents. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/qanda_23_2457.

²⁴¹ European Commission. (2023). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on standard essential patents and amending Regulation (EU)2017/1001. Retrieved from https://single-market-economy.ec.europa.eu/system/files/2023-04/COM_2023_232_1_EN_ACT_part1_v13.pdf, p. 2.

²⁴² *Ibid.*, p. 2.

²⁴³ *Ibid.*, p. 2.

²⁴⁴ *Ibid.*, p. 11-14.

SEPs for a non-binding essentiality assessment.²⁴⁵ The proposal also includes an electronic database containing information on aggregate royalties, FRAND terms and conditions, and licensing schemes.²⁴⁶ In addition, the new legislation gives a very specific SEP license negotiation time, which shows that EC will respond to the negotiation time as the main factor to determine the willingness to reach a license.²⁴⁷ To address disputes, the EC proposes a specific timeframe and an out-of-court dispute resolution mechanism, encouraging SEP holders and implementers to attempt reaching an agreement on royalties within a FRAND determination period before resorting to litigation.²⁴⁸ Secondly, while the EC proposes allowing SEP holders to notify the expected maximum aggregate royalty in the register, it remains unclear whether the EC will consider legislative action regarding the level of licensing in multi-tiered supply chains. Lastly, the EC proposes providing support to SMEs, including free advisory services, reduced royalties for SEP registration and essentiality checks, and promoting more favorable FRAND terms and conditions for SMEs, which corresponds to the concerns imposed by Nokia and Ericsson. However, this support may not address disputes or conflicts arising during negotiation and may not help SME implementers assess their licensing needs or negotiate in a FRAND-compliant manner.

²⁴⁵ *Ibid.*, p. 8.

²⁴⁶ *Ibid.*, p. 8.

²⁴⁷ *Ibid.*, p. 10.

²⁴⁸ *Ibid.*, p. 10.

6. CONCLUSION

If the growing number of technology SEPs is one of the advantages of the European Union, a FRAND licensing framework that balances the interests of SEP holders and implementers could be an important driving force for promoting technological development in the EU. The EU's FRAND licensing framework is currently shaped by the interaction of legislation, case law, and SSO guidelines. Based on this, the EU has established a negotiation framework for seeking injunction relief in subsequent FRAND licenses following the Huawei v ZTE case, and many case laws and indicative documents provided by SSOs have enriched this framework, allowing SEP holders and implementers to better understand their FRAND licensing obligations, clarify the risks of various actions in the negotiation process, and avoid or reduce the occurrence of patent hold-ups and hold-outs.

Many SEP litigation cases following the Huawei case have provided more details for the framework, supplementing aspects not mentioned in the Huawei case and offering clarification for the negotiation framework. However, these details are primarily conclusions drawn by the courts in specific cases, and their applicability to all situations remains to be examined. The framework has been referenced by other jurisdictions after its introduction in the EU, but other jurisdictions, such as the United States and China, have summarized their case law and provided opinions applicable to judicial practice, which can be referred to by all SEP holders.

No framework is truly perfect. In recent years, following rulings within the EU, some details of the negotiation framework still need clarification, including but not limited to: which methods of calculating SEP royalties comply with FRAND, which actions in SEP negotiations can be considered in line with FRAND "willingness" and which cannot, and which implementers are in compliance with FRAND. Partial answers to these questions can be found in the practices of the United States and China: firstly, identifying factors that will affect SEP licensing rates may help SEP holders and implementers issue invitations and counter-invitations that meet FRAND requirements; secondly,

setting a relatively clear boundary for "willingness" and "unwillingness", as well as assessing these established requirements and actual practices in SEP negotiations, may make SEP negotiations more efficient and ultimately reduce hold-ups and hold-outs; last but not least, on the issue of ATA or LTA, the EU's current approach may be more in line with FRAND and patent law requirements, but improvements are needed, such as determining which supply chain levels in which industries need licenses.

Finally, as seen in the COM(2023)232 released on April 27, 2023, new legislation will include total SEP royalty rates and FRAND determination, which essentially addresses the aforementioned issues of royalty determination and FRAND negotiation positively. Importantly, the EC will respond to negotiation time as a primary factor in determining the willingness to reach a license, and there will be a dedicated assessment to determine whether SEP negotiations and invitations comply with FRAND. In addition, the new legislation will include SEP assessment and support measures for small and medium-sized enterprises. Therefore, future research may include analysis of patent hold-ups and hold-outs after the new SEP legislation takes effect, as well as FRAND negotiations in the context of this legal framework.

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APPENDICES

Appendix 1. Table 4.1 FRAND Royalty Calculation Methodologies and Factors for SEPs Comparison

Royalty calculation methodologies and factors	EU	US	China
Royalty calculation methodologies	The comparable approach, the top-down approach	The hypothetical negotiations approach, the comparable approach, the top-down approach	The hypothetical negotiations approach, the comparable approach, the top-down approach
Royalties collected by the patentee for FRAND licenses for the same patent	Yes	Yes	Yes
Royalties paid by the licensee for the exploitation of comparable patents	Yes	Yes	Yes
The nature and scope of the license	No/Unclear	Yes	No
The value of the patent	Yes	Yes	Yes
The term of the license	No/Unclear	Yes	No
The profitability of the product	No/Unclear	Yes	Yes
The usefulness and advantages of the patented technology	No/Unclear	Yes	Yes
The nature of the patented technology	No/Unclear	Yes	No
The extent and value of the use of the patent by its holder	No/Unclear	Yes	No
The usual profit share for the activities of licensing SEP	No/Unclear	Yes	Yes
The share of profit attributable to the standard	Yes	Yes	Yes

Royalty calculation methodologies and factors	EU	US	China
The expert testimony	No/Unclear	Yes	No
The royalty rates the parties sought an agreement	No/Unclear	Yes	No
The public interest	No/Unclear	Yes	No
The risk of royalty stacking	No/Unclear	Yes	No

Source: Author's compilation during the work

Appendix 2. Table 4.2 Negotiation Process and Obligations During FRAND Negotiations Comparison

Negotiation process and obligations during negotiations	EU	US	China
Negotiation process	Infringement notice - confirm "willingness" - Offer - Counter offer - security/injunction/court-determined royalty	Infringement notice - Offer - Counter offer - remedies/court-determined royalty	Infringement notice - negotiation - injunction/remedies/court determined royalty
SEP holder: Obligation to notify the infringement	Yes	Yes	Yes
SEP holder: Obligation to provide information in the notice	Yes	Yes	Yes
SEP holder: Obligation to offer	Yes	Yes	Yes
SEP implementor: Obligation to counteroffer	Yes and no	No	Yes
SEP implementor: Obligation to prove "willingness"	Yes	Yes	Yes
Determining willingness to the FRAND license terms	1) a statement of the implementer's willingness to obtain FRAND permission; 2) the response time is sufficiently rapid; and 3) the content of the response is in line with the FRAND commitments	1) respond within a commercially reasonable amount of time; 2) accepting the offer; 3) making a good-faith F/RAND counteroffer; 4) raising specific concerns about the offer's terms; 5) proposing that contested issues be resolved by a neutral party; or 6) requesting more specific information reasonably needed to evaluate the offer.	1) the implementer responds actively; 2) the implementer responds at a royalty that is reasonable and does not deviate from the strengths of the parties and 3) if parties comply with FRAND negotiation in culpability frameworks.

Negotiation process and obligations during negotiations	EU	US	China
Determining unwillingness to the FRAND license terms	1) non-FRAND counteroffers and refusing to improve; 2) implementers repeating questions on the same subject without "constructive comment"; 3) implementers applying delaying tactics that can be "undone" at a later point in time without much effort; 4) directing SEP holders to the supplier as the appropriate licensee	1) unilateral rejection of an offer when the implementer knows that the royalties are FRAND; 2) unreasonable delay in negotiations with the same effect	1) Failure to respond actively; 2) responding at a royalty that deviates from the strengths of the parties; and 3) if any party failed to comply with FRAND negotiation in culpability frameworks.
Injunction requesting criteria	Any steps within Infringement notice - confirm "willingness" - Offer - Counter offer - security/injunction/court-determined royalty	Only potential licensees who demonstrate a reluctance to obtain a license are not able to compensate the SEP holder for past infringements and future use of the SEP under a voluntary F/RAND commitment	SEP holders may not seek injunctive relief for breach of FRAND commitments in license negotiations
FRAND compliant licensing practices	Global portfolio licensing or multi-regional licensing	Global portfolio licensing	Global portfolio licensing

Source: Author's compilation during the work

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