

UNIVERSITY OF HELSINKI

MASTER THESIS

**FRAND COMMITMENTS IN SEP LICENSING:
ANTI-TRUST INTERVENTION OR NOT?**

Tan Xiaowen
International Business Law
International and Comparative Law
Faculty of Law
University of Helsinki
Supervisor: Katri Havu and Anette Alén-Savikko
September 2015

Tiedekunta/Osasto - Fakultet/Sektion – Faculty Faculty of Law		Laitos - Institution – Department Commercial Law
Tekijä - Författare – Author Tan Xiaowen		
Työn nimi - Arbetets titel – Title FRAND Commitments in SEP Licensing: Anti-trust Intervention or Not?		
Oppiaine - Läroämne – Subject Interface between Intellectual Property Law and Competition Law		
Työn laji - Arbetets art – Level Masters	Aika - Datum – Month and year 09.2015	Sivumäärä - Sidoantal – Number of pages 72+13
<p>Tiivistelmä - Referat – Abstract</p> <p>The article discusses FRAND commitment in standard essential patents (SEP) licensing issues. FRAND is an industry solution to solve risks in the process of standardization, which are especially obvious in telecommunication sector due to the huge amount of essential patents. Ever since the appearance of FRAND commitments, there are debates on whether there is a need for anti-trust law to enforce FRAND commitments or not. The article is inspired by argumentations made by representative legal scholars on both sides and to analyse whether there is such a need or not.</p> <p>The contractual nature of FRAND places relevant disputes to be solved primarily among licensing parties and theoretically both Article 101 and Article 102 do not tacitly require FRAND commitments. However, it is necessary for EU competition law to intervene when the SEP licensing agreements and SEP holders' abusive conducts due to the dominance on the relevant market, are anti-competitive enough to restrict, prevent and distort competition. Therefore, through a thorough examination of concrete problematic conditions in patent thicket, patent ambush, patent hold-up, royalty stacking, seeking injunctions, possible consumer harms, transfer issues and a globalized context, the article is able to conclude that there is a need for anti-trust intervention in FRAND-encumbered SEP licensing issues.</p> <p>The article suggests that here is a need for anti-trust intervention does not mean that competition law offer any special treatment to FRAND-encumbered SEP issues. Instead, competition law functions in a usual way, only when conditions for competition rules are satisfied. Competition authorities upon applying competition rules have to strike a balance between fundamental IPRs and the freedom of competition. Therefore, anti-trust law sits in a neutral standpoint and acts as a safeguard for a competitive market. Also, due to the complexity of standardization issues and divergent FRAND arrangements, cases have to be made on a case-by-case basis.</p>		
Avainsanat – Nyckelord – Keywords FRAND commitment, standard essential patent, licensing		
Säilytyspaikka – Förvaringställe – Where deposited University of Helsinki Library		
Muita tietoja – Övriga uppgifter – Additional information		

Table of Contents

List of Abbreviations

1. Introduction.....	1
2. Background.....	3
2.1. Standardization generates Benefits.....	4
2.2. Anti-competitive Risks.....	5
2.3. FRAND commitment as An Industry Solution.....	7
2.4. Scope and Methodology.....	9
3. FRAND commitments.....	12
3.1. Contractual Nature	12
3.2. Vagueness of FRAND.....	14
3.2.1. Contractual FRAND under ETSI policy.....	14
3.2.2. ‘Fair’ and ‘Reasonable’	16
3.2.3. ‘Non-discriminatory’	19
3.2.3.1. Price Discrimination.....	19
3.2.3.2. Non-discriminatory Terms.....	20
3.2.4. Other licensing terms.....	22
3.2.5. SSOs and SSO policies.....	23
3.2.6. Clarify FRAND?.....	25
4. Intervention or not?.....	26
4.1. Legal Framework in EU.....	27
4.2. Under provisions.....	30
4.2.1. Contractual remedies enough?.....	30
4.2.2. Violate FRAND equates violate competition law?.....	30
4.2.2.1. Article 101.....	31
4.2.2.2. Article 102.....	35
4.3. Perceived problems.....	37
4.3.1. Refuse to commit and Deceptive: Patent Ambush.....	37
4.3.2. Patent Thicket.....	39

4.3.3. Patent Hold-up.....	40
4.3.4. Royalty Stacking.....	44
4.4. Case Law: Seeking Injunctions.....	46
4.4.1. Huawei v. ZTE.....	48
4.4.2. Motorola and Samsung.....	51
4.4.3. Anti-trust intervention in Injunction cases.....	54
4.5. Consumer Harm?.....	57
4.6. Transferability.....	59
4.6.1. Various motivations to transfer.....	60
4.6.2. FRAND also transfers?.....	60
4.6.3. Joint Selling.....	62
4.7. Standards are Global.....	63
4.7.1. Shopping Forum: Huawei v. IDC.....	63
4.7.2. Applicability of FRAND commitments.....	65
5. FRAND commitments and Competition Law.....	66
5.1. The role of Competition Law.....	68
5.2. Competition Law and IP Law.....	69
5.3. A case-by-case Analysis.....	70
6. Conclusion.....	71
Bibliography	

List of Abbreviations

- 3GPP: The 3rd Generation Partnership Project
- AML: Anti-Monopoly Law
- CDMA: Code Division Multiple Access
- CJEU: the Court of Justice of the European Union
- EEA: The European Economic Area
- EU: European Union
- ETSI: European Telecommunications Standards Institute
- FDD: Feature-Driven Development
- FRAND: Fair, Reasonable and Non-discriminatory
- GHPC: Guangdong High People's Court
- GPRS: General Packet Radio Service
- GSM: Global System for Mobile communications
- HSPA: High-Speed Packet Access
- HSPA+: Evolved High-Speed Packet Access
- IEEE: The Institute of Electrical and Electronics Engineers
- IP: Intellectual Property
- IPR: Intellectual Property Right
- ITC: International Trade Commission
- ITU: International Telecommunication Union
- LTE: Long Term Evolution
- NDRC: National Development and Reform Commission
- NPE: non-practicing entity
- R&D: Research and Development
- SEP: Standard Essential Patent
- SSO: Standard Setting Organization
- RMB: RenMinBi (Chinese currency)
- TFEU: the Treaty on the Functioning of the European Union
- TTA: Technology Transfer Agreement

TTBER: Technology Transfer Block Exemption Regulation

UMTS: Universal Mobile Telecommunications System

US: United States

WCDMA: Wideband Code Division Multiple Access

1. Introduction

FRAND commitments, to provide an irrevocable commitment in writing to offer to license to all third parties on fair, reasonable and non-discriminatory terms, have now become a common practice of licensing matters in standards to ensure effective access to the standards.¹ FRAND plays an important role in the interplay between patents and standards. Discussions over FRAND-encumbered standard essential patents (SEPs), especially in telecommunication sector, have been frequently raised about the interpretation of FRAND, royalty levels, seeking injunctions and etc. In the absence of clear and definite legal provisions and relevant case law, little effort has been made by EU competition authorities to solve disputes as such. The only case that has been intervened by anti-trust authorities is seeking injunctions.

In fact, debate on whether there is a need for antitrust intervention in FRAND commitments is in full swing among various legal scholars. The most influential representatives are Philippe Chappatte's work² and Damien Geradin and Miguel Rato's reply to the work (hereinafter 'the reply')³, as the former approves of an anti-trust intervention, while the latter disapproves. This article, inspired by these two works, tries to explore whether there is a need for EU competition law to intervene in FRAND-encumbered SEP licensing issues. If the answer is affirmative, is such antitrust intervention absolute or conditional?

In order to see whether there exists a necessity for anti-trust intervention, the first step is to look into the background where FRAND commitments emerge. What purposes do FRAND commitments intend to achieve? Part 2 introduces the appearance of FRAND commitments as an industry solution in the context of standardization, which is also recommended by the Horizontal Guidelines to address risks invoked in the process of standardization such as patent hold-up and royalty stacking. This part also narrows down

¹ Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements [2011] OJ C11/1, para285.

² Philippe Chappatte, 'FRAND Commitments—the Case for Antitrust Intervention' (August 2009) European Competition Journal, 319.

³ Damien Geradin and Miguel Rato, 'FRAND Commitments and EC Competition Law: A Reply to Phillippe Chappatte' (April 2010) European Competition Journal. 129.

the scope of the article to telecommunication sector with regard to SEP licensing issues.

Part 3 discovers the nature and characteristics of FRAND commitments. This part digs into the contractual nature of FRAND and its inherent vagueness, as well as a discussion about the necessity to clear such vagueness. The purpose of this part is to offer a better understanding of FRAND in itself which might help to prepare for the further discussions of different circumstances where FRAND fails to function as expected. Indeed, to certain extent, the failure of FRAND in addressing relevant standardization risks is already embedded in the FRAND commitments *per se*.

Part 4 inquires more specifically into the core question whether competition law shall intervene with FRAND-encumbered SEPs. This part first examines the legal framework for FRAND-encumbered SEPs. Then it discusses theoretically under legal provisions whether there is a place for competition rules to apply. After that, it takes a careful look into perceived problems in different circumstances where even with the FRAND commitments, standardization risks still exist and FRAND commitments *per se* might also bring about anti-competitive effects to the relevant market. Those risks examined in this article focus on conditions where there is no FRAND commitments at all, where licensing parties breach FRAND commitments and where FRAND commitments do not function quite well in preventing anti-competitive effects. Also, on the basis of present case law, the article tries to answer a series of questions, to discover the attitude of the CJEU court (hereinafter ‘the Court’) and the European Commission (hereinafter ‘the Commission’). According to the Court judgments and the Commission decisions in recent cases, how do competition authorities treat licensing issues related to FRAND-encumbered SEPS? Which Article acts as legal basis? In fact, competition authorities only intervene in very exceptional cases—seeking injunctions. Through discussion on seeking injunctions, the article analyzes the standpoint of competition authorities and the legal principle applied behind the exceptional intervention. Also, the article continues to discuss whether competition authorities shall do more than that? Besides, in this part, the potential detriment to consumers, problems in transferring FRAND-encumbered SEPs and the disputes due to a globalized standard are also discussed as potential reasons for anti-trust intervention.

Part 5 starts from exploring the relationship between FRAND commitments and competition law. In principle, FRAND shall first be discussed between licensing parties. No matter licensing parties abide by FRAND or not, competition law only intervenes on regular basis and competition rules do not offer special treatment to FRAND commitments. Thus the role of competition law is neutral. Competition authorities upon applying competition rules have to strike a balance between fundamental IPRs and the freedom of competition. The article also discusses the relationship between IP law and competition law and emphasizes that the balance shall be made on a case-by-case analysis.

Finally, part 6 gives a short conclusion on the main ideas of this article. It steps further that even with anti-trust intervention, standardization risks cannot be solved perfectly. It depends on every participants to function a better and more competitive market and it relies on every one to make the society better.

2. Background

‘Standards are technical specifications describing means of achieving certain beneficial features of products and services.’⁴ Standards such as GSM, GPRS and UMTS in telecommunication industry ensure that all cellphones can communicate and they are now everywhere in our daily life without being emphasized as a standard but in fact these standards have already grown into normal use through standard-compliant products such as cellphones. In order to set a standard, a variety of domestic and international entities are established as standard-setting organizations (SSOs) to examine and to approve such technical specifications until they are widely adopted by the market.⁵ For example, Global System for Mobile Communications (GSM) is a standard set by a SSO called the European Telecommunications Standards Institute (ETSI) and GSM is widely used all over the world.

The process to develop and to implement a technical standard is called standardization. ‘Standardization is a voluntary cooperation among industry, consumers, public authorities

⁴ National Research Council (U.S.), *Patent challenges for standard-setting in the Global Economy: Lessons from information and communication technology* (Washington, D.C.: National Academies Press 2013) 1.

⁵ *ibid* 1.

and other interested parties for the development of technical specifications based on consensus.⁶ Such process usually sets certain thresholds on products or services to satisfy public interests for safety, health and environmental reasons. One of the most important objectives of standardization is interoperability, which allows products or services to be used on different platforms. The function of interoperability can be seen for instance in UMTS standards also known as 3G standards, with which consumers are able to get signals to use cellphones to call, to get online and to text messages anytime, anywhere with different brands of cellphones.

Technologies that are chosen to be incorporated into a standard are protected through the application as patents and protection can be extended even in the process of application before a patent is granted. Usually, a standard contains a lot of patents, among which those are indispensable to the standard are standard-essential patents (SEPs). Telecommunication SSOs such as International Telecommunication Union (ITU) and ETSI usually requires SEP holders to agree on FRAND commitments before incorporated into a particular standard.

2.1. Standardization generates Benefits

Generally speaking, standardization promotes economic efficiency and brings about substantial benefits to consumers. As discussed above, the most significant benefit is interoperability, which as main objective of standard is particularly essential for telecommunication industry. ‘Interoperability leads to increased network effect as consumers value the product according to the number of its users.’⁷ Consumers trust in the safety, function and quality of standardized products and services.

Also, as long as one standard is widely accepted in the market, same SEPs are incorporated in all kinds of products and services, which leads to economies of scale, research and development (R&D) efficiency, as well as unified platforms to develop new products. Thus,

⁶ Communication from the Commission to the Council, the European Parliament and the European Economic and Social Committee: Towards an increased contribution from standardisation to innovation in Europe, Brussels, COM(2008) 133 final, 2

⁷ Chappatte (n 2) 322.

costs are lowered and prices are also lowered, especially for standardized products and components.

Moreover, as SSOs choose the best among *ex ante* dispensable technologies, they are likely to establish a much better standard than if different technology holders develop it separately. This ‘choose-to-be-better’ process then reduces many troubles and risks for consumers. Without standardization, they would have to choose by themselves among inter-technology competitions and face the possibilities that the technology they choose might be eliminated by competitors or by newer and more advanced substitutes.⁸

The another important benefit generated by standardization is the promotion of innovation. As the emergence of a new standard usually accompanies an arisen market, deriving from which many new technologies, products and services appear. The most obvious example is in telecommunication industry, developing from 1G till 4G. During the R&D, knowledge is disseminated and technologies are widely spread, which then triggers further innovation. ‘Dynamic standardization is an important enabler of innovation.’⁹

2.2. Anti-competitive Risks

Although in general standardization creates economic efficiency and facilitates innovation, the creation of important standards eliminates technology competition and creates entry barriers upstream. Once the implementation of a standard becomes substantial, companies and consumers will find it extremely hard to switch to other technologies, as they are not compatible with currently popular products and services. Therefore, alternative technological formats and equivalent and substitutable technologies are excluded. The possibility to limit technical development and innovation hence happens, as the whole industry is locked in to that particular standard. The lock-in effect is particularly common in mobile services in telecommunication industry, for example, since the GSM standard first adopted in the early 1990s.¹⁰ Based on first GSM standard, enhanced digital technologies (2.5G), UMTS networks (3G), then HSPA and HSPA+ and till more recently

⁸ *ibid* 323.

⁹ Communication (n 6) 3.

¹⁰ Martin Whitehead and Tom Phillips, ‘European Mobile Industry Observatory’ [2011] GSM Association, 7.

LTE network are continuously developed to improve the GSM technology. Data proves that ubiquitous availability of mobile services today covers ‘98% geographic and nearly 100% population in the EEA’.¹¹

Besides, ‘once a patented technology is incorporated as an essential part of a standard, it is not possible to manufacture standard compliant products without infringing the IPR covering that technology.’¹² Obviously as standards are more and more widely used, increased market power are created that the patentee might not have without being included in the standards.

A single cellphone might contain thousands of SEPs that allow the interoperability across platforms. Therefore, producing a single cellphone without being licensed might potentially infringe thousands patents. Each SEP might generate a dominant position in relevant market. Of course, the increased market power or dominant position *per se* by no means raises anti-trust concerns. However, risks come when the standard becomes so successful and so widely adopted, everyone uses it; companies invest in products; manufactures make chips and etc. Hence, theoretically, the SEPs holders are able to manufacture and produce products and services compliant with the standard exclusively and are able to charge significantly excessive royalties they could not have without being included in the standard. This phenomenon is known as ‘patent hold-up.’¹³

To step further, if a combination of multiple complementary SEPs holders set their own SEPs separately, the final summation might exceed the rate which would be charged if all those SEPs are owned by one participant. The situation develops as the number of complementary SEPs holders increase. Hence, an anti-competitive royalty stacking is very likely in industries where 1) there are numerous SEPs owned by numerous firms; 2) SEPs are perfect complements: a license for one patent has no value unless all other essential patents are licensed too; 3) a royalty rate is ‘only make-up’ since the marginal cost of licensing per unit produced is zero.¹⁴

¹¹ *ibid* 8.

¹² Chappatte (n 2)325

¹³ Jamie Lee, ‘An Un(frاند)ly Game: Preventing Patent Hold-Up by Improving Standardization’ [2015] Vol 10, Issue 2, *Journal of Business & Technology Law*, 376.

¹⁴ Shapiro, Carl, ‘Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting’ [2001]

2.3. FRAND commitment as An Industry Solution

The existence of patent hold-up and royalty stacking along with other risks raise concerns that consumers foreseeing them are worried, hesitated and not willing to make use of the standard. FRAND commitment emerges as an industry solution to alleviate such concerns and to provide guarantee to downstream participants that SEP owners ‘accept that their technology must be available to third parties on FRAND terms’.¹⁵ That is to say, SEPs holders will at least license the use of patents which are incorporated into a technical standard on a fair, reasonable and non-discriminatory basis. Hence, FRAND commitments provide an assurance to firms that they will be accessible to standards and will be able to manufacture products depending on standards, as long as they are willing to pay reasonable royalties to SEPs holders.

From an anti-trust perspective, using FRAND commitments to ensure that essential patents will accessible to any potential implementer is clearly elaborated in the Commission’s Horizontal Guidelines that FRAND commitment is designed to ‘prevent IPR holders from making the implementation of a standard difficult by refusing to license or by requesting unfair or unreasonable fees (in other words excessive fees) after the industry has been locked-in to the standard or by charging discriminatory royalty fees.’¹⁶ Therefore, the practical purposes of FRAND can be regarded as first to prevent refusal to supply, second to prevent patent hold-up and third to prevent discriminatory royalty.

Not only the Commission, but also SSOs offer recommendations for SEP holders to license on FRAND terms. For example, in ETSI policy, it states in Article 6.1 that ‘[w]hen an ESSENTIAL IPR relating to a particular STANDARD or TECHNICAL SPECIFICATION is brought to the attention of ETSI, the Director-General of ETSI shall immediately request the owner to give within three months an irrevocable undertaking in writing that it is prepared to grant irrevocable licences on fair, reasonable and non-discriminatory (“FRAND”) terms and conditions under such IPR to at least the following extent:

In Jaffe, Adam B. et al. *Innovation Policy and the Economy I*. Cambridge: MIT Press, 125.

¹⁵ Chappatte (n 2) 319.

¹⁶ Guidelines (n 1) para287.

- MANUFACTURE, including the right to make or have made customized components and subsystems to the licensee's own design for use in MANUFACTURE;
- sell, lease, or otherwise dispose of EQUIPMENT so MANUFACTURE;
- repair, use, or operate EQUIPMENT; and
- use METHODS.

The above undertaking may be made subject to the condition that those who seek licences agree to reciprocate.¹⁷

Fundamentally, FRAND commitments require an SEP holder to in the first place agree to incorporate its technology into a standard voluntarily and meanwhile the SEP holder shall understand that once the SEP incorporated into the standard, he or she shall license the SEP on fair, reasonable and non-discriminatory terms to all interested parties, no matter SSO, or other participants in the standard or downstream competitors.¹⁸ Besides, 'the FRAND obligation normally extends to the return commitment of the SSO/licensor to license back to individual patent holders', and also extends to a reciprocal license for further improvements.¹⁹ FRAND commitments hold the neutral position as both the SEP holders and potential licensees are expected to negotiate in good faith in terms of licensing matters, which shall be fair and reasonable enough to reflect the economic value of the SEP. Therefore, FRAND commitments are designed to firstly ensure the accessibility of SEPs and secondly to reward SEPs holders financially.²⁰

The benefits of FRAND commitments in the process of standardization thus are quite obvious. First of all, the commitment ensures access to the SEPs. Without the commitment, SEP holders have no constraints under the policy to license their SEPs out. Although it might seem to be a limitation on SEP holders' right to license, the appropriate concession of one party leads to the promotion of the standard attracting more manufactures and more consumers. Secondly, as SEP holders would have to license their patents on

¹⁷ Annex 6: ETSI Intellectual Property Rights Policy 'ETSI Rules of Procedure' (19 November 2014) 37.

¹⁸ Chappatte (n 2) 327.

¹⁹ Steven Anderman and Hedvig Schmidt, *EU Competition law and intellectual property rights – the regulation of innovation* (2nd edn, OUP 2011) 297.

²⁰ Mark A. Lemley and Carl Shapiro, 'A Simple Approach to Setting Reasonable Royalties for Standard-essential Patents' [2013] Vol 28, Berkeley Technology Law Journal, 1137.

non-discriminatory terms, licensees shall not be differed or by no means discriminated, no matter licensees are big capitals or small potatoes. Last but not least, commitments are helpful to reduce the risks of patent hold-up problem and even the royalty stacking.

However, the fact that an SEP holder does not agree on FRAND commitments does not subsequently exclude the SEP holder from the standard.²¹ There are a lot of reasons for doing do. For example, the particular SEP holder might agree on non-royalty clause; or the particular SEP is so essential and unique that no other existing substitutes are available on technology market. Therefore, there is no obligation for SEP holders to agree on FRAND commitments; there is no obligation for SSOs to verify whether licensing terms of participants fulfill the FRAND commitment and there is no obligation that the commitment must be made before or after the standard-setting process.²²

The FRAND commitments as an industry solution is merely a start. More complex issues come into being as FRAND commitments are in nature contractual terms and the explicit meaning of FRAND shall be discussed among licensing parties. Therefore, whether FRAND commitments actually function well in solving patent hold-up, royalty stacking and other issues are still unknown.

2.4. Scope and Methodology

First of all, this article intends to mainly focus on telecommunication sector. The importance to research in this area lies fundamentally in the fact that in terms of technology areas, the majority of disclosed SEPs are found in the field of telecommunications via public networks, which accounts for around 76% of the whole SEPs disclosed.²³ It has been estimated that ‘the GSM standard for 2G mobile telephony involved more than 4,000 ‘essential’ patents and the UMTS 3G standard involved more

²¹ Damien Geradin and Miguel Rato, ‘Can Standard-Setting lead to Exploitative Abuse? A Dissonant View on Patent Hold-Up, Royalty Stacking and the Meaning of FRAND’ [June 2007] Vol 3, No 1, European Competition Journal, 110.

²² Guidelines (n 1) para288.

²³ ITU Report, ‘Understanding Patents, competition and standardization in an interconnected world’, 1 June 2014, 52

than 8,500 “essential” patents.²⁴ The huge number of patents implies a huge potential of patent disputes. In fact, FRAND-encumbered SEPs are very problematic in telecommunication sector. Litigation about SEPs has increased considerably over the last thirty years globally, especially litigation about SEPs in telecommunications via public networks. There are around 4,284 SEPs, among which 244 SEPs have been litigated and this number ranks the highest among other technology area.²⁵ For example, the smart phone wars in recent years among Apple, Samsung and Motorola. In fact, there have been more than 50 lawsuits between Samsung and Apple in many jurisdictions.²⁶ Till now, in EU, FRAND related disputes that caught by anti-trust law concentrate on telecommunication sector.

Second of all, the article lays emphasis on one SSO: European Telecommunications Standards Institute (ETSI) and its policy. ETSI alone has set 6505 standards, including Global System for Mobile communications (GSM) / General Packet Radio Service (GPRS) namely ‘2G’, Universal Mobile Telecommunications System (UMTS) namely ‘3G’ and Long Term Evolution (LTE) namely ‘4G’ telecommunications standards. For instance, ‘a modern laptop computer implements around 251 interoperability standards.’²⁷ ‘The total number of SEPs declared to ETSI is 155,474,’ among which 23,500 patents are essential patents to GSM or UMTS standards, and which shall all be implemented into smartphones or any other devices using these two standards.²⁸

Thirdly, the article narrows down the scope to SEP licensing issues. The whole process of standardization usually goes through three main stages: the product formulation stage, the

²⁴ Anderman and Schmidt (n 19) 293.

²⁵ ECSIP Report, ‘Patents and Standards, A modern framework for IPR-based standardisation’, Ares [2014] 917720, 25/03/2014, European Commission, Directorate-General for Enterprise and Industry, 126.

²⁶ Damien Geradin, ‘Ten Years of DG Competition Effort to Provide Guidance on the Application of Competition Rules to the Licensing of Standard-Essential Patents: Where Do We Stand?’, Paper prepared for the Research Roundtable on Innovation and Technology Standards, February 7-8, 2013, Searle Center on Law, Regulation, and Economic Growth, Northwestern University School of Law, 6.

²⁷ Competition Policy Brief, ‘occasional discussion papers by the Competition Directorate-General of the European Commission’ [June 2014] Issue 8, 2. See also Brad Biddle, Andrew White and Sean Woods, How Many Standards in a Laptop? (And Other Empirical Questions) [September 2010], available at: <http://ssrn.com/abstract=1619440>

²⁸ *ibid* 2. See also ETSI’s database, available at <http://ipr.etsi.org/>.

creation of the standard and the selection of essential patents stage, and licensing out stage.²⁹ This article will mainly focus on the third stage, namely the licensing out stage of standardization. ‘The first stage of a patent or technology pool is often a form of preliminary meeting in which actual or potential competitors meet to identify what type of product is being aimed at and what types of research activity may be necessary to produce the technology to create the product.’³⁰

After that, in the second standard-setting stage, SSOs normally identify optimal technologies that are essential or non-essential to the standard. Before any technologies are selected as essential, an obligation to license their technologies on FRAND terms is put forward by SSOs to secure the accessibility of users after the standard forms. In this stage, it only concerns that participants agree to license on fair, reasonable and non-discriminatory terms, where whoever agrees to commit seems to be licensee-friendly and appropriately behaved. In this stage, it is SSOs’ policies that play an important role in how selected essential patents holders shall behave. The most serious problem that could happen might be the ‘patent ambush’, which means the particular patent while selected to be standard essential patent and incorporated to the standard, has never been disclosed to other participants, and thus never subject to FRAND commitments, no matter this non-disclosure behavior happens intentionally or inadvertently. In addition, as the standard-setting process is often achieved by means of standardization agreements between participants, such agreements are subject to Article 101 TFEU. It is in the standardization agreement that FRAND terms are committed by participants. The EU Commission actually offers a Horizontal Guidelines regarding to competition law issues on standardization agreement. However in this article, standardization agreements are not focused.

After all the necessary technologies are chosen, either essential or non-essential, a new standard which contains a particular technological specification has been established. The SSO and participants would like to license out the technologies to produce products or services compliant with the standard. ‘The IPRs in the technology package are usually offered as a “one-stop” licence but it is possible to offer different IPRs in different mixes of

²⁹ Anderman and Schmidt (n 19) 293-296.

³⁰ *ibid* 293.

technology packages for different types of licensees.³¹ At the same time, a royalty rate is usually required as a reasonable return to SEP and non-SEP holders. Usually, a grant-back of improvements terms will also be required, and also possibly a non-royalty term or a cross-licensing term. It is in this licensing out stage that anti-trust intervention is necessary, when for example, the licensing agreement itself is in violation of Article 101 and for example, after achieving the dominant position, failure to offer accessibility to the SEP on fair, reasonable and non-discriminatory terms will potentially violate Article 102. In this stage, the disputes of patent ambush might be disclosed as clearly an anti-competitive effect which is obvious enough to raise the attention of competition authorities on the relevant market. In this stage, problems of breaching FRAND commitments will also pop out as usually raised by the party who is charged by SEP holder excessive royalties. Therefore, the focus on the third stage leads to more careful and detailed discussion on potential anti-trust issues that FRAND-encumbered SEPs might meet with.

Inspired by Chappatte's work³² and the reply³³, the article makes effort to answer the necessity for anti-trust intervention in FRAND-encumbered SEPs issues through empirical studies on various practical phenomena and normative sources such as statutory texts and regulations, as well as authoritative sources such as case law and scholarly legal writings. The answer begins with explanatory approach on existing laws and regulations, as well as a thorough study of EU case law and also slightly refers to comparative law perspective.

3. FRAND commitments

3.1. Contractual Nature

As has already been introduced in previous discussions, the SEPs holders usually need to commit to license their SEPs on FRAND terms, which indicates that they waive the IP right to license exclusively under patent law and that they waive 'the right to refuse to offer a licence to those seeking one', in exchange for 'the opportunity to have its patented

³¹ *ibid* 296.

³² Chappatte (n 2)

³³ Geradin and Rato (n 3)

technology included in a standard'.³⁴ More specifically, 'the FRAND commitment constitutes a restriction on the IPR holder's ability to freely set royalties for the use of its IPR by third parties.'³⁵ In fact, to commit FRAND terms acts more like a strategy to assure implementers the capability to get licensed on fair, reasonable and non-discriminatory terms. Therefore, it constitutes more as a licensing terms as the result of negotiations than a licence in itself.

Basically, to commit on FRAND terms and conditions is a contractual behavior which varies among different participants and among different contractual arrangements. The nature of FRAND commitments is 'similar to a standard form contract incorporating a number of implied terms.'³⁶ Therefore, it leads to disputes among participants as FRAND commitments *per se* embody a level of vagueness in nature leaving substantial contents to negotiations among participants, which then possibly incurs expensive litigation in practice. To this extent, FRAND commitments as an industry solution only work quite well in the formation and dissemination of a standard, which on the other hands brings about a large number of disputes among participants in practicing the standard.

The contractual nature of FRAND commitments conveys a high degree of freedom either in free will to be a SSO member or in free will to commit to license on FRAND terms.³⁷ SSOs usually burden no obligation to require a SEP holder to first become an SSO member and to second bind by FRAND. Therefore, whether a SEP holder joins or not joins in a SSO and whether the holder commits or not commits on FRAND terms will only be taken into consideration as circumstances for incorporation into a standard. For example, in ETSI policy, Section 8 provides for a mechanism to deal with 'non-availability of licences'.³⁸

It is this contractual nature of FRAND commitments that leads to further discussion questioning the necessity of anti-trust intervention. As a contractual matter, theoretically

³⁴ Geradin and Rato [2007] (n 21) 109.

³⁵ Steptoe & Johnson LLP, Yves Botteman and Agapi Patsa, 'EU Commission Briefing--The European Commission's New Horizontal Co-operation Guidelines' [May 2011], available at: <http://www.stepto.com/publications.html>, 5.

³⁶ Anderman and Schmidt (n 19) 297

³⁷ Roger G. Brooks and Damien Geradin, 'Interpreting and Enforcing the Voluntary FRAND Commitment' [July 2010], available at: <http://ssrn.com/abstract=1645878>, 6.

³⁸ ETSI Intellectual Property Rights Policy (n 17) 38.

FRAND shall be dealt with substantially among participants. However, in exceptional circumstances, anti-trust intervention might be required to prevent serious anti-competitive effects brought about by the exercise of FRAND-encumbered SEPs holders. The vagueness of FRAND indeed gives an ‘excuse’ for SEP holders to act anti-competitively as long as they are able to.

3.2. Vagueness of FRAND

‘While the logic underlying the use of a FRAND commitment appears quite clear, its precise content remains obscure.’³⁹ FRAND commitments in the language as ‘fair’, ‘reasonable’ and ‘non-discriminatory’ have inherent ambiguity. Even the Horizontal Guidelines leaves the definition of FRAND untouched, and instead it merely refers ‘fair’ to licensing terms, refers ‘reasonable’ to royalties and refers ‘non-discriminatory’ to treatments of standard implementers.

3.2.1. Contractual FRAND under ETSI policy

Following the above discussion, the freedom for parties to negotiate on precise meaning of FRAND terms does not mean that parties are able to agree on whatever licensing terms they want, because such FRAND terms are already more or less framed by the SSO policy. Let’s take ETSI policy as a typical example.

As stated in ETSI policy objectives that ‘3.2 IPR holders whether members of ETSI and their AFFILIATES or third parties, **should be adequately and fairly rewarded for the use of their IPRs** in the implementation of STANDARDS and TECHNICAL SPECIFICATIONS,’ and ‘3.3 ETSI shall take reasonable measures to ensure, as far as possible, that its activities which relate to the preparation, adoption and application of STANDARDS and TECHNICAL SPECIFICATIONS, enable STANDARDS and TECHNICAL SPECIFICATIONS to **be available to potential users** in accordance with the general principles of standardization.’⁴⁰

Therefore, a fair, reasonable and non-discriminatory licensing term shall at least entail

³⁹ Steptoe & Johnson LLP (n 35) 5.

⁴⁰ ETSI Intellectual Property Rights Policy (n 17) 36.

firstly an adequate and fair reward for SEP holders' innovations and secondly availability for potential users to participate in the standard.⁴¹

Since the need to define 'fair' and 'reasonable' stems from the IP right of SEP owners to seek reward for the innovative contribution they have made, therefore, it seems to be necessary to take a look at what constitutes a reasonable reward.⁴² To define a reasonable reward is no better than to define a reasonable royalty. One still has to take into consideration all sorts of costs including R&D costs, material costs, labor costs and etc. Most importantly here is whether such a fair and reasonable reward would include the value contributed to the standard-setting process. As the technology will worth more than it is after inclusion into a particular standard, does the added value due to the lock-in effect of the standard-setting process reflect the intrinsic value of the particular SEP? The affirmative answer will indicate a much higher reasonable royalties charged than that in a negative answer.

Although the connotation behind ETSI policy seems to limit the FRAND in some way, in fact there still leaves enormous spaces as to how FRAND shall look like. Maybe the only possible restraints can be drawn from it might be the 'adequately reward ... is by no means a synonym of fair' and the reward shall be adequate enough 'to motivate the investment and risk necessary to create the next generation of innovation'.⁴³

In recent years, several efforts have been made within the ETSI to narrow down the almost unlimited scope of FRAND and to impose certain restrictions on both licensing parties. For instance, there are proposals to prohibit royalty-free cross licences, proposals to contain supposed 'bad practices', proposals to introduce the principles of aggregated reasonable terms and proportionality into the FRAND and etc.⁴⁴ However, seldom of these proposals are accepted and the ETSI emphasizes that 'specific licensing terms and negotiations are commercial issues between the companies and shall not be addressed within ETSI'.⁴⁵

⁴¹ Brooks and Geradin (n 37) 12.

⁴² Geradin and Rato [2007] (n 21) 115.

⁴³ Brooks and Geradin (n 37) 12.

⁴⁴ *ibid* 20.

⁴⁵ *ibid* 21. See also ETSI 'Guide on Intellectual Property Rights' 2007 para4.1.

3.2.2. 'Fair' and 'Reasonable'

The meaning of 'fair and 'reasonable' raises attention ever since the FRAND commitments came into place. Disputes among them have a long history, and even till now scholars also have disagreements among each other. What is quite interesting is that '[m]ost of the literature does not distinguish between "fair" and "reasonable". The former in fact is a unique term only in the EU context, especially EU competition law, while in US the term RAND is more often used instead of FRAND with the lack of 'Fair' in the beginning.⁴⁶

Generally speaking, there are two basic principles to define FRAND deriving from court practices. One comes from the US: the Georgia-Pacific method. The other comes from the European Commission: comparison approach, for example in Commission's decision in concern with the complaints against Qualcomm.⁴⁷ As this article focus on European competition law, the US Georgia-method will not be mentioned here.⁴⁸

In EU law, as stated in Horizontal Guidelines, '[i]n case of a dispute, the assessment of whether fees charged for access to IPR in the standard-setting context are unfair or unreasonable should be based on whether the fees bear a reasonable relationship to the economic value of the IPR.'⁴⁹ This economic value principle has been established in *United Brands* case, in which the Court rules that '... charging a price which is excessive because it has no reasonable relation to the economic value of the product supplied would be such an abuse.'⁵⁰ However the words 'reasonable economic value' in themselves bear no clear techniques to measure whether a royalty is excessive or not. The 'economic value' is almost as open as 'fair and reasonable'.

There are indeed different benchmarks to measure and to help. In *United Brands* case, the cost-based method is established through a two-stage test that 'the questions therefore to be

⁴⁶ Geradin and Rato [2007] (n 21) 113.

⁴⁷ Layne-Farrar Anne, Padilla A. Jorge and Schmalensee Richard, 'Pricing Patents for Licensing in Standard-Setting Organizations: Making Sense of Frand Commitments' [2007] 74 Antitrust Law Journal, 679.

⁴⁸ More information on Georgia-Pacific method on *Georgia-Pacific Corp v US Plywood Corp*. 318 F Supp 1116 1120-21 [SDNY 1970]; See also Mark A. Lemley and Carl Shapiro, 'Patent Holdup and Royalty Stacking' [2007] 85 Texas Law Review.

⁴⁹ Guidelines (n 1) para289.

⁵⁰ Case 27/76 *United Brands v Commission* [1978] ECR 207, para250.

determined are whether the difference between the cost actually incurred and the price actually charged is excessive, and, if the answer to this question is in the affirmative, whether a price has been imposed which is either unfair in itself or when compared to competing products.⁵¹ Because it is considerably difficult to assess the cost due to the rapid development of standard and new generation technologies, the cost-based method is not well applied.

The second benchmark recommended by the Commission is to decide the economic value of a technology through comparison. The first possibility is to compare *ex ante* disclosed licensing terms with *ex post* negotiated licensing terms.⁵² Another possible comparison can be made on the basis of other royalties received by the SEP holder in situations equivalent to FRAND commitments, such as royalties that are charged for the same patent in other comparable standards;⁵³ royalties charged for the same patent in a non-standardized environment; or royalties imposed in the ‘similar agreements that the patentee has entered with companies that are in a similar position as the licensee.’⁵⁴ A third comparative benchmark might be royalties paid for the use of other patents that are comparable to the alleged SEP.⁵⁵

The third valuation method turns out to be a ‘top down analysis’. This analysis concerns with the ‘relative importance of the technology to the standards and the licensee’s products’.⁵⁶ It means that the royalty level shall not only be associated with actual value of the patented technology, but also be associated with added value that the SEP adds to the whole standard. The Commission confirms this view that ‘in cases where the licensed technology relates to an input which is incorporated into a final product it is as a general rule not restrictive of competition that royalties are calculated on the basis of the price of

⁵¹ *ibid* para252.

⁵² Guidelines (n 1) para290.

⁵³ *ibid* para290.

⁵⁴ Comments submitted by the German Association for the Protection of Intellectual Property (GRUR) concerning the Commission’s Public Consultation on ‘Patents and Standards – A modern framework for standardisation involving IPR’, [January 2015], available at: http://www.grur.org/uploads/tx_gstatement/2015-01-27_GRUR_Proposal_Consultation_on_Patents_and_Standards.pdf, 22.

⁵⁵ *ibid* 23. See also *Microsoft Corporation v. Motorola, Inc.*, 10-CV-01823-ORD (W.D. Wash. Apr. 25, 2013).

⁵⁶ *ibid* 18.

the final product, provided that it incorporates the licensed technology'.⁵⁷ Therefore, it is the value of the particular SEP in the final products that plays an important role here. In case of a patent portfolio, importance of portfolio as a whole to the standard shall be emphasized. 'This method – as is the case for most other valuation methods – is fact intensive and the assessment eventually depends on a number of individual factors and on the evidence offered by the parties to support their theories.'⁵⁸

The fourth available benchmark is a 'bottom up analysis', where this hypothetical analysis depends considerably on the incremental value of the technology over the best alternative that was available at the standard-setting stage.⁵⁹ Another *ex ante* assessment is to compare the royalties charged before the industry locked into the particular standard and the royalties charged after the lock-in.⁶⁰ This approach has been approved reasonable in the *Apple v. Motorola* case decided in US. However, in EU due to the lack of case law, neither the Court nor the Commission has made a clear confirmation or guidance on this method, the Commission only states in the Horizontal Guidelines that this approach requires that the comparison shall be made in a consistent and reliable manner.⁶¹

The above list of possible benchmarks to determine a 'fair and reasonable' royalty is a non-exhaustive one. The determination entails a fact intensive inquiry which is influenced by a number of factors in real life situations. For example, those who contributes to a large percentage of patents or SEPs in a standard may argue for quantity or pricing matters. Therefore, the criterion for fair and reasonable royalties shall vary according to actual conditions on a case-by-case basis 'by reference to concrete objective and subjective circumstances'.⁶² Licensing parties during the negotiation process can also use these possible benchmarks for reference in deciding a fair and reasonable royalty, as it might be possible for them to perceive in advance how competition authorities may treat such issues.

⁵⁷ European Commission, Guidelines on the application of Article 101 of the EU Treaty to Technology Transfer Agreements (2014/C 89/03), para184; see also see also: *Microsoft Corporation v. Motorola, Inc.* (n 55) para104.

⁵⁸ GRUR Comments (n 54) 19.

⁵⁹ *ibid* 20.

⁶⁰ *Apple Inc. v. Motorola Inc.*, 869 F.Supp.2d 901, 911 (N.D. Ill. 2012), para913

⁶¹ Guidelines (n 1) para289.

⁶² Geradin and Rato [2007] (n 21) 113.

3.2.3. 'Non-discriminatory'

Compared with fair and reasonable debates on royalties, non-discriminatory requirement is not a key topic, even though it is almost as unclear as the definition for 'fair' and 'reasonable'. The requirements for non-discriminatory in FRAND commitments theoretically discussed in this part are basically divided into two categories. The first category is a prohibition on price discrimination. The other is to ensure non-discriminatory licensing terms. The former is a more direct prohibition that also is regulated in competition rules, while the latter conveys vague information that needs further discussion.

3.2.3.1. Price Discrimination

One important component of non-discriminatory requirement is the prevention of price discrimination, namely to prevent discriminatory royalties. How a non-discriminatory royalty shall look like is not guided in Horizontal Guidelines, and 'SSOs seldom clarify what licensing structures would be non-discriminatory, not do we know of useful legal holdings on this specific questions.'⁶³ The only competition provision that potentially deals with price discrimination lies in Article 102(c) TFEU: 'applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage.' This definition is extended by the Court to 'the application of similar conditions to different transaction.'⁶⁴ According to this provision, a discriminatory royalty might be understood as applying different levels of royalties to licensing parties of equivalent conditions and applying same level of royalties to licensing parties of dissimilar conditions.

In order to enforce this non-discriminatory requirement for royalties, there are more complex and difficult concepts that need to be clarified. The first difficulty is to define different levels of royalties. Is it a price discrimination when 'royalties assessed as a percentage of the licensee's revenues discriminate against licensees who sell more

⁶³ Joseph Farrell, John Hayes, Carl Shapiro, and Theresa Sullivan, 'Standard Setting, Patents and Hold-Up' [May 2007] No.3, 74 Antitrust Law Journal, 638.

⁶⁴ Damien Geradin, Anne Layne-Farrar and Nicolas Petit, *EU Competition Law and Economics* OUP2012 294/para4.455. See also Case 13/63 *Italian Republic v. Commission* [1963] ECR 165 in the context of the ECSC Treaty.

expensive products’?⁶⁵ Is it a price discrimination when SEP holders sets ‘a price per unit which varies with the number of units the customer buys’?⁶⁶ A second difficulty is what are concrete definitions of licensing parties of equivalent conditions and those of dissimilar conditions. Is it a price discrimination when SEP holders charge different royalties to different licensing parties depending on their ability to provide products or depending on geographical factors? Again, despite of all these complex questions, there is at least one thing that reaches consensus that any decision shall be made on a case-by-case analysis, which requires competition authorities to look into concrete legal and factual conditions.

Despite a quite problematic definition of non-discriminatory royalty, it shall be at first confirmed that a non-discriminatory requirement for royalties is necessary. The necessity lies pretty much in the possibility that royalties charged by SEP holders might be superficially fair and reasonable, but indeed discriminatory among various standard implementers. For instances, a SEP holder might charge royalties depending on the productivity ability of standard implementer, which is the ability to produce products. However, it might be very likely that a big company which has more efficient productivity might eventually produce comparable products to a small company. In this case, the different royalties charged are indeed quite discriminatory.

Also, in the situation of a successful standard, where SEP holders hold initiative and the indispensability of the SEP entitles the holders the ability to price discriminate. Such discrimination might deter potential implementers, slow down the dissemination of the standard and finally pass detriments to consumers.

3.2.3.2. Non-discriminatory Terms

Non-discriminatory requirements are not only about monetary elements, but also include non-discriminatory licensing terms. The non-discriminatory element requires SEP holders to license their patents to licensees of equivalent conditions on similar terms. One question thus may be put forward whether such terms really impose any obligations on contractual parties, especially any obligation under Article 102 TFEU, because cases if confronted by

⁶⁵ Farrell, Hayes, Shapiro, and Sullivan (n 63) 638.

⁶⁶ Geradin, Layne-Farrar and Petit, (n 64) 295/para4.464.

the Court or the Commission are going to be examined in the same manner in circumstances either with or without non-discriminatory requirement. Does this requirement convey more than just duplication of European competition law?

The answer is affirmative. Although in Article 102 TFEU, it states that ‘(c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage’, the particular IP owner still has the exclusive right to refuse to license the patent to some else. To this extent, ‘such law may indeed permit outright discrimination in certain circumstances’, as a result of the exclusive intellectual property rights.⁶⁷ However, as discussed in previous paragraphs, in the situation of a FRAND-encumbered SEPs, there exist a premise that SEP holders waive the right to license exclusively and agrees to license to whoever are willing to offer FRAND royalties. As the SEP holder almost agrees to license the patent on an every-one basis, non-discriminatory requirement becomes prevalent and substantial. Licensing terms shall be offered regardless of licensees who are either big companies or small ones; who are either willing to grant back improvements or not and who are going to compete with the SEP holder on the same market or not.

Even though non-discriminatory term becomes substantial, it does not necessarily lead to the conclusion that licensing terms and conditions shall always be the same regardless of different contractual arrangements. The licensing agreements still can be differed in different circumstances. For instance, SEP holders themselves might have entirely different interests. A SEP holder who only focuses in upstream market, namely the technology market, whose remuneration might depends entirely or at least substantially on the licensing royalties, will probably want to seek maximum amount of revenues and rewards. In other situations, a vertically-integrated SEP holder who not only is interested in developing technologies but also in manufacturing products on the basis of the technologies compliant with the standard, would probably like to drive competitors out of the downstream market and try not to license his SEPs to other manufactures.⁶⁸ It is also very likely that a vertically-integrated SEP holder might seek to cross license with pure

⁶⁷ Brooks and Geradin (n 37) 33.

⁶⁸ Geradin (n 26) 5.

upstream SEP holders. To cross license with party A, not with party B, can hardly violate non-discriminatory requirement.

Now that the non-discriminatory requirement genuinely is capable of putting some obligations on SEP holders, another question now is put forward how exactly a SEP holder is able to ensure that the particular SEP is accessible to all third parties in a non-discriminatory way.⁶⁹ The definition for ‘discrimination’ shall be elaborated not only as applying dissimilar condition to equivalent situations, but also as applying equivalent condition to dissimilar situations. Following from this thread, it now becomes really complicated to decide whether conditions are similar or dissimilar and whether the licensing terms are applied in a similar way or in a dissimilar way. Moreover, other factors such as market share and the input of standard implementers who might also be a SEP holder in the same standard, shall also be taken into consideration, but what confuses is how important these factors really are.

However despite these possible clearance, there are still questions here, for example, under non-discriminatory requirement, can SEP holders offer different licensing terms to different implementers? For instance, a SEP holder might require unremunerated grant-backs against licensees who holds many patents and consequently deters innovation or refuse to provide reciprocal licences to rival manufacturers in the downstream market and so on. All these problems need further guidelines by competition authorities and on a case-by-case basis.

3.2.4. Other licensing terms

Usually in a licensing agreement, except for royalty issues, there are other licensing terms negotiated between two parties, which are also needed to be examined under FRAND commitments in order to ensure the accessibility to the standard. ‘This may include beyond the relevant market norms for royalties, also customary practices relating to non-monetary terms such as field of use of the license, provisions regarding the sub-licensability, reciprocity, grant-backs, defensive suspension, confidentiality and other common patent

⁶⁹ Steptoe & Johnson LLP (N 35) 6.

licensing considerations.’⁷⁰

In fact, such terms are not uncommon in licensing agreements of FRAND-encumbered SEPs. For example, many SSO policies allow SEP holders to circumvent their FRAND commitments on cross-licensing provision. Such arrangement bears a clear intention for the further development and innovation of the technology and the standard, which are more common in small standardization bodies especially when their standards are not widely spread and not successful enough facing with competing standards. Indeed, the cross-licensing term is a fundamental requirement in the formation of a patent pool, where at least two patent owners agree to cross-license their patents for a particular technology or for a particular feature. As the IP owners have the freedom to enter into a particular standard or not, their willingness to agree on cross-licensing terms relies simply upon themselves. The only thing needs to be taken care of is whether such cross-licensing terms are fair, reasonable and non-discriminatory. Especially the least non-discriminatory requirement shall be satisfied.

All these other terms will potentially raise debates whether they are in consistent with FRAND commitments or not, but most importantly every case shall be examined depending on the specific legal and factual circumstances as licensing scenarios can be extremely different and complex.

3.2.5. SSOs and SSO policies

While admitting the contractual nature of FRAND commitments and admitting that the precise meaning of FRAND terms shall first be dealt with among licensing parties, the role of SSOs and the role of SSO policies shall not be ignored. Generally speaking, SSO policies require SEP holders to disclose their patents and to make commitment to all potential implementers to license the technologies on fair, reasonable and non-discriminatory basis. A quest for balance exists as the premise before SSOs make their IPR policies. ‘A well-balanced IPR policy is likely to attract all types of stakeholders to the standardization process. However, if the IPR policy overly favours patent holders, then the standard may not meet users’ needs, and not be readily implementable. Similarly, if the IPR

⁷⁰ GRUR Comments (n 54) 23.

policy overly favours users, then patent holders may decide not to contribute their technology to the standardization process,' said by Malcolm Johnson, Director of ITU's Telecommunication Standardization Bureau.⁷¹

Apparently, the disclosure requirement and the FRAND commitment requirement are the fruits of such balance, especially in large standardization bodies where thousands of SEPs would be included in a single standard. In telecommunications and related industries, a majority of SSOs allow FRAND licensing commitments before the incorporation of particular SEPs, including ETSI, ITU, IEEE and etc.⁷²

Although the FRAND commitment is proposed by SSOs and illustrated in SSO policies as one of the two building blocks of their IPR policy (apparently the other one is disclosure of patents), SSOs usually do not give explicit meaning of FRAND in writings and only use the words 'fair', 'reasonable' and 'non-discriminatory' to cover everything. Therefore, the vagueness of FRAND actually roots here in SSO policies. It is quite understandable why SSOs are fairly reluctant to give explicit meaning of FRAND, because the licensing *per se* is already a pricing behavior and any form of ex ante negotiations inside SSOs is strictly scrutinized by competition authorities. In avoidance of anti-trust intervention, SSOs act carefully under the nose of competition authorities. 'For most SSOs, however, the minimum goal of their IPR policies is to ensure that all essential patent claims are reasonably known to the participants and are available for licensing under a FRAND or a similar framework minimizing the potential for ex post hold-up and royalty stacking.'⁷³ They bear no further responsibility to guarantee a fulfillment of FRAND commitments, and instead participants have to make decisions by themselves whether they will charge royalties on FRAND basis.⁷⁴

Consequently, SSOs usually do not play a role in the enforcement of FRAND

⁷¹ ITU Report (n 23) 55.

⁷² Bekkers, R., Catalini, C., Martinelli, A., & Simcoe, T., 'Intellectual Property Disclosure in Standards Development' [2012] NBER conference on Standards, Patents & Innovation, Tucson (AZ), 28. Table 2.1: Disclosure and licensing commitment policies, Available at: <http://users.nber.org/~confer/2012/IPKE/Bekkers.pdf>

⁷³ National Research Council (n 4) 4.

⁷⁴ Guidelines (n 1) para288.

commitments, which are and shall be left to licensing parties to negotiate. In the case of disputes, they may resort to a court or submit to arbitration.

3.2.6. Clarify FRAND?

It is undeniable that the vagueness of FRAND commitments brings about problematic issues. Is it really necessary to clarify vague FRAND as proposed by some SSO participants?

To clarify vague FRAND theoretically has some obvious benefits. First of all, a clearer FRAND with better a better shared understanding will enable both implementers and SEP holders to evaluate licensing agreements with lower costs and in shorter time. Secondly, SEP holders might not charge too much, which is especially important for smaller and medium-sized implementers who are incapable of having enough information or resources to decide the proper royalties. Thirdly, on the other hand, royalties will not be too low, when the buyer power is much larger. Fourthly, such a clarification will potentially reduce the number of disputes when licensing parties are unable to reach agreement on what FRAND exactly means. Even when the disputes are forward to the Court and the Commission, it will be easier for judges and competition authorities to evaluate the licensing agreement on the compatibility with FRAND. Therefore, in reaching a licensing agreement, transaction costs and negotiation costs are reduces, and the whole licensing process is mitigated as well as reduction in litigation.

However, the clarification of FRAND commitments not just generates some benefits. There are also some serious disadvantages that might be result in by this clarification. Firstly, any attempt to clarify the meaning of FRAND might trigger more complex discussions and disagreements on applicable principles and the explicit meaning of FRAND in practice. Such discussion could be made in legal context or in economic context. No matter what theories are going to be applied to explain FRAND, it will always be extremely hard to reach consensus. Moreover, no matter how FRAND terms are clarified, there will always be specific cases or exceptional circumstances where such clarification will not apply. ‘A “one-size-fits-all” is just not possible!’ It can be imagined that a stricter interpretation will undermine the basic function of FRAND where FRAND is

inapplicable in many situations and will underestimate the unpredictable future markets. A less strict interpretation has almost the same effect as no interpretation at all.⁷⁵

Therefore, the vagueness of FRAND commitments is indeed favourable. ‘Despite the widespread use of FRAND in the IPR policies of a significant number of major SSOs, virtually no such policies define the FRAND commitment as specifying or dictating a particular licensing result.’⁷⁶ Literatures more or less mention that FRAND is unclear and bears no concrete meaning. This cannot be viewed as ‘a shortcoming of SSOs IP policies’. On the contrary, it is the vagueness of FRAND that ‘ensure[s] the widest availability of the technology embodied in the standard in the widest possible variety of circumstances.’⁷⁷ As discussed previously, FRAND commitments are *de facto* restraints on SEP holders licensing rights. A well-defined or very precise FRAND leaves too few spaces for the flexibility of licensing out technologies. When the FRAND commitments somehow shape the fairness of a royalty such as a number of proportion, the so-called ‘fairness’ is very likely to fall into a formal fairness instead of a substantive fairness. To such extent, the vagueness of FRAND commitment shall be viewed as a basic line for the protection of SEP holders patent right, as well as for the contractual freedom enjoyed by both parties of the licensing agreements. Before the anti-trust intervention, both parties are entitled to negotiate and discuss about the precise meaning of FRAND terms based on different contractual arrangements, no matter before or after signing the licensing agreement.

4. Intervention or not?

The main objectives of FRAND commitment are to ‘prevent IPR holders from making the implementation of a standard difficult by refusing to license or by requesting unfair or unreasonable fees (in other words excessive fees) after the industry has been lock-in to the standard or by charging discriminatory royalty fees.’⁷⁸ However, do FRAND commitments function perfectly as they are expected to? If the answer is negative, then how to remedy the failures: contractual remedies or competition rules? Most importantly,

⁷⁵ ECSIP Report (n 25) 188.

⁷⁶ Chappatte (n 2) 328.

⁷⁷ Geradin and Rato [2007] (n 21) 112.

⁷⁸ Guidelines (n 1) para287.

is anti-trust intervention justified?

4.1. Legal Framework in EU

Apparently, as FRAND commitments have a contractual nature, the most explicit way to deal with disputes on FRAND terms is contract law. Both parties can negotiate on FRAND terms either before, during and after the reach of licensing agreements. In the case of disputes, parties can also go to arbitration or go to the court to seek for damages based on the claims of breach of contract.

The second legal basis that might be relevant is the IP right of SEP holders, as SEP basically is a patent which entitles the holder a patent right since the right is granted and the right will last as long as the patent is valid. IP rights are fundamental rights protected in the Article 17(2) of the Charter of the Fundamental Rights of the European Union (hereinafter ‘the Charter’), which grant the SEP holders exclusive rights to take advantage of their own patents. However, IP rights are regional, which could be either national, European or international and which depend on the application of particular patents. This characteristic of a patent right often results in a question of the validity of a particular patent such as whether a European patent is valid for example in Asian countries.

Besides, FRAND commitment as a contractual matter does not mean that SEP holders and standard implementers can reach whatever agreements they want or do whatever they like arbitrarily on the market if they occupy a dominant position. Indeed, anti-trust law might intervene when standardization generates anti-competitive effects. The condition is very much possible when the standard becomes so successful that the exercise of exclusive rights of SEP holders creates barriers to entry, controls the product market and service market and behaves abusively such as holding up licensees and charging excessive royalties. Under such circumstances, both Article 101 and 102 might be invoked as legal basis for problems regarding FRAND-encumbered SEPs. However, occupying a dominant position held by a SEP holder does not necessarily indicate a violation of competition rules. More efforts shall be made to examine carefully the anti-competitive effect and the possibility to restrict, prevent and distort competition. Therefore, a detailed and thorough examination of both factual and legal conditions shall be carried out under competition

rules. As standardization discussed in above paragraphs usually involves elimination of inter-technology competition, exchange of information and so on, Article 101 is also very likely to be infringed unless four conditions in Article 101(3) are satisfied and thus exempted.

After a standard has been set and SEPs have been incorporated into a particular standard, the licensing out stage allows SEP holders to license their SEPs. The licensing agreements of SEPs are assessed, which are required by both the Horizontal Guidelines and SSO policies to commit to be in accordance with FRAND terms. As SEPs holders are already required to license their essential patents on fair, reasonable and non-discriminatory terms, an attempt to impose licensing conditions incompatible with FRAND in the licensing agreement, has the possibility to construct a violation under Article 101(1). If Article 101(1) is violated and the conditions for Article 101(3) are not satisfied, the licensing agreements might be declared void; fines might be imposed and damages might be claimed. Basically, the four requirements in order for Article 101(3) to be satisfied are efficiency gains, indispensability, pass-on to consumers and elimination of competition.

In accordance with the exemption of Article 101(3), the technology transfer block exemption regulation (hereinafter ‘TTBER’) may also apply according to newly revised TTBER 2014. The regulation provides a safe harbour for technology transfer agreements. The technology transfer agreements in the context concern with ‘the licensing of technology rights where the licensor permits the licensee to exploit the licensed technology rights for the production of goods or services.’⁷⁹ Also, within the meaning of safe harbour, block exemption applies to technology transfer agreements to the extent that they are caught by Article 101(1) but fulfill the four conditions laid down in Article 101(3). Therefore, TTBER is a specific regulation that targets agreements for the transfer of technology.⁸⁰ The Commission also offers guidelines to technology transfer agreements (hereinafter ‘TTA Guidelines’). The TTA Guidelines offers detailed information on the application of TTBER and application of Article 101(1) and Article 101(3) of the treaty outside the scope of the TTBER.

⁷⁹ TTA Guidelines (n 57) para1.

⁸⁰ *ibid* para44.

As to the nullity effect in Article 101(2), there is also a problem in application of this provision especially when the standard after implemented has been widely used for many years. The standard might have already developed several generations and becomes indispensable to the relevant market, despite which there is no substitute comparable to the standard. Moreover, participants might have already invested millions even billions of euros to develop the standard. To declare a standardization agreement void turns out to be ineffective. In such circumstances, a better way to remedy is to enforce the FRAND terms committed by SEP holders.

Except for Article 101, Article 102 TFEU can also be invoked as legal basis of disputes about FRAND-encumbered SEPs. Indeed, Article 102 has been raised more often under which FRAND related cases have been brought about to the Court and to the Commission in the past several years. Cases such as *Huawei v ZTE* case⁸¹, *Motorola* decision⁸² and *Samsung* decision⁸³ by the Commission, are dealt with under Article 102.

The mere existence of dominant position does not in itself leads to the application of this article, there must exist abusive conducts through a careful examination of anti-competitive effects. Dominance contributed to the success and lock-in effect of the standardization, can only be treated as a prerequisite for anti-trust intervention, but it does place special responsibilities on dominant firms not to engage in any other abusive exclusionary or exploitative behaviors. In order for Article 102 to intervene, first of all the SEP holders as a member of a SSO shall agree to license their patents on FRAND terms as stated in SSO policy; second of all the SEP holder shall occupy a dominant position on relevant market and thirdly the abusive behavior has to certain extent anti-competitive effect so that excessive royalties are able to be charged or disadvantageous licensing terms are able to be imposed constituting a breach of FRAND commitment.

In practice, competition authorities are quite reluctant to use Article 101 and Article 102 to exercise anti-trust intervention, which can be proved from very limited cases established.

⁸¹ Case C-170/13 *Huawei v ZTE* [2015] OJ C 215

⁸² Case AT.39985—*Motorola*—Enforcement of GPRS standard essential patents [2014] OJ C 344/6

⁸³ Case AT.39939—*Samsung*—Enforcement of UMTS standard essential patents [2014] OJ C 350/8

4.2. Under provisions

4.2.1. Contractual remedies enough?

As FRAND commitments are in nature contractual arrangement, one strategy for a licensee to seek to enforce FRAND terms is to assert a breach of contract claim against the SEP holder. There is one case *Microsoft Corp. v. Motorola Mobility Inc.* that Microsoft seeks for contract damages for Motorola's breach of FRAND licensing commitments on the factual basis that Motorola charges 2.25% royalties for certain Motorola's SEP products, including Xbox.⁸⁴

However, claiming for contractual remedies might be a possible solution to enforce FRAND commitments and to get fair royalties for SEPs, but the difficulty embedded in quantifying and proving damages prevent this from becoming a mainstream way to claim remedies.⁸⁵ Moreover, the remedy for the breach of contract is merely a compensation for damages expected from the breach. 'Those damages are likely to be insufficient to compensate accused infringers and society at large for the losses they will suffer if they are enjoined from using standards once though open to all.'⁸⁶ Therefore, breach of contract claim is a tool, but not strong enough to address relevant damages that caused not only to the licensing parties, but also to the freedom of competition on the relevant market.

4.2.2. Violate FRAND equates violate competition law?

The first question proposed here is whether competition law, namely Article 101 and Article 102 TFEU in their provisions indicatively requires FRAND commitments? In other words, is FRAND embedded inherently in competition rules, so that any violation of FRAND commitment tacitly violates competition rules, namely Article 101 and Article 102, either both or separately?

⁸⁴ *Microsoft Corp. v. Motorola, Inc.*, 2012 U.S. App. LEXIS 20359 (9th Cir. Sept. 28, 2012)

⁸⁵ Lindsey Martinez and Timothy J. Toohey, 'Standard-Essential Patents And FRAND: Complex Interplay' [November 2012] Law 360, available at: http://www.swlaw.com/assets/pdf/news/2012/11/06/StandardEssentialPatentsAndFRANDComplexInterplay_MartinezToohey.pdf

⁸⁶ Mark A. Lemley, 'Intellectual Property Rights and Standard-Setting Organizations' [December 2002] Vol 90, Issue 6, Article 3, California Law Review, 1925.

4.2.2.1. Article 101

As to this question, Chappatte asserts in his work that a SEP holder who ‘seeks to impose terms on licensees that are not consistent with its FRAND commitment, all the parties to the standard will potentially be in breach of Article 81(1) EC’, which is now Article 101(1) TFEU, unless Article 101(3) is satisfied.⁸⁷ Following that thread, in order to meet the conditions of exemption, the licensing agreement 1) must not impose restrictions that are not indispensable; 2) must pass on a fair share of the resulting benefits to consumers; 3) must not eliminate competition in respect of a substantial part of the products; and 4) must license on reasonable and non-discriminatory terms.⁸⁸

The assertion is strongly opposed by Geradin and Rato, as stated in the reply that several reasons are given against the assertion. Firstly, ‘the Commission does not consider that standards have either as their object or their effect to restrict competition.’ The reply cites Horizontal Guidelines and argues that only where participation in standard-setting is unrestricted and transparent, where the agreement sets no obligation to comply with the standard and where standardization procedures are non-discriminatory, open and transparent, standardization agreement does not restrict competition.⁸⁹ After that, the reply continues to argue that the Commission views the restriction of competition in standardization agreements on ‘the extent to which the parties remain free to develop alternative standards or products that do not comply with the agreed standard.’⁹⁰ In addition, only when a specific licensing agreement created by joint dominance which leads to a *de facto* industry standard, Article 101 may require access to the standard on fair, reasonable and non-discriminatory terms.⁹¹

Before any discussion is provided, there is one mostly important point worth mentioning that what Chappatte and the opponents disagree with each other is basically standardization

⁸⁷ Chappatte (n 2) 332.

⁸⁸ Article 101 of the Treaty on European Union and the Treaty on the Functioning of the European Union, OJ C 326

⁸⁹ Geradin and Rato (n 3) 164.

⁹⁰ Commission Notice - Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements [2001] OJ C 3, para167.

⁹¹ Geradin and Rato (n 3) 166.

agreements, which ‘have as their primary objective the definition of technical or quality requirements with which current or future products, production processes, services or methods may comply’.⁹²

After identifying the object as standardization agreements, the argumentations in reply are logically convincing. However, despite all these Commission’s documentations, the competition law rarely intervenes in practice on the basis of Article 101, which seems to be inapplicable at all. Competition authorities while considering with applying competition rules to standardization agreements, always take into account the significant positive economic efficiency created by standardization, which then seems to increase values for consumers and brings benefits to consumers. In addition, the standardization agreements are signed in the standard-setting stage, which is the second stage of standardization, when the standards are unknown whether they will be successful and popular in the future or not. At this point, standardization agreements are very unlikely to be caught under Article 101 because such standards might be a complete failure and the cost to carry out a competition investigation is really high. Moreover, when the anti-competitive effect of particular standard occurs, the standard has already been so popular and so successful that it becomes indispensable in relevant market, every product is compliant with the standard and some participants have already invested millions even billions to develop improvements. To declare a standardization agreement void is really not a good choice. When facing with anti-competitive effect created by refusal to license, patent hold-up or excessive royalties, Article 102 might apply as well as contractual remedies in breach of FRAND.

According to the reply, it seems really reasonable that Article 101 does not require FRAND commitment. However, if in practice this Article will never act as legal basis for disputes to FRAND-encumbered SEPs, then the whole arguments here are meaningless.

Apply A101 on SEP licensing agreements

In spite of standardization agreement, the SEP licensing agreements are potentially caught by Article 101 if such agreements are anti-competitive enough to raise competition

⁹² Guidelines (n 1) para257.

concerns. Since the SEP holders have agreed to license their SEPs on FRAND terms, consequently those SEP holders should have kept their promises and the licensing agreements should by no means be unfair, unreasonable and discriminatory. However, this is not always the case. That's why the Court has to deal with *Huawei v ZTE* case and the Commission has to cope with *Motorola* and *Samsung* decisions. It is because the FRAND commitments do not prevent perfectly licensing parties from fixing price, controlling outputs or sharing markets where Article 101 might intervene if the SEP licensing agreements 'may affect trade between Member States and which have as their object or effect the prevention, restriction or distortion of competition within the internal market, and in particular those which: (a) directly or indirectly fix purchase or selling prices or any other trading conditions; (b) limit or control production, markets, technical development, or investment; (c) share markets or sources of supply; (d) apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage; (e) make the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.'⁹³

However, such intervention might be exempted if the conditions in Article 101(3) are satisfied. First of all, the licensing agreements shall give rise to efficiency gains, which are often satisfied due to the fact that SEP licensing agreements diffuse SEPs and the standard, which promote technical interoperability and compatibility, but again to what extent licensing agreements increase innovation shall be analyzed on a case-by-case basis. Secondly, licensing agreements shall not 'impose on the undertakings concerned restrictions which are not indispensable to the attainment of these objectives.'⁹⁴ Thirdly, such agreements shall allow consumers a fair share of benefits. 'Efficiency gains attained by indispensable restrictions must be passed on to consumers to an extent that outweighs the restrictive effects on competition' caused by the licensing agreements.⁹⁵ Finally, there shall be no elimination of competition.

⁹³ Article 101 TFEU (n 88)

⁹⁴ Article 101(3) TFEU (n 88)

⁹⁵ Guidelines (n 1) para321.

In accordance with the above analysis, technology transfer agreements which cover agreements for the transfer of technology may be exempted if they fall into the ‘safe harbour’ established under TTBER. However in order to fall under TTBER, there is a premise that such technology transfer agreements shall first be caught by Article 101(1), and then it might be exempted based on several conditions. In addition, TTBER may not be applicable if the network of such agreements falls out of the market share thresholds; if such agreements are concerned with hardcore restrictions and etc.⁹⁶ A FRAND technology transfer agreement does not prohibit the agreement from falling under Article 101(1), neither do FRAND commitments have influence on market share or give chance for the agreement not to be concerned with hardcore restrictions if it is indeed price fixing or output limitation.

From the above discussion, it can be seen that no matter a particular SEP has declared FRAND commitments or not, the conditions for anti-trust intervention are the same. In other words, a FRAND-encumbered SEP and a non FRAND-encumbered SEP share the same requirements to fall within of Article 101, the same requirements to be exempted under Article 101(3) and the same requirements to fall into safe harbor. FRAND commitments do not give any prerogative to a particular SEP and alleged licensing agreement. Therefore, in order for anti-trust intervention, FRAND commitments offer no haven for SEP licensing agreements. A FRAND-encumbered SEP licensing agreement shall be treated just like any other licensing agreements.

As to the question whether a SEP licensing agreement that is inconsistent with FRAND potentially violates Article 101, the answer is that such agreements do not necessarily violate Article 101 and the agreements have to be assessed on legal and factual conditions. The most obvious example is charging excessive royalties, which is a core prohibition of FRAND commitments and which is not *per se* prohibited under Article 101. Therefore, a licensing agreement to charge excessive royalties might not necessarily violates Article 101. Indeed, FRAND commitments and Article 101 have no inherent connection. Whether a

⁹⁶ Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements, OJ L 93, 17.

SEP licensing agreement compliant with FRAND commitment or not, neither adds anti-competitive effect to the agreement nor alleviate the situation. Therefore, Article 101 does not requires FRAND licensing. However, the situation under Article 101 is quite different from that under Article 102, while the latter shall be examined in a more careful way and FRAND commitments add some restrictions on licensing parties as established by EU case law.

4.2.2.2. Article 102

Chappatte also asserts that Article 102 requires FRAND licensing.⁹⁷ Article 102 applies with a prerequisite of dominant position held by an SEP holder or manufacture or other participants in the relevant market. The competition rule does not intervene unless a unilateral abusive behavior happens taking advantage of the dominant position. The requirement for FRAND licensing can be perceived from the plain language of this Article. Article 102 as written in TFEU has already involves essential factors of FRAND: ‘directly or indirectly imposing **unfair** purchase or selling prices or other **unfair** trading conditions’ and ‘applying **dissimilar conditions to equivalent transactions** with other trading parties, thereby placing them at a competitive disadvantage’⁹⁸ The former is apparently a similar requirement for ‘fair and reasonable’ trading or selling prices, while the latter requirement is similar to ‘non-discriminatory’.

Except that, other restrictions carried out by Article 102 are also somehow similarly stated in FRAND commitments. For example, exclusivity provisions such as margin squeeze which intend to drive competitors out of the market are also not compliant with FRAND requirements.

However, the reply again opposes that ‘the giving of a FRAND commitment does not alter the analysis required under Article 82 EC (now Article 102) before it can be concluded that the terms under which IPR is licensed are abusive.’⁹⁹ If a FRAND commitment simply

⁹⁷ Chappatte (n 2) 333.

⁹⁸ Article 102 of the Treaty on European Union and the Treaty on the Functioning of the European Union, OJ C 326

⁹⁹ Geradin and Rato (n 3) 167.

repeats the words and the requirements in Article 102, then there is no need at all to have this licensing term because in any case the conduct of a dominant firm will be examined under this Article. If otherwise the FRAND contains more and stricter requirement than Article 102, then there is no space for this Article 102 to play a role and the simple application of FRAND is fairly enough. However, it is unknown yet how FRAND shall be defined and what kinds of obligations FRAND actually has brought to both licensing parties.

At the time, Geradin and Rato wrote the reply, the *Huawei v ZTE* case has not yet been decided by the Court and the Commission has not given the *Motorola* decision and the *Samsung* decision. Therefore, it is impossible for both scholars to estimate that both the Court and the Commission approaches this question in a comparatively aggressive way in exceptional circumstances that they treat the behavior of seeking injunctions anti-competitive in FRAND-encumbered SEPs. But again, this is only in exceptional circumstances where FRAND commitments exist and only for the behavior of seeking injunctions, not any other exploitative or exclusionary behaviors. However, in situation of Article 102 TFEU, it is more likely that charging excessive royalties, holding up patents and refusing to license will raise the attention of competition authorities, as they open investigations on Qualcomm¹⁰⁰ and the Commission decides on *Rambus* case¹⁰¹. As practically exists, it is very likely that Article 102 TFEU shall intervene in FRAND-encumbered SEPs.

Despite all the arguments above, requirement for anti-trust intervention in FRAND-encumbered SEPs should not be understood as, to comply with competition law means to comply with FRAND commitments, or the other way around. Instead, practical legal and factual situations shall always be analyzed on a case-by-case basis, whether in particular case the standardization agreement or licensing agreement although committed FRAND violates Article 101; Or whether an abusive behavior by a SEP holder in dominant position in breach of FRAND commitment violates Article 102; Or whether such behavior

¹⁰⁰ Press release: Antitrust: Commission opens two formal investigations against chipset supplier Qualcomm, available at: http://europa.eu/rapid/press-release_IP-15-5383_en.htm

¹⁰¹ Case COMP/38.636 – *Rambus* [2009] OJ C 30.

not in breach of FRAND commitment still is so anti-competitive that it might possibly violates Article 102.

Therefore, it is necessary to examine conditions in detail where FRAND commitment fails to function as expected in Horizontal Guidelines and SSOs policies, and whether such conditions need competition law intervention as well as how competition authorities deal with or not deal with them in practice.

4.3. Perceived Problems

4.3.1. Refuse to commit and Deceptive: Patent Ambush

As discussed previously, SEP owners have a complete freedom to decide whether they will promise to license on FRAND terms or not. Such a decision usually will influence the standard-setting stage considerably, because due to the unwillingness of a SEP holder, the SSO will then have to try to find alternatives or try to remove the specific features demanding the particular SEP.¹⁰² In real world, there are plenty of reasons why SEP holders would refuse to commit on FRAND terms. For instance, a patent might be incorporated into a standard without substitutes at the time of standard-setting. Due to the fact that it is the only choice for SSOs to develop a particular standard, the SEP holder might have no willingness to commit on FRAND terms. Therefore, refusing to commit leads to the consequence that a SEP is not bound by FRAND.

Another possible situation where the SEP holder with his SEP incorporated into the standard does not commit on FRAND terms through an improper way, is patent ambush. Patent ambush occurs ‘where an IPR owner willfully and knowingly fails to meet its duty to disclose to a SSO ownership of IPR which are subsequently incorporated in the standard under adoption.’¹⁰³ In fact the core problem in patent ambush is non-disclosure before and during the standard-setting stage. The reason why FRAND is relevant lies in the fact that while these SEPs are not disclosed *ex ante*, they do not commit to FRAND either, which they usually should have if disclosed. A situation like this shall be differed from those SEP owners whose technologies are nevertheless incorporated into the standard and who refuse

¹⁰² ITU Report (n 23) 88.

¹⁰³ Geradin and Rato [2007] (n 21) 159.

to license on FRAND terms.

Although in both conditions FRAND terms are not committed by SEP owners which might lead to a seemingly identical legal consequence, however, a refuse to commit and a deceptive not to commit shall be treated in different manners if the conduct of a SEP holder who occupies dominant position is abusive enough to raise anti-trust concerns. The difference lies fundamentally in the word ‘agreement’, no matter the standardization agreement that forms the standard or the licensing agreement between SEP holders and standard implementers. The agreement is a contract, and there are legal instruments to determine what a contract means. ‘Both the Civil Law and Common Law traditions of contract interpretation and enforcement fundamentally look to discern and give effect to the intent of the parties.’¹⁰⁴ In other words, what really matters is parties’ intention to reach agreement. The fact that SEP holders develop and agree on the specific SSO policy which requires its members to commit on FRAND terms indicates a willingness of SEP holders to be bound by FRAND and its willingness to license to third parties on fair, reasonable and non-discriminatory terms. Such good-faith willingness shall by no means be undermined by deceptive non-disclosure.

Therefore, in the case of refusing to commit, the SEP holders upon joining the standard express the unwillingness to be bound by FRAND, and that particular holder will still be able to exercise the exclusive IPR embedded in the patent which means that the holder is able to refuse to license in certain conditions even though the third party is willing to pay a reasonable royalty. However, the situation of patent ambush or other deceptive conduct is totally different, because at the very beginning where the standardization agreement is going to be negotiated, the SEP holder has not expressed his intention in a good faith. While the particular SEP holder hides the real intention to ‘cheat’, other parties still expect a FRAND licensing from him. Therefore, already in the standardization agreement, the non-disclosure party bears a responsibility in the deception. Taking advantage of the deceptive conduct, the SEP holder is capable of exercising abusively on the market. When such abusive exercise raises anti-trust concerns, the original deception in the

¹⁰⁴ Brooks and Geradin (n 37) 8. See also Arthur L. Corbin and Joseph M. Perillo and John E. Murray, *Corbin on Contracts* (Matthew Bender 1952) para 538.

standardization agreement shall also be taken into consideration in the final judgment.

4.3.2. Patent Thicket

It is known to all, in order to implement a standard, a manufacture for example, has to be licensed on all SEPs for the normal functioning of a standard, and this is exactly why those patents are called standard essential patents. The condition where the manufacture has to licensing deals for all SEPs from every SEP holder is ‘patent thicket’.¹⁰⁵ There flows naturally a problem regarding those SEP licensing that not all SEP holders have agreed to commit on FRAND terms.

The problem of patent thicket, according to Damien Geradin and Miguel Rato, derives from the tragedy of anti-commons when ‘multiple owners share the rights to property but every one of them has the right to exclude all others’ and ‘the tragedy occurs from under-use’.¹⁰⁶ In other words, all the SEP holders’ patents together form a standard. Any single participant, no matter how small the contribution to the standard may be, has the capability to block the whole implementation of the standard. Hence in order to implement the standard, all the SEPs have to be licensed and each SEP holder has to waive exclusive licensing rights to license the particular SEP to any third party. Patent thicket is thus an extension form of ‘the application of the anti-commons theory to high technology industries involved in standard setting’.¹⁰⁷

The risks of patent thicket can be reduced if SEP holders all agree on FRAND commitments in the standard-setting stage. The commitments would require SEP holders to license their SEP in a fair, reasonable and non-discriminatory way, which seems to potentially address the problem in a perfect way as all SEP holders have to license out their patents. However, the reality often tells a different story. There indeed exists many problems even though SSOs generally require a FRAND commitment from any technologies which might be incorporated into the standard.

First of all, the SEP holder might not be willing to commit on FRAND terms especially

¹⁰⁵ Ian Hargreaves, ‘Digital Opportunity, A review of Intellectual Property and Growth’ [May 2011] UK Intellectual Property Office, 18.

¹⁰⁶ Geradin and Rato [2007] (n 21) 124.

¹⁰⁷ *ibid* 125.

when there is no alternative and comparable technology on the technology market at the time of standard-setting. However, in order to function the standard, SSOs have to incorporate the technology into the standard. Hereby without a FRAND commitment, SEP holders are not restrained by contract law. Patent law on the other hands gives the exclusivity right of the SEP owner to possibly extract excessive royalties and impose discriminatory terms. Under such circumstances, without the intervention of competition rules, SEP holders will be able to lead to significant anti-competitive effects on the relevant market.

Moreover, even with FRAND commitment, the risks of patent thicket are not perfectly prevented. The most typical example happens when the SEP holder is also a manufacture in the downstream market. As a vertically-integrated company, the SEP holder might take advantage of negotiation time in reaching the licensing agreement. The company may on one hand try to postpone the reach of licensing agreement and expand the timing of licensing negotiations in order to win the first chance to occupy the market. What the SEP does is by no means a breach of FRAND commitment, but merely a delay in reaching the licensing agreement, and such delay is used more like a business strategy to occupy the market.

Patent thicket is merely a phenomenon that acts as the basis for further abusive conducts, such as patent hold-up and royalty stacking. The inherent problematic nature of patent thicket in standardization to certain degree determines afore that FRAND commitments are not enough to address relevant standardization risks, but still it is necessary to look into more specific type of problems, to see how FRAND works to prevent such problems and to find out whether FRAND alone is enough.

4.3.3. Patent Hold-up

As explained previously, after the inclusion of a SEP into a standard with the whole industry locked into the standard, company who ‘thereby control the product or service market to which the standard relates’, is able to act anti-competitively ‘by “holding-up” users after the adoption of the standard either by refusing to license the necessary IPR or by extracting excess rents by way of excessive royalty fees thereby preventing effective

access to the standard.’¹⁰⁸

It is necessary to look into Philippe Chappatte’s theory for hold-up problem and royalty stacking, as well as Damien Geradin and Miguel Rato’s reply to it. Philippe Chappatte illustrates the hold-up problem and royalty stacking, and proposes FRAND commitments as industry solution. Later on, his theory is rebutted by Damien Geradin and Miguel Rato to show that the need for anti-trust intervention claimed by Philippe Chappatte is superficial. In following paragraphs, both of their arguments are discussed, based on which extended analyses are addressed intend to show that there is a need for anti-trust law to intervene in the situation where SEP holders committed to license their patents on FRAND terms.

According to Philippe Chappatte’s theory, the hold-up problem is based on a SEP holder’s ability to first ‘block companies from producing any products compliant with the standard’ and second ‘demand royalties for its patent that are significantly higher than the royalties it could have demanded had the technology not been included in the standard, or before the standard was adopted and competition eliminated.’¹⁰⁹ The situation is especially severe with mobile telecoms standards.¹¹⁰

The idea in a whole is rebutted by Damien Geradin and Miguel Rato, due to several reasons. First of all, they think Philippe Chappatte’s hold-up theory purely conceptual and rarely happens. The hold-up theory is established on the premise that there are ‘sufficiently close alternative technologies existed at the time of adoption of a particular standard, and that standardization eliminated inter-technology competition.’¹¹¹ However, in fact, in absent of evidence showing actual alternatives, ‘the technology in question faced no competition either before or after standard adoption’ and standardization only enlarged rewards.¹¹²

The reason proposed makes sense, but the conclusion is hardly convincing. First of all, in absent of sound evidence showing ‘actual alternatives’ at the adoption of a standard, it is

¹⁰⁸ Guidelines (n 1) para269.

¹⁰⁹ Chappatte (n 2) 326.

¹¹⁰ *ibid* 326.

¹¹¹ Damien and Rato (n 3) 135.

¹¹² *ibid* 135.

hard to say whether the SEP holder faces competition or not before the adoption. Furthermore, without standardization or at least the success of a standard, the SEP owner if developing and marketing his products by himself, could never reach the success and the network effect as a standard does. Standards, for example GSM and UMTS in telecommunication industry, are *de facto* globally dominant. Such a dominant position of a SEP not only gives the owner the power to charge excessive royalties on European markets, but also on the market of other countries, for example China. Relevant cases have already happened as a sound reality proof to warn companies and consumers of hold-up problem. For instance, on March 2th 2015, China's National Development and Reform Commission (NDRC) in its investigation into Qualcomm Incorporated finds that Qualcomm taking advantage of dominant position in technology market in terms of possessing SEPs of CDMA, WCDMA and LTE standards, is able to charge unfairly excessive royalties for chip sales and thus abuse its dominant position in violation of China's Anti-Monopoly Law ('AML').¹¹³ Thus, it is very likely that the hold-up problem is just not revealed by the Court and the Commission or at least not severe enough to reveal, instead of the perception that there is no such problem at all.

Secondly, Damien Geradin and Miguel Rato refute Philippe Chappatte's theory that hold-up theory 'assumes that licensing terms were unknown and unavailable prior to standardisation' and that implementers are lock-in due to significant technology-specific investment. The argument disapproves on one hand that in fear of the *ex post* hold-up problem, manufacturers could 'pursue pre-standardisation licences systematically' and be careful of those who refused to enter into *ex ante* negotiations. On the other hand, because lock in effect works 'long after an SSO adopts a standard', the implementers actually have enough time to consider licensing terms. Under unfair and unreasonable terms and conditions, both SSOs and implementers could '(i) modify the standard to exclude that

¹¹³ NDRC Administrative Sanction Decision No. 1 [2015] (Mar. 2, 2015), available at http://www.ndrc.gov.cn/gzdt/201503/t20150302_666209.html NDRC previously announced the conclusion of its 15-month investigation (the "NDRC Announcement"): NDRC Ordered Qualcomm to Rectify Its Anti-Competitive Behavior and Imposed a Fine of RMB 6 Billion (Feb. 10, 2015), available at http://www.sdpc.gov.cn/xwzx/xwfb/201502/t20150210_663822.html

essential IP; (ii) implement another standard; (iii) challenge the licensing terms.¹¹⁴

The argument in itself has no flaws, but the actual situations have to be differed. At the first two stages of standardization, when the final standard has not been decided, both parties could freely negotiate licensing terms and all other aspects. However, after the final standard has been formed and FRAND commitments have been made by SEP holders, hold-up problem still could happen due to the inherent vagueness of ‘fair’ and ‘reasonable’ terms and even due to the breach of FRAND commitments. The situation is especially likely to happen when the standard through long time practicing becomes successful and popular in the whole world. Under such circumstances, the standard has already been indispensable, which cannot be modified in any way or replaced by another standard. A manufacture later want to produce the products that are compliant with the standard might be hold-up, because SEP holders charge excessive royalties in breach of commitments.

After that, the reply argues that firms who gain market power because of standardization also face dynamic constraints. The most obvious one is that because the particular SEP will continue to depend on the SSO for its position as the standard evolves, participants in SSOs have the chance to ‘punish’ SEP holders by excluding them from future generations of the standard or in other unrelated standards.¹¹⁵ In the situation of breaching FRAND commitment, the particular SEP holder should have already realized this consequence as the exercise of excessive royalty actually takes place. The fact that SEP holder while realizing the possible ‘punishment’, still decides to charge excessive royalties leads to rethinking the motivation behind such abusive exploitation. It might be possible that the particular SEP holder does not want to participate in further standards at all. It might also be possible that the particular SEP holder holds a very strong bargaining power that he does not afraid of the punishment. For example, there are companies which do not touch upon downstream product market and only focus on upstream technology market. The business strategy of part of such companies is to buy selected patents from others and thus develops newest and most advanced technologies. Such strategy could be so successful that SSOs are unable to circumvent their technologies to develop a new standard.

¹¹⁴ Geradin and Rato (n 3) 135.

¹¹⁵ Geradin and Rato [2007] (n 21) 148.

In short, it is undeniable that the possibility for the occurrence of patent hold-up problem is exceptionally low. There are only limited cases for reference. However, once it happens, the anti-competitive effect it incurred to the relevant market and the damages it caused to consumers and companies are immeasurable. The figure of the profits a SEP holder could earn due to excessive royalties are millions, even billions. This is exactly why such situation needs to be taken care of attentively. Besides, possible patent-hold problems are not perfectly prevented by FRAND commitments. The amount of excessive royalties the SEP holder is able to extract in breach of FRAND is numerous. Consequently, compared with limited remedies as the consequence of breach of contract, the anti-competitive effect that patent hold-up is able to bring to the relevant market will be enlarged due to the amplification effect of huge amount of euros.

Without a threat of anti-trust intervention, such anti-competitive effect on the market could in extreme circumstances destroys a product market. However, upon applying competition rules to hold-up problems, it is unnecessary for competition rules to be applied well-rounded. Competition authorities have to very careful about the anti-competitive effect on the market. They should instead of a mere suspect have sound evidence to prove that such anti-competitive effect is *de facto* as a result of patent hold-up. They would have to balance the possible detriment to the standard, to innovation and to consumers as a consequence of anti-trust intervention. This is a practical issue faced with by competition authorities and this may be why they are reluctant to touch upon patent hold-up problems.

4.3.4. Royalty Stacking

The situation of royalty stacking in the first impression is fairly easy to understand. A particular product in order to compliant with a particular standard has to get license from all indispensable SEPs that are necessary to implement the particular standard. Royalty stacking happens when each of the SEP is licensed within ‘reasonable’ term but ‘stacking up so many reasonable terms would indeed lead to an unreasonable sum.’¹¹⁶ The royalty stacking problem is perceived as highly possible in telecommunication sector where ‘(i)

¹¹⁶ *ibid* 127.

essential patents are “perfect complements”; (ii) there are a large number of essential patents owned by a large number of firms; and (iii) a royalty rate is “only make-up” since the marginal cost of licensing per unit produced is zero.’¹¹⁷

This assertion is again opposed in the reply. The reply argues that the uncertainty on ‘reasonable’ royalties in question already makes the royalty stacking problematic. In addition, to test the reasonable level of a royalty, ‘an extensive empirical analysis of the relative costs, properly defined and calculated, of the different inputs comprising such product, including the cost of the R&D incurred to create the incorporated IPR, manufacturing costs, marketing costs, etc.’¹¹⁸ After that, Damien Geradin and Miguel Rato give three examples to prove that ‘cross-licensing between essential patent holders significantly dampens the risk of royalty stacking,’¹¹⁹ when deals are made among SEP holders themselves.

The above arguments are convincing in limited geographical areas such as US and EU, where SEP holders are *de facto* players on the downstream product market and where it is necessary for contractual parties to cross-licensing. The premise of the argument is that deals are made between SEP holders. However, in a third country, this is not the case. Instead, deals are often made between SEP holder and a pure implementer, where contractual parties do not agree on cross-licensing terms. On the other hand, if such argument is true in US or EU, then it can be concluded that the product providers are mainly SEP holders themselves. It seems to be a game within the standard where no third party is willing to muscle in the market where the third party is in such disadvantageous position that he will be charged so high royalties and will be squeezed out of the market easily. In such circumstance, the SEP holders are very likely just to gather together and form a collective dominance. FRAND if also agreed by all SEP holders is also a mere scrap of paper, because regardless of royalty levels, SEP holders are able to exercise all kinds of abusive conducts to drive the third party out of the market.

Therefore, the potential risks caused by the royalty stacking can by no means be ignored as

¹¹⁷ Chappatte (n 2) 326.

¹¹⁸ Geradin and Rato (n 3) 138.

¹¹⁹ *ibid* 140.

the effect it has to the market could be significantly anti-competitive. In perception only, SSOs might be able to help reduce the risks of royalty stacking. A royalty shall be fair and reasonable in aggregate -- that is, 'the sum of royalties collected for all SEPs covering a given standard should not be so high as to remove the incentives to make and sell products using the standard, or, where such costs are passed on to the consumers, to undermine the desirability of the market for standardized end-products.'¹²⁰ SSOs who have detailed information about the number of SEPs incorporated in the standard and who can decide the incorporation based on several factors including FRAND commitments, shall do more than just leave the risks of royalty stacking alone. For instance, SSOs could at least state in IPR policies that the aggregate royalties shall also be FRAND.

Again, royalty stacking is a perceived problem discussed in the context which in practice at least in EU jurisdiction has never been touched upon by the Court or the Commission. The litigation costs asserted by the reply indicate an even smaller possibility for anti-trust intervention, because 'royalty stacking is not common enough and costly enough in the real world to warrant the kind of pervasive regulation.'¹²¹ It is extremely hard to prove that an aggregate royalty is excessive and has anti-competitive effect on the market and on the adoption and dissemination of a standard that detracts competition. Therefore, the issue of royalty stacking is purely theoretical and even more abstract than the theory of patent hold-up.

4.4. Case Law: Seeking Injunctions

Injunctions are usually ordered by national courts as a remedy to deter any act of infringement of IP rights enjoyed by right holders. The right of IP owners to seek injunctive relief is expressly guaranteed under IP Enforcement Directive stating that 'Member States shall ensure that, where a judicial decision is taken finding an infringement of an intellectual property right, the judicial authorities may issue against the infringer an injunction aimed at prohibiting the continuation of the infringement.'¹²² Such

¹²⁰ ITU Report (n 23) 66.

¹²¹ Geradin and Rato (n 3) 142.

¹²² Directive 2004/48/EC of The European Parliament and of the Council of 29 April 2004 on the enforcement of intellectual property rights [2004] OJ L 157, Article 11.

injunction can be ‘a precautionary seizure of the movable and immovable property of the alleged infringer,’ as an interlocutory injunction for imminent infringement and in the case of a likelihood to endanger the recovery of damages, as well as permanent as a result of the decision on the merits by a court.¹²³

However, in present case, an injunction sought by SEP holders for FRAND-committed IP is very controversial. When a SEP holder commit to license the technology on FRAND terms, it usually assures that the particular SEP is accessible to whoever implements the standard and at the same time is willing to enter into licensing agreements with the SEP holder on FRAND terms. However, with the ability to seek or threaten to seek injunctions, the SEP holders are able to exclude certain implementers from using their SEPs. The right to seek injunctions thus potentially raise anti-trust concerns. In the very beginning, one question has been proposed as several scholars argue that ‘by making a FRAND commitment an essential patent holder waives its right to seek injunctions in case of infringement (the “waiver theory”).’¹²⁴ If this is the case, then whoever would like to use the SEP and related products and services, can just go ahead and use without paying a royalty to obtain a licence. According to the reply, this is because SEP holders who commit FRAND licensing implicitly waive their rights to seek injunctions. Then the only relief there is an *ex post* damage claim, which also seems to be the worst situation for unlicensed users. Then ‘patentees would arguably prefer to settle for a licence on terms that would not provide a fair return on their investment, in other words terms which would not comply with FRAND, rather than face lengthy, onerous and uncertain court proceedings for the award of damages.’¹²⁵ Besides, the most apparent shortcoming of the ‘waiver theory’ is the fact that it lacks any kinds of statutory or provisional legal basis either in laws and regulations or in SSOs policies.

Now SEP holders who committed FRAND licensing can also seek for injunctive relief against any act of infringement on their IP rights, which by no means makes the licensing issue simple and convenient. Instead, it is SEP holders right to seek injunctions that makes the anti-trust intervention necessary and complementary to FRAND commitments.

¹²³ *ibid* Article 9.

¹²⁴ Geradin and Rato [2007] (n 21) 117.

¹²⁵ *ibid* 119.

Cases decided by the Commission and the Court regarding injunctions could be viewed as the solid evidence that anti-trust intervention is necessary where SEP holders acting abusively due to the lock-in effect of the successful standard, even though they have committed to license their SEPs on FRAND terms. The most important cases are *Huawei v ZTE*, and more recently the *Motorola* decision and the *Samsung* decision. These three cases show a clear picture how the Commission and the Court treats injunction issues.

4.4.1. Huawei v. ZTE

On March 2013, the Dusseldorf Regional Court referred to the CJEU five questions about remedies available to SEP holders: the *Huawei v ZTE* case.

In this case, the Court establishes that an injunction sought by an SEP holders, who offers to license the particular SEP on FRAND terms, does not constitute an abuse of dominant position within Article 102, as long as: ‘prior to bringing that action, the proprietor has, first, alerted the alleged infringer of the infringement complained about by designating that patent and specifying the way in which it has been infringed, and, secondly, after the alleged infringer has expressed its willingness to conclude a licensing agreement on FRAND terms, presented to that infringer a specific, written offer for a licence on such terms, specifying, in particular, the royalty and the way in which it is to be calculated, and where the alleged infringer continues to use the patent in question, the alleged infringer has not diligently responded to that offer, in accordance with recognised commercial practices in the field and in good faith, this being a matter which must be established on the basis of objective factors and which implies, in particular, that there are no delaying tactics.’¹²⁶

The first and the most important question put before the Court is that ‘does the proprietor of [an SEP] which informs a standardization body that it is willing to grant any third party a licence on [FRAND] terms abuse its dominant market position if it brings an action for an injunction against a patent infringer even though the infringer has declared that it is willing to negotiate concerning such a licence?’¹²⁷ ‘There is no previous jurisprudence of the EU courts which specifically considers whether such conduct may constitute an abuse

¹²⁶ *Huawei v ZTE* (n 81) para71.

¹²⁷ *ibid* para39.

of a dominant position.’¹²⁸

Upon giving guidelines to relevant issues, the Court first derives from settled case-law that the right to seek injunctions as an exercise of an exclusive patent right for normal IP holders, itself, will not constitute an abuse of dominant position. However, considering the exceptional circumstances of a standard essential patent the holder of which can ‘prevent products manufactured by competitors from appearing or remaining on the market’, and of a FRAND commitment which ‘creates legitimate expectations on the part of third parties that the proprietor of the SEP will in fact grant licences on such terms’, a refusal to license the particular SEP thereby, ‘in principle, constitutes an abuse within the meaning of Article 102’.¹²⁹ But still, specific legal and factual conditions shall be taken into account.

Firstly, it can be drawn from this conclusion that the Court upon identifying an abuse of dominant position lays emphasis on the exclusionary nature of seeking injunctions, rather than exploitative one. In this case, theoretically, in order to examine under Article 102, the Court could either concern the exploitative nature for SEP holders to seek injunctions or threaten to seek as a method to extract unfair and unreasonable royalties or to impose discriminatory licensing terms, or concern exclusionary nature that the behavior to seek for injunctions excludes actual or potential competitors from the relevant market and that ‘the practices that cause consumers harm through their impact on competition.’¹³⁰ The Court in this case neither takes the position to examine whether the royalties charged by SEP holders are reasonable or excessive or the purchase or selling prices imposed actually on consumers are fair or reasonable(Article 102(a)), nor tries to involve in the examination of applying dissimilar conditions to equivalent transactions with other trading parties(Article 102(c)). Instead, as clearly stated in the judgement, the nature of essentiality of an SEP renders its use indispensable to all competitors, due to which the proprietor could exclude any actual or potential competitors from the market and probably becomes a *de facto* monopoly. Indeed, such an injunctive form of patent hold-up might inevitably undermines

¹²⁸ Alison Jones, ‘Standard-essential patents: FRAND commitments, injunctions and the smartphone wars’ [2014] King’s College London Dickson Poon School of Law, Legal Studies Research Paper Series, paper no. 2014-19, available at: <http://ssrn.com/abstract=2394495>, 16.

¹²⁹ *Huawei v ZTE* (n 81) para45-53.

¹³⁰ Jones (n 128) 18. See also Case 209/10 Post Danmark A/S v Konkurrencerådet 27 March 2012, para20

the effective access to the standard and the exclusion of competitors on the market obviously hampers and eliminates competition, which is not only detrimental to the competition on secondary or downstream market, but also finally passes on to consumers.

Secondly, the Court admits national courts' position to grant injunctions in the protection of patents as exclusive rights. On this premise, the Court settles that 'the exercise of an exclusive right linked to an intellectual-property right by the proprietor may, in exceptional circumstances, involve abusive conduct for the purposes of Article 102 TFEU.'¹³¹

Therefore, apparently the Court differs the situation of FRAND-encumbered SEPs with those that are not FRAND-encumbered ones. The former category is regarded as exceptional cases and thus shall be treated in an exceptional way. Such difference lies fundamentally in the FRAND commitments *per se*, as FRAND implies a waiver of exclusive licensing rights. Now that part of the exclusive IPR has been waived by the parties themselves, the right basis for the national courts to grant injunctions lacks here.

After establishing a principle regarding to current issue, the court then lays down conditions in which seeking an injunction or seeking the recall of products by SEP holders who commit FRAND terms, does not constitute an abuse of dominant position, if the SEP holder before seeking the injunction must firstly 'alert it to the fact in writing, giving reasons, and specifying the SEP concerned and the way in which it has been infringed', 'unless it is established that the alleged infringer is fully aware of the infringement'¹³²; and secondly 'in any event, present to the alleged infringer a written offer for a licence on FRAND terms that contains all the terms normally included in a licence in the sector in question, in particular the precise amount of the royalty and the way in which that amount is calculated.'¹³³

Comparatively speaking, potential licensees also bear certain responsibility that the infringer shall be 'able' to 'conclude and comply with a licensing agreement on FRAND terms and, in particular, to pay an appropriate royalty.'¹³⁴ The potential licensee 'must

¹³¹ *Huawei v ZTE* (n 81) para47.

¹³² Court of Justice of the European Union, Opinion of Advocate General Wathelet, Case C-170/13 - *Huawei Technologies Co. Ltd v ZTE Corp., ZTE Deutschland GmbH*, para84.

¹³³ *ibid* para85.

¹³⁴ *ibid* para80.

respond in a diligent and serious manner to the offer made by the SEP-holder.’¹³⁵ In the situation where the potential licensee does not accept that offer, ‘it must promptly submit to the SEP-holder, in writing, a reasonable counter-offer relating to the clauses with which it disagrees.’¹³⁶ In addition, both ‘[t]he time frame for the exchange of offers and counter-offers and the duration of the negotiations must be assessed in the light of “commercial window of opportunity” available to the SEP-holder for securing a return on its patent in the sector in question.’¹³⁷ Therefore, ‘[i]f the potential licensee is already using the teaching of an SEP without paying for it, the negotiations have to be opened and concluded quickly.’¹³⁸

Although the opinion of Advocate General offers quite detailed procedures to both licensing parties, there are still some ‘stumbling blocks’ which have neither been addressed by the Court, nor by the Advocate General. For example, is it possible for the Court or the Commission to fix or adjust FRAND commitments? If the answer confirms, then to what extent can the competition authority adjudicate the FRAND commitments or even gives a slightly clear definition to it. Will the question result in different conclusion if the situation is an entire patent portfolio? What about a world-wide license?

4.4.2. Motorola and Samsung

After the *Huawei v ZTE* case, the most recent Commission decisions – *Motorola* and *Samsung*, based on the court’s judgement, develops and furthers the basic principles set in the *Huawei v ZTE* case, and illustrates more detailed and practical guidelines about seeking injunctions by FRAND-encumbered SEP holders.

The *Motorola* case at first follows the basic deduction of the CJEU court and finds that Motorola infringes Article 102 TFEU and Article 54 of the EEA Agreement by seeking and enforcing injunction against Apple on FRAND-encumbered GPRS SEPs. It further establishes that ‘the agreement of a potential licensee to a judicial setting of a FRAND rate in case of dispute is a clear indication of its willingness to enter into a licence agreement

¹³⁵ *ibid* para88.

¹³⁶ *ibid* para88.

¹³⁷ *ibid* para89.

¹³⁸ GRUR Comments (n 54) 27.

and to pay adequate compensation to the SEP.¹³⁹

On the same day April 29th 2014, in another decision, European Commission makes a preliminary conclusion that ‘Samsung has abused its dominant position by seeking preliminary and permanent injunctions against Apple on the basis of its UMTS SEPs’¹⁴⁰ under Article 102 TFEU. The seeking of injunctions *per se* is not an abuse of dominant position, however in this case where Samsung committed to license SEPs on FRAND terms, ‘the seeking of preliminary and permanent injunctions against Apple was capable of: (i) excluding Apple, a rival manufacturer of UMTS-compliant mobile devices from the market; and (ii) inducing Apple to accept disadvantageous licensing terms...’¹⁴¹ As to the potential objective justification for Samsung’s seeking for injunctions, the Commission rejects Samsung’s justification that Apple is unwilling to enter into a licence agreement for Samsung’s UMTS SEPs on FRAND terms, while still taking into account the protection of Samsung’s IPR, the public interest in maintaining effective competition, the rights linked to intellectual property and etc.

It can be drawn from the two decisions that the Commission fundamentally relies on the CJEU previous case law to treat seeking for injunction of FRAND-encumbered SEPs anti-competitive in principle, through careful analyses of the dominant position of the alleged injunction seekers, namely Motorola and Samsung along with their SEPs, the anti-competitive effect in the course and various objective justification.

In addition, in both cases the importance of potential licensees is emphasized as a factual factor to be taken into considerations. The willingness and behavior of potential licensees are as important as the standard-setting context and the SEP owners’ FRAND commitments. For example, in *Motorola* decision ‘[t]he corollary of a patent holder committing, in the standardisation context, to license its SEPs on FRAND terms and conditions is that a potential licensee should not be unwilling to enter into a licensing agreement on FRAND terms and conditions for the SEPs in question.’¹⁴² Similarly in

¹³⁹ Competition Policy Brief (n 27) 4.

¹⁴⁰ *Samsung* (n 83) para71.

¹⁴¹ *ibid* para62.

¹⁴² *Motorola* (n 82) para427.

Samsung decision, the exactly same words are repeated in the context¹⁴³, which indeed is a central focus of the Commission's preliminary assessment in this case. The emphasis on potential licensees indicates that the Commission tries to find a balance between SEP holders and potential standard implementers. 'Finding this reasonable balance means that the SEP holder and the potential licensee should be equally incentivized to engage in good faith negotiations.'¹⁴⁴ If either side of the balance outweighs the other side, it is thus very possible that the risks of litigation increase.

However, with regard to the decisions there are some differences between them, as the *Motorola* decision establishes an infringement under Article 102 but the *Samsung* decision does not. Moreover, in *Motorola* decision, the Commission emphasizes again a 'safe harbour' for licensees who willing to submit the disputes to the court and to pay the royalty accordingly. Hence if parties are not willing to fall into the 'safe harbour', seeking for injunctions thus justified. In *Samsung* case, the Commission goes deeper to cite three scenarios with regard to situations where a SEP holder is entitled to seek preliminary and permanent injunctions against a potential licensee, if 'a potential licensee is in financial distress and unable to pay its debts'; if 'a potential licensee's assets are located in jurisdictions that do not provide for adequate means of enforcement of damages'; if 'a potential licensee is unwilling to enter into a licence agreement on FRAND terms and conditions, with the result that the SEP holder will not receive FRAND compensation the use of its SEPs'.¹⁴⁵ Besides, the Commission continues to establish a detailed licensing framework providing that a negotiation period shall amount up to twelve month and if the negotiation fails, a third party determination of FRAND commitments either by a court if chosen by one party, or by arbitration if both parties agree. These more concrete terms render commitments legally binding.

Both decisions provide clarifications and guidance for all participants in the standardization with competition law limits to injunctions of FRAND-encumbered SEPs. Therefore, it is important for national courts to reconsider the grant of injunctive relief,

¹⁴³ *Samsung* (n 83) para67.

¹⁴⁴ GRUR Comments (n 54) 26.

¹⁴⁵ *Samsung* (n 83) para67.

because such behavior is treated as anti-competitive and national courts have to examine circumspectly on ‘safe harbour’, anti-competitive effects and etc.

4.4.3. Anti-trust intervention in Injunction cases

All three cases in seeking injunctions are treated as an abuse of dominant position under Article 102 in exceptional circumstances--FRAND commitments. With regard to the Court’s and Commission’s practices, some common ideas can be drawn from these cases to see how Article 102 of EU competition law works to remedy the injunctive form of patent hold-up.

It is the uniqueness of standardization, FRAND commitments and IP rights that make the anti-trust intervention necessary. Standardization firstly will potentially lead to a monopoly or quasi-monopoly status of the particular SEP on the relevant market when the standard becomes popular and widely used. Then FRAND commitment improves the success of the standard through attracting more users into the standard because the commitment offers the users accessibility to the standard on fair, reasonable and non-discriminatory terms, which finally realizes the status. Moreover, the SEP holder’s IP rights give the holder the chance to explore the rights exclusively, in these cases the seeking injunctions. These three elements together endow the possibility for SEP holders to hold up licensees in seeking or threatening to seek injunctions. So far, the requirements for anti-trust intervention based on Article 102 are all potentially satisfied. Hereby, EU competition law keeps an eye on it.

It makes sense that the Court and the Commission treat the seeking for injunction in cases involving FRAND-encumbered SEPs as anti-competitive. Most importantly, the principle set in the exceptional circumstances avoids Type 2 error while not resulting in a more excessive risk of Type 1 error. Type 1 error, a false positive, basically allows anti-competitive effect, condemns aggressive litigation and encourages potential pro-competitive behaviors; while Type 2 error, a false negative, rejects potential anti-competitive effect through aggressive litigation, but still allows anti-competitive conduct to escape in certain exceptional cases.

Firstly, it is over-optimistic to assume that seeking injunctions as an option will not ‘necessarily subject implementers to hold-up, since they would always retain the right to

seek a FRAND licence and to seek judicial relief if they believe the licensor is breaching commitment.¹⁴⁶ As discussed previously, to seek for injunctions and to threaten to seek for injunction potentially hold up licensees especially when the SEP holder is in dominant position and has considerable bargaining power to require unreasonable royalties and other discriminatory terms or terms more favourable to the SEP holder.

Secondly, the denial of SEP holder's right to seek injunctions against licensees who are willing to enter into licensing agreements on FRAND terms, neither harms the freedom to contract, nor impedes innovation or incentives to invest, let alone detriment to competition. Moreover, balancing the anti-competitive effect of Type 1 error and Type 2 error, Type 1 error is more likely to incur incredible detriment to competition as well as damages to consumers. As SEP holders are already dominant on upstream market, if they are no longer bind by FRAND commitments as expected and on contrary are able to hold-up users downstream, they might become monopoly in the upstream market as well as in the downstream market. It can be imagined how detrimental it is to competition if there is only one brand of cellphone on the market. In fact, both the Court and the Commission have realized the 'importance of acting rapidly under Article 102 in growing markets', and 'even temporary exclusion from fast moving technology markets can cause serious harm'.¹⁴⁷ However, if SEP holders are deprived of the capability to seek for injunction under all kinds of conditions, their bargaining power might on the other hand be reduced, and consequently they are under-compensated. In such cases, a 'reverse hold up' problem happens if seeking for injunctions is completely banned no matter what negotiations are going on between licensors and licencees.¹⁴⁸

Therefore, facing the Type 2 error as well as 'reverse hold up' problem, the Court and the Commission are able to set several rules to correct this type of error. For example, in *Huawei v ZTE* case the Court states that if potential licensee continues to behave unreasonably and refuse to enter into licensing agreement on FRAND terms, seeking for

¹⁴⁶ Jones (n 128) 24, see also JD Harkrider, 'Seeing the Forest Through the SEPs' [2013] 27(3) Antitrust 22, 24.

¹⁴⁷ *ibid* 26. See also Case C-52/09 *Konkurrensverket v TeliaSonera* [2011] OJ C 103, para108.

¹⁴⁸ Geradin (n 26) 5.

injunction could be justified based on the facts. Also, the ‘safe harbour’ established in *Motorola* decision has the same function and in *Samsung* decision the Commission gives several scenarios where seeking preliminary and permanent injunctions are justified, such as incapability to pay debts, unwillingness to license on FRAND terms and etc.¹⁴⁹ All these words amount to precedents established by the Court and the Commission and thus provide guidance for any party related.

Furthermore, with regard to the intervention of competition law, there apparently exists a balancing between the applicable fundamental rights and the freedom of competition. The Court in the *Huawei v ZTE* case ‘strikes a balance between maintaining free competition and the requirement to safeguard that proprietor’s intellectual-property rights and its right to effective judicial position,’¹⁵⁰ which also happens in later two decisions. Especially in *Motorola* decision, the Commission states in detail the balancing issues. On one side of the steelyard, there are fundamental rights protected by the Charter consist of the rights linked to IP (Article 17(2)), the right of access to a tribunal (Article 47) and the freedom to conduct a business (Article 16), and in the case are these three fundamental rights of SEP holders. On the other side, there are restriction prohibited on the legal basis of Article 102 TFEU, corresponding to an objective of general interest pursued by the Union to establish an internal market, for instance the objective to establish a system ‘ensuring that competition is not distorted to the detriment of the public interest, individual undertakings and consumers.’¹⁵¹ However, such kind of restrictions shall not ‘involve a disproportionate and intolerable interference’ that infringes the very substance of SEP holders’ fundamental rights.¹⁵² In other words, such restrictions are imposed only on particular SEP related, particular product and geographical market related and particular damages related as appropriate remuneration for the use of particular SEP. In addition, there are also restrictions imposed on SEP holders to protect the rights and freedoms of others. For example, in *Motorola* decision, the SEP owners’ right to seek injunctions actually restricts downstream user, Apple’s freedom to enter into agreement of disadvantageous licensing

¹⁴⁹ Jones (n 128) 25.

¹⁵⁰ *Huawei v ZTE* (n 81) para42.

¹⁵¹ *Motorola* (n 82) para90.

¹⁵² *ibid* para90.

terms, which then considerably impedes competition and finally all those disadvantages will be passed on to consumers resulting in reduction of consumer welfare. Therefore, the balance between fundamental rights and freedoms is prominently essential for competition authorities to consider seriously before anti-trust intervention.

All in all, from all the cases, the importance for anti-trust intervention can be seen as an SEP holder might take advantages of the dominant position obtained through lock-in effect brought about by successful standard, and hold up implementers through extracting excessive royalties or imposing discriminatory terms.¹⁵³ Interestingly noted here, competition rules in such cases function quite initiatives, since behaviour to seek for injunctions by FRAND-encumbered SEP holders is treated as anti-competitive, unless ‘safe harbour’ covers. The attitude of competition authorities towards relevant issues is quite intense as those SEPs and SEP holders’ business usually involves thousands even millions euros, and once anti-competitive effects appear, such effects are enormously huge. Just as Vice President of the European Commission -- Joaquín Almunia, who is responsible for Competition Policy, said in a speech in 2012, ‘the worst-case scenario is when a company willing to take a licence for standard-essential patents on FRAND terms is hit by an injunction. Legal battles like these may put the standardisation process at risk and hold up innovation in the entire industry.’ There now is a consensus among competition authorities that ‘injunctive relief in competition with a FRAND-encumbered SEP should be a remedy of last resort.’¹⁵⁴

4.5. Consumer Harm?

Although excessive royalties charged by FRAND-encumbered SEP holders are imposed on manufactures or producers or service providers, these disadvantages will finally pass on to consumers as the price of final products increases at the same time.¹⁵⁵ However, this assertion made by Chappatte is also rebutted in the reply as ‘neither Mr Chappatte nor his allies of circumstance have made any serious effort to analyze the effect any allegedly

¹⁵³ Jones (n 128) 17.

¹⁵⁴ National Research Council (n 4) 96.

¹⁵⁵ Chappatte (n 2) 334.

unreasonable royalties have had on consumers or the expected effect of any royalty reduction on those same consumers.’ The reduction of input will not benefit consumers and reduction in royalties would be ‘trivial’, because there is no factual or statistic support for the assertion that excessive royalties charged by SEP holders will pass on to consumers.¹⁵⁶

The argument in the reply is again logically reasonable, and there is no strong statistic evidence to confute. However, just as there is no strong evidence to show a harm might be passed to consumers, there is no strong evidence to prove harms would not be passed to consumers. In the condition of a folk in the road like this, while neither side can be asserted or proved, whether competition rules intervene or not thus, not relies on the evidence to show a harm passed on to consumers or not. Instead, the competition authorities take the approach regarding the exclusive effect of abusive behavior of a dominant firm on relevant market.

Through assessing the anti-competitive effect of for example ‘seeking for injunctions’ which ‘excludes the most innovative standard-compliant products from the market’, the Commission thus is capable of getting the conclusion that such abusive behavior has its abusive nature restricting competition, limiting consumer choice and eliminating downstream competition.¹⁵⁷ Therefore, such an approach does not mean that competition authorities leave the harm of consumers totally untouched. Instead, while the Court and the Commission lay emphasize on the anti-competitive effect of an abusive behavior of dominant firms on whether such behavior excludes competitors on competing market, the potential consumer harm is thus proved by this exclusive effect as generally speaking, consumers benefit more when there are more competitors on the market.

Except for addressing harms to consumers through exclusion of competitors and restriction of competition, consumer welfare could also be reduced due to other unreasonable and discriminatory licensing terms that are incompatible with FRAND, such as ‘termination clause’ by single party, ‘old products clause’ and etc.¹⁵⁸ Such terms might be too unfavorable to licensees that deter potential participants, as well as deter incentives for

¹⁵⁶ Geradin and Rato (n 3) 172.

¹⁵⁷ *Motorola* (n 82) para56-57.

¹⁵⁸ *ibid* para57.

further improvements.

According to the Court's and the Commission's practices, excessive royalties alone hardly leads to any conclusion of anti-competitive or consumer harm, and apparently, abusive standardization happens only when royalties charged are excessive than 'fair and reasonable' with other 'exclusionary behavior' also exercised by SEP holders who also produce products and provide services as well as agree to license SEPs to others on FRAND terms. Consumer welfare harmed or not can only be treated as secondary factors to prove anti-competitive effect of an abusive conduct.

In fact, it is necessary in any situation to address the possibility of reduction in consumer welfare, because if the competition rules are needed to intervene in certain condition, the final object for such anti-trust intervention is to protect consumers in final market, not just for fairness in the competing market among competitors, which is indeed intermediate goal not ultimate one. Competition law is designed 'to protect competition in the market as a means of enhancing consumer welfare and ensuring an efficient allocation of resources.'¹⁵⁹

On the other hand, if consumer welfare is totally undistorted and remains in good condition, then there might be no need for anti-trust intervention at all. This is in compliant with competition authorities' attitude towards FRAND-encumbered SEPs. For example, they treat standardization agreement as normally not restrictive of competition.¹⁶⁰ Only when such agreement restricts competition and cannot be exempted by Article 101(3), competition law then intervenes. As to issues relating to A102, the competition authorities' attitude can be seen from very limited cases of excessive pricing.

4.6. Transferability

The sale of a SEP is also an important question that lies in the center of FRAND related litigation problematically. A SEP holder might seek to transfer the SEP once incorporated into a standard to a third party and the particular SEP is subject to FRAND commitments. Then is the third party also bound by the FRAND commitments? The importance to

¹⁵⁹ Richard Whish and David Bailey, *Competition Law* (7th edn, OUP2012) 19; See also SPEECH/05/512 of 15 September 2005, available at www.ec.europa.eu/competition

¹⁶⁰ Guidelines (n 1) para277.

address this question first of all lies in the frequent deals on the technology market to transfer SEPs.

4.6.1. Various motivations to transfer

Motivations to transfer a SEP can be diverse. For example, a big SEP holder might purchase those SEPs from smaller holders to enlarge the SEP package the owner has and to concentrate the ownership of SEPs of a particular standard, which might positively lead to a reduction in the transaction costs as well as a reduction in the possibility of royalty stacking. Actually, ‘there is consistent anecdotal evidence that large incumbent companies monetize part of their portfolio by selling away patents to NPEs or new entrants that seek to strengthen their IP position.’¹⁶¹ For instance, in the telecommunication sector, in the single year 2012, Intel purchased 1,700 Wi-Fi, 3G, and LTE patents from InterDigital for \$375 million.¹⁶² Another deal was made between IPWireless and Intellectual Ventures and NVIDIA that approximately 500 patents were dealt including essential one in LET, LET-Advanced, 3G and 4G technologies.¹⁶³

4.6.2. FRAND also transfers?

Competition rules are usually regarded as safeguard against those SEP transfers that generate anti-competitive effect on the relevant market. ‘To ensure the effectiveness of the FRAND commitment, there should also be a requirement on all IPR holders who provide such a commitment to take all necessary measures to ensure that any undertaking to which the IPR owner transfers its IPR (including the right to license that IPR) is bound by that commitment.’¹⁶⁴ Both U.S. and EU competition authorities have paid attention to several recent cases relating to the sale of SEPs, such as the transfer from Robert Bosch to IPCom and the transfer of portfolio SEPs of Motorola and Nortel. Authorities have ‘required the new SEPs owner explicitly endorsed past FRAND commitments’. As we all known that

¹⁶¹ ECSIP Report (n 25) 190.

¹⁶² www.theverge.com/2012/6/18/3095233/intel-purchase-1700-mobile-patents-interdigital.

¹⁶³ <http://www.intellectualventures.com/news/press-releases/nvidia-and-intellectual-ventures-partner-to-acquire-portfolio-of-wireless-p/>

¹⁶⁴ Guidelines (n 1) para288.

such anti-trust intervention carried out by competition authorities are only *ex post*, and authorities so far have only intervened in very limited cases, without well-equipped labors and materials for the calculation of economic factors. Also, those cases are going through very long and costly legal procedures. ‘Given the actual variety of potential cases, their ability to effectively and correctly orient behaviors towards FRAND principles is thus limited.’¹⁶⁵

In accordance with the Horizontal Guidelines’ words that FRAND commitments are binding even after the particular SEP transferred, this point is again confirmed in SSO policies. For example, in ETSI policy, 6.1bis regulates the transfer of ownership of essential IPR: ‘FRAND licensing undertakings made pursuant to Clause 6 shall be interpreted as encumbrances that bind all successors-in-interest. Recognizing that this interpretation may not apply in all legal jurisdictions, any Declarant who has submitted a FRAND undertaking according to the POLICY who transfers ownership of ESSENTIAL IPR that is subject to such undertaking shall include appropriate provisions in the relevant transfer documents to ensure that the undertaking is binding on the transferee and that the transferee will similarly include appropriate provisions in the event of future transfers with the goal of binding all successors-in-interest. The undertaking shall be interpreted as binding on successors-in-interest regardless of whether such provisions are included in the relevant transfer documents.’¹⁶⁶ Moreover, 6.2 ‘An undertaking pursuant to Clause 6.1 with regard to a specified member of a PATENT FAMILY shall apply to all existing and future ESSENTIAL IPRs of that PATENT FAMILY unless there is an explicit written exclusion of specified IPRs at the time the undertaking is made. The extent of any such exclusion shall be limited to those explicitly specified IPRs.’¹⁶⁷

Therefore, both Horizontal Guidelines and SSO policies set rules that transfer of a SEP does not influence the binding effect of FRAND commitment. However, merely a rule as such does not clear everything for licensing parties. As licensing parties might have disagreements on what FRAND exactly means, an SEP holder might charge fees

¹⁶⁵ ECSIP Report (n 25) 192.

¹⁶⁶ ETSI Intellectual Property Rights Policy (n 17) 37.

¹⁶⁷ *ibid* 37.

significantly above the previous one and still claims that his offer is within the meaning of FRAND. The vagueness of FRAND thereby brings about complex issues. Again, licensing parties shall first negotiate due to the contractual nature of FRAND commitments.

4.6.3. Joint Selling

Among various practices of transferring FRAND-encumbered SEPs, joint selling is comparatively problematic one, because it concerns with the patent pool. ‘Patent pools can be defined as an agreement between two or more patent owners to license one or more of their patents to one another or to third parties.’¹⁶⁸ SEP holders might joint together to form a patent pool and license their patents together in a single package. Generally speaking, ‘[t]here is no inherent link between technology pools and standards, but the technologies in the pool often support, in whole or in part, a *de facto* or *de jure* industry standard.’¹⁶⁹ Indeed in telecommunication sector there are typically W-CDMA patent pool which offers access to worldwide patents that are essential to the W-CDMA FDD 3GPP standard and LTE patent pools for SEPs in LTE standard.

Technology pools can be pro-competitive. Especially for standards in telecommunication sector where there are thousands of SEPs in a single standard, pooling the technology provides a one-stop licensing and thus might ‘produce pro-competitive effects, in particular by reducing transaction costs and by setting a limit on cumulative royalties to avoid double marginalization.’¹⁷⁰ Technology pools might also be anti-competitive as pooling technologies together indicates a joint selling arrangement of patents.

Then how does FRAND function in joint selling arrangements? In order to discuss this question, it is necessary to distinguish between the creation of technology pools and licensing out patent package from the pool. Concerning the creation of a technology pool, ‘as long as a pool is composed entirely of technologies that are “essential”, the creation of

¹⁶⁸ World Intellectual Property Organization (WIPO), ‘Patent Pools And Antitrust—A Comparative Analysis’ [March 2014] available at:

http://www.wipo.int/export/sites/www/ip-competition/en/studies/patent_pools_report.pdf, 3.

¹⁶⁹ TTA Guidelines (n 57) para244.

¹⁷⁰ TTA Guidelines (n 57) para245.

the pool will itself be viewed as compatible with Article 101(1).¹⁷¹ Then to licensing out an all-SEP package will not lead to huge divergence on fair, reasonable and non-discriminatory terms generally. Instead, if the creation of a pool is composed of both essential patents and non-essential patents, even though the pooled technologies are licensed out to all potential licensees on FRAND terms, there still might be huge disputes on for example the tying and bundling of SEPs and non-SEPs. For those non-SEPs, ‘royalties are likely to be higher than they would otherwise be, because licensees do not benefit from rivalry between the technologies in question.’¹⁷² In extreme situations, ‘the joint selling operation involves a technology pool consisting of substantially “substitute” or “non-essential” technologies’ might amount to a price fixing cartel.¹⁷³ Under such circumstances, FRAND does not prevent such joint selling agreements from violating Article 101(1), nor does it help the conditions to fall within Article 101(3) and TTBER.

4.7. Standards are Global

It is even harder to enforce FRAND commitments, as standards issues and licensing issues are growingly global problems. Companies operate globally, standards are used globally and SSOs are global organizations. Under 3G standard, consumers are expecting that they could use cellphones everywhere in the world.

4.7.1. Shopping Forum: Huawei v. IDC

Different countries understand FRAND commitments differently within their jurisdiction and also different courts exercise different criterion on identical issues. Thus a ‘shopping forum’ phenomenon might potentially happen as rules in some country might favor one party over another. The ‘shopping forum’ phenomenon is well reflected in a series of suits between Huawei and IDC in telecommunications sector. The proceeding is indeed very interesting.

Since September 2008, IDC and Huawei have negotiated multiple times in terms of patent

¹⁷¹ Anderman and Schmidt (n 19) 301.

¹⁷² TTA Guidelines (n 57) para252.

¹⁷³ Anderman and Schmidt (n 19) 301.

royalties in 2G and 3G standard. Since 2009, IDC required Huawei four times to pay 5.3 hundred million of lumpsum royalties on wireless communication terminal equipment from 2009 to 2016 and to pay 5.2 hundred million of lumpsum royalties on wireless communication essential equipment from 2009 to 2016. Huawei regarded such requirement as unfair clause. Two companies could not reach an agreement and Huawei did not pay a penny to IDC.¹⁷⁴

‘In July 2011, to force Huawei to accept its offer, IDC filed a patent infringement lawsuit to Delaware District Court, claiming that Huawei and some other companies infringed its 7 patents in 3G wireless devices manufacturing.’ The same day, IDC required ITC (International Trade Commission, hereafter ITC) to launch ‘377 investigation’ also listing Nokia and ZTE as appellee, to prohibit Huawei from manufacturing, selling and importing relevant products. The investigation started on August 31th 2011. At that time, Huawei has already signed a mobile phone customization contract with American communication operators. If the investigation finds that Huawei infringes IDC’s patents, ITC would impose a Cease and Desist Order on Huawei products, which means that Huawei’s mobile phone cannot be exported to American market.

As a return stroke, Huawei invoked a lawsuit against IDC on December 6th 2011 to Shenzhen Intermediate People’s Court requiring the court basing on FRAND terms to stop IDC from excessive pricing, discriminatory pricing, tying and bundling, imposing unfair licensing terms and refusing to supply. The court found out that IDC abused its dominant position charging unfairly high price, discriminatory pricing and imposing unfair licensing terms in early negotiations. Both IDC and Huawei appealed to the Guangdong High People’s Court (hereinafter ‘GHPC’). In February 2011 the GHPC affirmed original judgment and supported Huawei’s claiming for remedy: RMB 20 million.

However, this is not the end of the story. In order to increase the bargaining power in this competition, Huawei reported to Chinese National Development and Reformation Committee (hereafter ‘NDRC’) that IDC abused its dominant position charging unfairly high royalties and discriminatory pricing to several communication equipment

¹⁷⁴ *Huawei v. IDC* (2013) Guangdong People’s High Court Final No.306, translated by the author.

manufactures. On May 22th 2014, NDRC made an administrative decision regarding the anti-monopoly investigation against the IDC, who charges Chinese manufactures almost ten times the royalties as in other countries. IDC proposed not to charge Chinese enterprises discriminatory and excessive patent licensing royalties. (Along with other proposals: not to tying SEPs with non-SEPs in license and not to require a Chinese manufacturer to agree to a royalty-free and reciprocal cross license and not to force Chinese enterprises to accept unreasonable license conditions through direct legal action.)

Here comes the expected part.

On June 28th 2013, ITC made a preliminary ruling on ‘377 investigation’ held that one of the seven patents was declared invalid and the other six were not infringed by Huawei. Finally IDC recalled the investigation. Two parties reached a secret reconciliation agreement on January 2th 2014.¹⁷⁵

4.7.2. Applicability of FRAND commitments

The very first question put forward before the GHPC ever attempts to judge the case is whether FRAND commitment could be used as a legal basis for judgment.

In the case both Huawei and IDC are members of ETSI, who shall nevertheless be subject to ETSI policy as they have agreed during the standard-setting and they all commit to license on FRAND terms in that stage. Huawei proves that SEPs provided by IDC in ETSI are the same technical level of those in China. Therefore, according to Chinese law, IDC shall license patents to Huawei on FRAND terms.

However IDC argues that Chinese court cannot invoke FRAND as legal basis because the ETSI is an organization that locates in France. If GHPC would like to invoke FRAND, it shall be understood within the meaning of French law. Following that, IDC argues that under French law, FRAND is merely an invitation for negotiation, not a binding contract term. GHPC disapproves this argument. Chief Judge Ou Xiuping explains that the alleged patents have been approved under Chinese patent law, and therefore Chinese law is applicable. Moreover, as both parties agreed on FRAND terms when they join the specific

¹⁷⁵ <http://www.infzm.com/content/94380>, translated by the author.

standard, both of them shall be bind by FRAND terms and FRAND naturally becomes a part of the licensing contract. Therefore, in this case FRAND can be treated as legal basis for judgment.¹⁷⁶

The GHPC first implements FRAND commitments and second interprets it in a way almost identical to CJEU. In the case, the court has and only has a very general quotation of FRAND commitment, let alone the exact meaning of fair, reasonable and non-discriminatory. As to the content of the case, the judge also decides identically as previous case decided by CJEU. The most interesting part of the case is whether FRAND commitments can be invoked as legal basis for judgment in private jurisdiction worldwide? The answer of course shall depend. It depends on factual and legal conditions in a particular case, whether licensing parties are both members of a SSO; whether the SEP holder agrees on FRAND commitments; whether national law applicable and etc. It thus can be foreseen that disputes with regard to FRAND-encumbered SEPs will be more and more complicated in the context of globalization.

5. FRAND commitment and Competition Law

FRAND commitment is designed as an industry solution to deal with risks raised in the process of standardization such as patent hold-up, patent thicket, royalty stacking and so on. Non-cooperative strategies as such in fact slow down the dissemination of the standard, and thus reduce the profits that other SEP holders should have earned if they act in accordance with FRAND commitments. However, although FRAND commitments function effectively and deter such risks to certain extent, these strategies still exist or at least are not perfectly prevented. Moreover, FRAND commitments *per se* also give rise to difficulty to reach agreement on what FRAND exactly means in the concrete situations.

As FRAND commitments are in nature contractual terms, disputes relating to fair, reasonable and non-discriminatory royalties and terms shall first be dealt with among licensing parties. ‘Cases of disputes arising in relation to the terms and conditions offered by the right holder could be resolved if necessary by arbitration.’ However, in situations

¹⁷⁶ *Huawei v. IDC* (n 174)

where a standard is so successful that the whole industry is locked in to the standard for example 3G standard, such a negotiation might be easily impeded due to the strong bargaining power of SEP holders. If such a SEP holder also acts in the downstream products market, he could easily occupy a dominant position. Under such circumstances, the SEP licensing agreements might be caught by Article 101 and the abusive behavior of the dominant undertaking might violate Article 102. The anti-trust intervention thus is necessary where competition on the relevant market is prevented, restricted or distorted.

However, the fact is that EU competition law rarely intervenes. In fact, conventionally the only FRAND issues that are discussed in front of the Court and the Commission are cases relating to seeking injunctions. The hands of competition authorities are apparently tied. Competition policy is so limited that it can only stand on the side and behave complementary coping with obviously anti-competitive foreclosure activities and injunctions, which leaves detailed FRAND issues to be dealt with between contractual parties.

Therefore, FRAND commitments and EU competition law function like two circles intersected with a part of both circles coincide. FRAND commitments affect the licensing terms between SEP holders and standard implementers, putting some restrictions on both parties, which by no means influence the normal application of competition rules. FRAND commitments neither immune licensing agreements from competition rules, nor place them in disadvantages. In fact, competition law works in a way as it used to be. It only intervenes when agreements ‘have as their object or effect the prevention, restriction or distortion of competition within the internal market’¹⁷⁷ or dominant undertakings conduct abusively ‘within the internal market or in a substantial part of it’.¹⁷⁸ Hence, perceptions such as FRAND is capable of alleviate competition authorities’ supervision on SEP licensing issues are totally wrong. Competition authorities on the other hand have to deal with FRAND-encumbered SEPs more carefully as FRAND *per se* leads to ambiguous licensing issues.

¹⁷⁷ A101 TFEU (n 88)

¹⁷⁸ A102 TFEU (n 98)

5.1. The role of Competition Law

Those who disapproves the application of competition rules to enforce FRAND commitments worry about the risks result from anti-trust intervention. Firstly, ‘FRAND commitments could be meaningless.’¹⁷⁹ Secondly, ‘there will be no constraints on the royalties that can be charged for patents essential for existing standards such GSM and UMTS.’¹⁸⁰ Thirdly, more royalty claims will result in higher costs for standardized products. Fourthly, there will be a reduction in incentives to invest in new technology.¹⁸¹

Such voices are untenable. They are fundamentally wrong about the role of competition rules in addressing FRAND-encumbered SEP issues. The role of competition law is indeed neutral. The meaning of neutral can be shown at least in two scenarios. In the first place, competition authorities upon applying the competition rules do not touch practical pricing issues. The Court and the Commission in dealing with relevant issues, are neither equipped nor willing to act as ‘price regulators’, and this may be why they only give ‘guidance’ on issues leaving the pricing first for the licensing parties and then for national courts. Anti-trust law and relevant case law do not expand merits to the extent that it might impede the creation of private arrangements. Any attempt for them to decide what kind of price is excessive, which level of royalties is fair and reasonable, or what sort of terms are non-discriminatory, inherently embeds insuperable practical difficulties. This explains why since the adoption of Article 1/2003, the Commission only has very limited intervention in price control targeting at dominant firms in exceptional circumstances.

In addition, competition authorities upon applying the competition rules not only care about protecting fundamental IP rights, but also care about the minimum freedom in competition. As repeatedly emphasize in case law, competition authorities ‘strike a fair balance between the fundamental rights and freedoms at stake.’¹⁸² However, while making effort to balance, neither the Court nor the Commission regards fundamental IP rights and freedom in competition as of same importance. Also, such balance is not made by simply adding components on both sides. Instead, there is a hierarchy between competition law

¹⁷⁹ Chappatte (n 2) 329.

¹⁸⁰ *ibid* 329.

¹⁸¹ *ibid* 329.

¹⁸² *Motorola* (n 82) para500.

and IP law.

Indeed, FRAND is merely an outcome of fast developing high technologies, accompanying standardization. Despite FRAND, there are a lot of other contractual terms such as free-royalty term. There is no need for competition authorities to treat them in a different manner. If competition authorities have to take each terms independently into full consideration, they will be busy doing that all the time. Therefore, the necessity for anti-trust intervention lies in an overall competitive or anti-competitive effect on the market as a result of the conduct of relevant licensing parties.

5.2. Competition Law and IP Law

As discussed in previous parts, while the Court and the Commission solve problems regarding FRAND-encumbered SEPs, both competition authorities have to balance between the fundamental intellectual property right and the freedom of competition. Here exists a tricky point that there is a hierarchy between the two systems. This view is not addressed on the basis that the IPRs are subject to competition law because the former is national-wide, and the latter is central in TFEU. Instead, ‘IPRs have increasingly become Community-wide laws’.¹⁸³ However, even though IP laws are public law that regulates market behavior, ‘once an individual obtains the grant of an IPR, the right is a private property right.’¹⁸⁴ The exercise of such a private right is nevertheless subject to competition law. Therefore, competition law is able to act *de facto* as external limit to IPRs. Hence, it is important for licensing parties to take into consideration before exercising their IPRs and before acting anti-competitively on the market that their IPRs are subject to competition law and the balancing made by competition authorities does not mean that IPRs and competition rules are equally important.

Moreover, the fact that private IPRs are subject to competition law does not necessarily mean that competition law and IP law inherently conflict with each other. Instead, ‘both bodies of law share the same basic objective of promoting consumer welfare and an

¹⁸³ Anderman and Schmidt (n 19) 5.

¹⁸⁴ *ibid* 5.

efficient allocation of resources.¹⁸⁵ Besides, both IP law and competition law promote innovation and ensure competition.

Although the goal of IP law and the goal of competition law are designed to be coherent and consistent with each other, the exercise of private IPRs can be abusive enough to raise competition concerns. The deduction applies to FRAND commitment. FRAND is a mechanism designed also to prevent abusive patent hold-up, to ensure accessibility to the standard and to prevent excessive royalties, which is indeed to promote standards, to promote innovation on both technology market and product market and to ensure a competitive downstream product market. Therefore, the ultimate goal of FRAND shall be in consistent with both IP law and competition law. However, there are abusive conducts taking advantage of FRAND commitments to impede normal competition, the most obvious example of which is to seek injunctions especially as a threat to extract excessive royalties or to impose unfair licensing terms. Thus, there is always a byway around the hill. Market players will always be able to find some flaws in the current policy or legal regime and legal systems *per se* are not perfect. Anti-trust intervention here shall act more like a safeguard for a competitive market, no matter how market players behave or negotiate or collude.

5.3. A case-by-case Analysis

However, the work of safeguard is not easy to accomplish. Competition authorities have to ponder over in what circumstances anti-trust intervention is necessary. Such intervention must neither on one hand regulate too much to undermine fundamental IPRs, nor on the other hand not regulate enough so that competition is significantly restricted, prevented and distorted and consumer welfare is harmed. However, there is no set exercises that the Court and the Commission can apply mechanically and real situations are always more complex. Therefore, competition authorities have to apply competition rules on a case-by-case basis. Such a case-by-case analysis is especially vital in FRAND-encumbered SEP issues, because licensing conditions can be extremely different and as to successful standard in telecommunications the figure of royalties involved can be really huge.

¹⁸⁵ TTA Guidelines (n 57) para7.

Therefore, a case-by-case analysis is a core requirement before competition authorities are able to make any decision.

Despite a theoretical balancing, there are more practical issues that competition authorities face with before they open an investigation. To whoever talks about FRAND commitments and related legal and factual context, it is always easy to express the point of view that issues regarding FRAND-encumbered SEPs shall be discussed on a case-by-case basis. However, when the Court or the Commission really face with such a case for example the Motorola case, they have to be very careful about any analysis no matter in legal context or in economic context. They might have to spend costly resources in order to carry out such analysis. Also, they have to take into consideration the budget of the whole department. For example, how many investigations they can afford in a year. Therefore, a case-by-case analysis is what should be done but what is difficult to be done.

6. Conclusion

The FRAND licensing regime works effectively as an industry solution in preventing risks such as patent hold-up, excessive royalties and in ensuring accessibility to a particular standard. However, FRAND is not perfect. FRAND-encumbered SEPs are problematic enough to raise anti-trust concerns. The necessity for anti-trust intervention lies fundamentally in the contractual nature of FRAND. The vagueness of FRAND and the difficulties in defining a FRAND already indicate a percentage of disputes among licensing parties. Moreover, in practice, such necessity may also be realized where licensing parties may not agree on FRAND at all; may deceive in the standard-setting stage thus not bound by FRAND; may change their minds to breach FRAND commitments and may seek injunctions as a threat to extract excessive royalties. Therefore, anti-trust intervention is necessary as safeguard to guarantee a normal and competitive market both upstream and downstream.

However, competition law alone is also insufficient enough to solve these risks perfectly, because anti-trust intervention occurs only after a real anti-competitive effect happens on the real market and the detriments to consumers have been created. Any potential remedies for the harm have to wait until a decision of protracted and complex litigation. Thus,

anti-trust intervention as such is hysteretic and the anti-competitive effect and consumer welfare may ‘be magnified by the inherently *ex post* nature of antitrust remedies’.¹⁸⁶

Therefore, in order to prevent such risks to the greatest extent, prevention is always better than remedy. Merely relying on anti-trust intervention is not very practical and effective. Indeed every party that participates in the standardization process is able to help. Licensing parties can help by abiding by FRAND commitments and behave competitively. SSOs can help by making FRAND work better. Competition authorities can help by keeping an eye on the market and applying competition rules neutrally. Therefore, it depends on every market participant to make the market function better and to make the society better.

¹⁸⁶ Jay P. Kesan and Carol M. Hayes, ‘FRAND’s Forever: Standards, Patent Transfers, and Licensing Commitments’ [2014] Vol 89 Indiana Law Journal, 271.

BIBLIOGRAPHY

Scientific Literature and Web Articles

Anderman Steven and Schmidt Hedvig, *'EU Competition law and intellectual property rights – the regulation of innovation'* (2nd edn, OUP 2011)

Anne Layne-Farrar, Jorge A. Padilla, Richard Schmalensee, *'Pricing Patents for Licensing in Standard-Setting Organizations: Making Sense of Frand Commitments'* [2007] 74 Antitrust Law Journal

Biddle Brad, White Andrew and Woods Sean, *'How Many Standards in a Laptop?'* (And Other Empirical Questions) [September 2010], available at:

<http://ssrn.com/abstract=1619440>

Brooks Roger G. and Geradin Damien, *'Interpreting and Enforcing the Voluntary FRAND Commitment'* [July 2010], available at: <http://ssrn.com/abstract=1645878>

Carl Shapiro *'Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting'* [2001] In Jaffe, Adam B. et al. *Innovation Policy and the Economy I*. Cambridge: MIT Press, available at: <http://faculty.haas.berkeley.edu/Shapiro/thicket.pdf>

Catalini Bekkers R., Martinelli, A. C. and, T. Simcoe, *'Intellectual Property Disclosure in Standards Development. NBER conference on Standards, Patents and Innovation'* [2012] Tucson (AZ), available at:

<http://users.nber.org/~confer/2012/IPKE/Bekkers.pdf>

Comments submitted by the German Association for the Protection of Intellectual Property (GRUR) concerning the Commission's Public Consultation on *'Patents and Standards – A modern framework for standardisation involving IPR'* [January 2015], available at: www.grur.org

Communication from the commission to the council, the European Parliament and the Whitehead Martin, Phillips Tom, ‘*European Mobile Industry Observatory*’ [2011] GSM Association 2011, available at

<http://www.gsma.com/publicpolicy/wp-content/uploads/2012/04/emofullwebfinal.pdf>

Competition Policy Brief, ‘*occasional discussion papers by the Competition Directorate-General of the European Commission*’ [June 2014] Issue 8, ISSN: 2315-3113, available at: <http://ec.europa.eu/competition/publications>

Corbin Arthur L. and Perillo Joseph M. and Murray John E., ‘*Corbin on Contracts*’ (Matthew Bender 1952)

ECSIP Report, ‘*Patents and Standards, A modern framework for IPR-based standardisation*’ [March 2014] 917720, European Commission, Directorate-General for Enterprise and Industry

ETSI ‘*Guide on Intellectual Property Rights*’ [2007], available at:

<http://www.etsi.org/images/files/IPR/etsi-guide-on-ipr.pdf>

ETSI Rules of Procedure, 19 November 2014 Annex 6: *ETSI Intellectual Property Rights Policy*, available at: <http://www.etsi.org/images/files/ipr/etsi-ipr-policy.pdf>

Farrell Joseph, Hayes John, Shapiro Carl, and Sullivan Theresa, ‘*Standard Setting, Patents and Hold-Up*’ [May 2007] No. 3, 74 *Antitrust Law Journal*.

Geradin Damien, ‘*Ten Years of DG Competition Effort to Provide Guidance on the Application of Competition Rules to the Licensing of Standard-Essential Patents: Where Do We Stand?*’ [February 2013] Paper prepared for the Research Roundtable on Innovation and Technology Standards, Searle Center on Law, Regulation, and Economic Growth, Northwestern University School of Law, available at: <http://ssrn.com/abstract=2204359>

Geradin Damien, Layne-Farrar Anne, Petit Nicolas, *EU Competition Law and Economics* (OUP2012)

Geradin Damien and Rato Miguel, ‘*Can Standard-Setting lead to Exploitative Abuse? A Dissonant View on Patent Hold-Up, Royalty Stacking and the Meaning of FRAND*’ [June 2007] Vol 3. No I, European Competition Journal

Geradin Damien and Rato Miguel, ‘*FRAND commitments and EC competition law: a reply to Philippe Chappatte*’ [2010] European Competition Journal, 129.

Harkrider D. J., ‘*Seeing the Forest Through the SEPs*’ [2013] 27(3) Antitrust Law Journal

Hargreaves Ian, ‘*Digital Opportunity, A review of Intellectual Property and Growth*’ [May 2011] UK Intellectual Property Office, available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32563/ipreview-finalreport.pdf

ITU Report, ‘*Understanding Patents, competition and standardization in an interconnected world*’ [June 2014] Telecommunication Standardization Bureau, available at:

<http://www.itu.int/en/ITU-T/ipr/Pages/Understanding-patents,-competition-and-standardization-in-an-interconnected-world.aspx>

Jay P. Kesan and Carol M. Hayes, ‘*FRAND's Forever: Standards, Patent Transfers, and Licensing Commitments*’ [2014] 89 Indiana Law Journal, 231; Illinois Public Law Research Paper No. 13-31; Illinois Program in Law, Behavior and Social Science Paper No. LBSS13-21. Available at SSRN: <http://ssrn.com/abstract=2226533>

Jones Alison, ‘*Standard-essential patents: FRAND commitments, injunctions and the smartphone wars*’ [2014] King’ s College London Dickson Poon School of Law, Legal

Studies Research Paper Series, paper no. 2014-19, available at:

<http://ssrn.com/abstract=2394495>

Lee Jamie, ‘*An Un(frاند)ly Game: Preventing Patent Hold-Up by Improving Standardization*’ [2015] Vol 10, Issue 2, Journal of Business & Technology Law

Lemley Mark A., ‘*Intellectual Property Rights and Standard-Setting Organizations*’ [December 2002] Volume 90 Issue 6 Article 3, California Law Review

Lemley Mark A. and Shapiro Carl, ‘*A Simple Approach to Setting Reasonable Royalties for Standard-essential Patents*’ [2013] Vol 28, Berkeley Technology Law Journal: 1135

Lemley Mark A. and Shapiro Carl, ‘*Patent Holdup and Royalty Stacking*’ [2007] 85 Texas Law Review

National Research Council (U.S.), *Patent challenges for standard-setting in the Global Economy: Lessons from information and communication technology* (Washington, D.C.: National Academies Press 2013)

Philippe Chappatte, ‘*FRAND commitments – The case for antitrust intervention, European Competition Journal*’ [August 2009]

Press release: Antitrust: Commission opens two formal investigations against chipset supplier Qualcomm, available at: http://europa.eu/rapid/press-release_IP-15-5383_en.htm

Press Release: NDRC Ordered Qualcomm to Rectify Its Anti-Competitive Behavior and Imposed a Fine of RMB 6 Billion (Feb. 10, 2015), available at http://www.sdpc.gov.cn/xwzx/xwfb/201502/t20150210_663822.html

SPEECH/05/512 of 15 September 2005, available at www.ec.europa.eu/competition

Steptoe & Johnson LLP, Botteman Yves and Patsa Agapi, ‘*EU Commission Briefing--The European Commission’s New Horizontal Co-operation Guidelines*’ [May 2011], available at: <http://www.steptoel.com/publications.html>

Whish Richard and Bailey David, *Competition Law* (7th edn, OUP2012)

World Intellectual Property Organization (WIPO), ‘*Patent Pools and Antitrust—A Comparative Analysis*’ [March 2014] available at:

http://www.wipo.int/export/sites/www/ip-competition/en/studies/patent_pools_report.pdf

<http://www.intellectualventures.com/news/press-releases/nvidia-and-intellectual-ventures-partner-to-acquire-portfolio-of-wireless-p/>

www.theverge.com/2012/6/18/3095233/intel-purchase-1700-mobile-patents-interdigital.

<http://www.infzm.com/content/94380>

Laws and Regulations

Commission Notice - Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements [2001] OJ C 3

Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements, OJ L 93/17

European Commission, Guidelines on the application of Article 101 of the EU Treaty to Technology Transfer Agreements (2014/C 89/03)

European economic and social committee: Towards an increased contribution from standardisation to innovation in Europe, Brussels, 11.3.2008, COM(2008) 133 final

European Union to horizontal co-operation agreements [2011] OJ C11/1

Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the Intellectual Property and Standard Setting, 05 Dec 2014, OECD Competition Committee, DAF/COMP/WD(2014)113

The Charter of Fundamental Rights of the European Union (2000/C 364/01)

The Treaty on European Union and the Treaty on the Functioning of the European Union, OJ C 326 , 26/10/2012 P. 0001 - 0390

Table of Cases

EU cases

Case 13/63 *Italian Republic v. Commission* [1963] ECR 165

Case 27/76 *United Brands v Commission* [1978] ECR 207

Case COMP/38.636 – *Rambus* [2009] OJ C 30/17

Case C-52/09 *Konkurrensverket v TeliaSonera* [2011] OJ C 103

Case 209/10 *Post Danmark A/S v Konkurrencerådet* [2012] ECLI C 172

C-170/13 - *Huawei Technologies Co. Ltd v ZTE Corp., ZTE Deutschland GmbH* [2013] OJ C 215

Case AT.39985—*Motorola*—Enforcement of GPRS standard essential patents [2014] OJ C 344/6

Case AT.39939—*Samsung*—Enforcement of UMTS standard essential patents [2014] OJ C 350/8

Foreign cases

Gerogia-Pacific Corp v US Plywood Corp. 318 F Supp 1116 1120-21 [SDNY 1970]

Apple Inc. v. Motorola Inc., 869 F.Supp.2d 901, 911 (N.D. Ill. 2012)

Microsoft Corp. v. Motorola, Inc., 2012 U.S. App. LEXIS 20359 (9th Cir. Sept. 28, 2012)

Microsoft Corporation v. Motorola, Inc., 10-CV-01823-ORD (W.D. Wash. Apr. 25, 2013).

Huawei v. ID 粤高法民三终字第 306 号 Guangdong People' s High Court Final [2013]
No.306

NDRC Administrative Sanction Decision No. 1 [2015] (Mar. 2, 2015), available at

http://www.ndrc.gov.cn/gzdt/201503/t20150302_666209.html