Policy recommendations for SEP Licensing under FRAND terms – Interpretation of Huawei Technologies v. ZTE

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As our world is increasingly developing technological elements, it is imperative to develop legal fundamentals in conjunction to such aspects. Patents are a natural part of technology and especially concerning licensing thereof. Disputes are additionally a natural part of patent licensing, due to several ambiguous terms and definitions that lies within the scope of patent law. Therefore, the thesis examines Standard Essential Patent (SEP) licensing under Fair, Reasonable and Non-Discriminatory (FRAND) terms. Additionally, the thesis undertakes an analysis of EU's competition law principles, Article 102 Treaty of the Functioning of the European Union (TFEU), due to its harmonious effect within SEP licensing. The aim of the thesis is to define the different interpretations of the scope of the term 'FRAND' and to provide policy recommendations thereof.

The thesis follows a legal-dogmatic research method as a means to identify, systematize, interpret and analyze existing laws, principles, doctrines, international agreements and case law as they are written. In addition, to legal dogmatism, the thesis shall use comparative law, for the analyzation of what ought to change within the European patent system, by comparing European case law. The thesis shall especially compare German and United Kingdom's case law, by focusing on ECJ's ruling in Huawei v. ZTE.

The thesis obtains an analysis with the purpose of identifying both the visible and hidden issues relating to SEP licensing and FRAND-encumbrances i.e. definition of the scope of the term FRAND. Furthermore, by analyzing the definition, the thesis succeeds in identifying such issues. The analysis is being strengthen by policy recommendations aiming at providing advice to the aforementioned issues – the recommendations given are limited to the European Union and suggest on what ought to be done in order for the current issues to diminish and may aid future scholars to create a *de lege ferenda* analysis based on the recommendations hereunder.

Keywords: EU, FRAND, IP, Licensing, Patent, SEP, technology, TFEU

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Maailma muuttuu ja kehittyy jatkuvasti, minkä takia olennaiset lait on oltava vuorovaikutuksessa digitalisoinnin tuomiin muutoksiin. Patentit ovat tavanomaisia elementtejä teknologiassa, ja erityisesti lisensoinnissa. Kiistat sekä niihin liittyvät riidanratkaisut ovat välttämättömiä osia patenttilisensoinnissa epämääräisten määritelmien sekä epäjohdonmukaisten tulkkauksien takia. Siitä syystä opinnäytetyö tutkii *Standard Essential Patent* (SEP) lisensointia *Fair, Reasonable and Non-Discriminatory* (FRAND) ehtojen mukaan. Lisäksi, opinnäytetyö analysoi Euroopan Unionin kilpailuoikeus rajoituksia, Artikla 102 Sopimus Euroopan Unionin toiminnasta (SEUT), sillä kilpailuoikeudella on laaja vaikutus SEP lisensointiin. Opinnäytetyön tavoite on todeta ja analysoida ongelmat, jotka ilmaantuvat SEP lisensioinnista Euroopassa, jotta työ pystyy toimittamaan menettelytapa suosituksia kyseisiin oleviin ongelmiin.

Opinnäytetyö seuraa eritoten oikeusdogmaattista tutkimusmenetelmää, jonka tarkoitus on identifioida, systemoida, tulkita sekä analysoida voimassaolevaa lainsäädäntöä, kansainvälisiä sopimuksia sekä oikeuskäytäntöä, niin kuin ne ovat kirjoitettu. Oikeusdogmatiikan lisäksi, opinnäytetyö käyttää lainsäädäntöjen sekä oikeuskäytäntöjen vertailevaa tutkimusta löytääkseen menettelytapasuosituksia. Opinnäytetyö tutkii erityisesti Saksan sekä Iso-Britannian oikeuskäytäntöä, keskittyen eritoten Euroopan tuomioistuimen Huawei v. ZTE päätökseen.

Opinnäytetyö suorittaa analyysin, joka tuo esiin olennaiset näkyvissä olevat sekä kätketyt ongelmat koskien SEP lisensointia, erityisesti ongelmia koskien FRAND termin tulkintaa. Analysoinnin myötä, edellä mainitut ongelmat esiintyvät selkeästi. Ongelmien havaitsemisen lisäksi, opinnäytetyö toimittaa mainittuihin ongelmiin suosituksia, jotka SEP lisensoinnin osapuolet, ja eritoten Euroopan Unionin, pitäisi ottaa huomioon. Nämä suositukset selventävät sitä mitä tulisi tehdä, jotta nykypäivän ongelmat vähenisivät, jonka lisäksi suositukset voivat auttaa tulevia tutkijoita kehittämään *de lege ferenda* analyysin.

Avainsanat: EU, FRAND, IP, Lisensointi, Patentti, SEP, SEUT, Teknologia

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List of abbreviations

AI	Artificial Intelligence
CC	Creative Commons
CEN	European Committee for Standardization
CENELEC	European Committee of Electrotechnical Standardization
ECJ	European Court of Justice
EC	European Commission
EPO	European Patent Office
EU	European Union
EUIPO	European Union Intellectual Property Office
ESO	European Standardization Organizations
ETSI	European Telecommunications Standards Institute
FRAND	Fair, reasonable and non-discriminatory
FSF	Free Software Foundation
GPL	General and Public License
IEEE	The Institute of Electrical and Electronics Engineers Standards Association
IOT	Internet of Things
LTE	Long Term Evolution (4G)
NPE	Non-Practicing Entities
OSI	Open Source Initiative
TFEU	Treaty of the Functioning of the European union
TRIPS	Agreement on trade-related aspects on intellectual property rights
FOSS	Free and open source software
IPR	Intellectual Property Rights
ISO	International Organization for Standardization
FOSS	Free and Open source software
SEP	Standard Essential Patent
SSO	Standard Setting Organization
UPR	Unitary Patent Regulations
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

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1. Introduction

1.1. Background

We live in a rapidly changing and adjusting world, hence, computer programs and relatable elements thereto becomes more and more accurate in our legal system, not to mention in our everyday lives. As *Charles Darwin*[1] said a decade ago, it is the most adaptable to change that survives – during our technological era, it is fair to acknowledge that Darwin was right. As the world is developing in a technological manner, our legal system ought to keep up with the social and community changes. We ought to applause the innovators that have created the world we are living in today. Therefore, the ones that invent computer programs, software[2] and features thereto, ought to have rights that applies to each invention, called intellectual property rights[3] (IPR). As an inventor, you have the right to both copyright and patent protection, however, patent protection one has to acquire, whilst copyright[4] is an exclusive right you receive when your invented piece of technology is completed. Usually, inventors, organizations and companies seek patent protection and further, licenses[5] the computer programs i.e. software in order to credit on it. This thesis will begin explaining the background to computer programs and related elements thereto, specifically from a patent aspect.

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[1] "It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change" – Charles Darwin

[2] Software is a set of instructions, that tell a computer what to do or how to perform certain tasks, software can be both applications on a computer and the operating system itself. Software is a generic term to describe computer programs. See *Techopedia.* However, the concept of software is much broader than computer programs per se, although one uses both expressions as synonyms. See *Arezzo et al.,* 2011.

[3] IP is an intangible right that one can claim ownership for i.e. ideas, inventions, technology, music or literature. IP rights can be claimed by a legal person or a company that has created or invented the source of the claim. IP rights consists of trademark, copyright, patent and protect the owner of the IP from infringement and additionally, ownership over an IP right allows moral and economic rights. Further see *Kizza*, 2016, p. 88.

[4] Copyright is an exclusive right, given to the creator of a creative work. *See* Copyright at WIPO.int.

[5] If one owns an IP, one can grant rights to use the invention wholly or partially through licensing. *See* Europe.eu, licensing and selling IP.

To begin with, software, as a term, may be quite diffuse to explain in a legal sense. Artificial Intelligence (AI)[6] was first introduced to us by Alan Turing during WWII in 1935, when he introduced the Turing-machine. The Turing-machine was the first machine to use AI; the Turing test was a way to check credibility of AI by asking a question, one for a human being and one for a machine, without knowing who is who. The AI passes the test if the one asking the question cannot tell the difference between the two answers.[7] Still today, no AI i.e. Computer program has passed the Turing-test. Nonetheless, AI and software have gone through a rapid evolution during the past decades. Take a moment and think about what is controlled by AI in today's modern society: let me tell you, basically everything. During such evolution it is vital that inventors can use each other's know-how in order to reach new solutions and to ameliorate the present, therefore e.g. patents are made available to the public but shall stay exclusively owned for twenty (20) years.[8] In addition to available patents, actors use licensing in order to help other actors in relevant businesses to develop, and re-sell their own products that contain software from another actor. There are different kinds of licenses but the main cause for licensing is revenue – the original producer receives remuneration by letting other actors use their invented software.

It seems as if a patent is a kind of monopoly. A patent provides an inventor with an exclusive right to exclude others from making, using, importing, and selling the invention that is the subject of the patent for a limited period of time (20 years as mentioned above). It should be noted, that while having a patent it allows one to exclude others, but it does not confer an absolute right to practice the invention; others may have prior patents that can apply to that invention for which a right to exclude could be exercised. The idea behind the exclusive right is an economic one – the investor is rewarded with exclusivity for a period of time to monetize the invention (by utilizing any competitive advantage the

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[6] As a side note, one should not interfuse AI and source code. AI always contain source code, whilst source code is not always AI.

[7] *Floridi*, 2016, p. 6.

[8] European IPR helpdesk; *European patent.*

invention provides in the inventor's products or services, or by licensing the invention to others in return for royalties). In return, the inventor must publicly disclose the invention so that others may also use it for their own benefit after the limited period of exclusivity and improve upon the invention (or perhaps even find alternate solutions that solve the same problem as the patented invention but are outside its scope). The idea is that ultimately this openness will advance the state of the art overall and advance the society, while protecting the rights of, and incentivizing, the bright person who first came up with the invention.

Clearly, legal aspects have to be taken into account when someone invents a computer program or elements thereto; what protection will the computer program i.e. the software receive? The computer programs Directive[9] aims to contribute a proper functioning between different legal systems in the EU. The main objective with the Directive is to ensure that EU countries i) provides copyright protection to computer programs; ii) computer programs are protected as literary works[10]; and iii) computer programs include their preliminary design material. However, in this thesis, it is paramount to discuss especially patent protection of computer programs (software). Consequently, the European Patent Convention (EPC) Article 52 (2)[11] applies on computer programs and computer-implemented inventions. In accordance with Article 52, computer programs are only eligible for patenting if the software provides a new technical contribution and if the subject-matter has a technical character.[12] Accordingly, an invention is patentable only if it solves a technical problem from a new point of view.

From a copyright perspective, original source code is protected by copyright – similarly to literature works. However, whilst copyright protects the original expression of a

[9] Computer Programs Directive (2009/24/EC), issued under the internal market provisions of the Treaty of Rome in 1991, most recent version is from 2009.

[10] *See* Berne Convention for the Protection of Literary and Artistic Works, 1887.

[11] *See* the European Patent Convention Article 52 (2), 1973.

[12] *Stazi, 2015*, p. 184.

creator, copyright will not protect the underlying technical concept itself. Copyright protection do not provide protection for inventive solutions, whilst patent protection diversely, protects technical solutions in the form of processes and computer programs.[13] Patent and copyright serve as complementary tools to protect their inventions and to build competitive advantage – the strongest protection for software is to enquire both patent and copyright protection. In 2007, there was a proposed Directive[14] aiming to harmonize national patent laws concerning the granting of a patent to a computer program, however, the Directive was never approved by the European Parliament in 2005.

When several inventors/organizations have invented useful software, it makes only sense that they license their own software in exchange for other useful software they are in a need for. Patent pools[15] can be used as such a platform, it may take the form of a joint venture[16], for the purpose of sharing IPRs, specifically patents. The patent pool itself allocates the fees regarding patent licensing/use within the patent pool. A patent pool has additionally been called a *knowledge commons*[17], constructed by patent owners in the same area of technological business, who intends to cross-license their own patents in order to achieve something greater. Patent pools are also a part of 21st century capitalism, in the sense of networking of companies. Companies tend to cooperate due to high costs of research and development (R&D). Patent pool's aim it to find essential patents, where after they assort them into packages and licenses the packages/patents through an individual license agreement. Further, they provide an efficient way to distribute royalties

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[13] *See* European Patent Office, Hardware/Software.

[14] *See* Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions (Commission proposal COM(2002) 92).

[15] Patent pools can be defined as an agreement between several patent owners that wish to cross-license their patents to other parties within the pool or to third parties. Usually, patent pools are associated with technology that require complex software in order to provide efficient technological solutions. *See* WIPO, 2014.

[16] A joint venture (synonym: consortium) is a business entity created by parties (two or more) that share risks, ownership and governance in order to gain innovation and skills needed for growth.

[17] A *knowledge commons* is a phrase that describes collections and resources of knowledge that contribute with free use of such knowledge to the ones who are part of the such structure, organization or social institution. *See* Dreyfuss *et al.*, 2011.

from such patents.[18] The central essence of patent pools is to enable interoperability between patents and patent holders, in order to secure future innovation's development.

As patent pools can be a way to allocate know-how, there are alternative ways; certain patents that represents pioneering innovation technology that entire industries are built on, is called Standard Essential Patents[19] (SEP). Representatives of a certain industry come together as a Standard Setting Organization (SSO) to develop technical specifications of a standard which are called SEPs. They commit to make the SEP available through licensing under Fair, Reasonable and Non-Discriminatory (FRAND) terms. SEPs are allocated by Standard Setting Organizations[20] (SSO) who intends so sub-license such imperative technology to third-persons under Fair, Reasonable and Non-Discriminatory[21] (FRAND) terms. The FRAND requirement promotes broad use of a standard and more importantly, ensures that SEP holders receives an award from third parties using the patent, whilst not receiving an unfair bargaining advantage.[22]

We need standards in order for modern technologies to communicate with each other on all levels. According to The European Telecommunications Standards Institute (ETSI) and The Institute of Electrical and Electronics Engineers Standards Association (IEEE), standards are public documents that establish procedures that aim to provide safety, reliability, interoperability and functionality of technologies and further provides variety of which users can choose the best suitable option.[23] Although, there is not yet a commonplace definition of standards, they are usually referred to as technological components that authorize independent actors to communicate.[24] Henceforth, it is

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[18] *Vuorinen,* 2013, pp. 1-3. Further reading of patent pools *Merges et al.,* 2017.

[19] *See* European Commission's explanation on SEPs.

[20] *See* supra note 19.

[21] *See* supra note 19.

[22] *Lewis*, 2014. p. 2.

[23] See *ETSI* at https://www.etsi.org and *IEEE Standards Association* at https://standards.ieee.org.

[24] *Pitkämäki,* 2016, p. 6. See further *Koelman,* 2006, p. 1.

imperative to further examine SSOs and their future effects within our patent system, notably in regard to SEP licensing.

The thesis will be primarily be focusing on technological standards i.e. standards that secure interoperability between technologies, if such technologies are indeed covered by patents and such patents are vital for the function of e.g. smart phones. Further, they are to be licensed under FRAND terms, in order for other actors in the same industry to develop products using the software, whilst their patents remain protected. SSOs part in the mentioned process is to function as a mechanism for innovators to collectively work to identify the future innovations. The contributing patents in the established standard, shall provide a FRAND assurance. Accordingly, patent holders commit themselves to license the patents that have a chance of becoming essential to the implementation of a standard.[25]

Standards can be called 'technical parameters' that are universally known by different business areas and users. The initial aim of technological SSOs[26] and the creation of standards were to generate both competition and technological growth.[27] SSOs do not only comprise of technical standards, they can also comprise of biotechnology, pharmaceutical and chemical inventions which the International Organization for Standardization (ISO) is trying to format and grow rapidly.[28] However, standards are not as straight forward as they may seem. There are e.g. standards that are either *de jure* or *de facto* standards, which will be further explained within the thesis with the help of case law. A *de jure* standard is a so called 'formal' standard which has been created by an SSO, whilst *de facto* standard is primarily accepted by widespread certain-market-

[25] *Quinn*, 2019. IP Watch Dog.

[26] Compare health standards.

[27] *Bucknell,* 2011, p. 738.

[28] New standards in biotechnology found at www.h-its.org . See also ABB *Water purification in the pharmaceutical industry* found at www.library.e.abb.com.

members, hence, it is also called a '*de facto industry standard'*.[29] Even though these standards are created by different paths, they are both part of the same obligations thereunder. Moreover, both standards are subject to competition law principles, and therefore, a commitment to an SSO might not be as absolute as it may seem, members part of a *de facto* standard may abuse their dominant position in the same manner as members of a *de jure* standards and SSOs.

These mentioned standards contain several, if not thousands, of relevant SEPs that are essential to the standard. As stated, even though *de facto* standards are not part of an SSO, they are still part of the FRAND obligation, including competition law obligations that come along with FRAND commitment. Even though SEP licensing is vastly part of patent laws and principles, competition legislations have in addition an effect on FRAND – a SEP holder may in certain situations abuse its dominant position under a FRAND commitment, which will be examined later on in the thesis. Furthermore, the world faces both challenges and opportunities with SEP licensing under FRAND terms. SEP holders may find new opportunities since standards cover more and more technologies. However, the burden of resolving disputes, injunction and competition question are hot topics at the moment. Both small and large businesses have struggled with challenges relating to SEP licensing; negotiating licenses, determining royalties for FRAND, seeking injections, avoiding abuse of dominant position, seeking recoveries for a SEP holder's neglect of its FRAND commitments or the denial of a potential licensee to accept a license under FRAND terms.[30] All of these issues will additionally be examined carefully throughout the thesis.

Although, governments in different jurisdictions have tried to discuss the above-mentioned challenges by focusing on transparency, balance and reasonableness, still not all licenses are created in an equal way, even under FRAND terms. Additionally, alternative dispute resolution mechanisms ought to be developed in order to resolve SEP

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[29] *Den Uijl*, 2015, p. 3. Examples of *de facto* standards are e.g. VHS, DVD, MP3, Excel and Word.

[30] *Hines*, 2019, WIPO Magazine.

matters quickly and effectively.[31] The European Commission (EC) issued in the summer of 2018 an expert group whose aim is to promote an efficient, smooth and balanced framework in order to encourage technological development and the broad use of standards. In order to reach such goals, the EC called on SSOs to ameliorate the access to information of SEPs along with transparency since there are hurdles regarding such. SSOs provide vague platforms for searching after SEPs and licensing thereto, hence, hurdles has arisen in conjunction with license negotiations. Accordingly, the EC favors imposing new requirements for SSOs.[32]

The topic of the thesis is important due to, firstly, its importance within our developing community, secondly, the competitiveness and incentive it brings to competitors and lastly, the ambiguousness of the components composing the complex formation of SEP licensing. Due to these three factors, it is imperative to analyze them in order to enhance future interoperability and development, as well as avoid vagueness and misinterpretations of such. Standardization does not only enhance innovation, but it also enhances the spreading of know-how and by doing that, further enhancing development and technical growth.[33] However, the issues with standardization, are the dubious descriptions of the elements which further creates disputes between innovators and users. As *Ericsson* describes standardization: *"[…] No company can invent the entire system. So you have to have cross-licensing and interoperability. It is like a Rubik's cube – everything depends on everything else."*[34] Due to the importance of cooperation and interaction between users and SEP holders, the definitions have to be examined further to avoid future hindrances.

1.2. Research question

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[31] Ibid.

[32] Ibid.

[33] BNQ, *Importance of Standardization* found at www.bnq.qc.

[34] Telefonaktiebolaget Ericsson LM, *The Importance of Standardization* found at www.Ericsson.com.

The main objectives the thesis shall examine, as title might suggest, is to provide policy recommendations to the issues the European Union (EU) faces regarding SEP licensing under FRAND terms. Henceforth, the thesis will go into the depth of identifying SEP licensing issues and their effects thereto. However, prior to that, one has to analyze the different definitions and interpretations of the scope of the term FRAND along with its effects. As stated, the thesis shall especially focus on licensing under FRAND terms, however, before one can analyze such expression, one has to narrate the background to the mentioned expressions conducive to the identification of the main research question. Ultimately, the most integral part of the thesis is the discussion and analysis chapter, in which the thesis will provide possible policy recommendations to the established issues within the EU. Accordingly, the thesis shall examine EU treaties and case law.

The foundation for the whole analysis shall be the procedural framework for licensing negotiations created by the European Court of Justice's (ECJ)[35] case of *Huawei technologies v. ZTE*. The judgment caused a lot of interpretation in national courts around Europe regarding establishing a persistent set of rules for determining whether SEP has actually been licensed under FRAND terms.[36] Alongside *Huawei technologies v. ZTE* the thesis shall analyze follow-up cases after the Huawei ruling around Europe, especially German and United Kingdom's rulings.[37] Accordingly, the thesis shall discuss the pros and cons of the European SEP licensing system *de lege lata* in pursuance of providing possible policy recommendation options. It is exclusively logical to include case law analyzations to the extent of enhancing the changes and interpretation such case law has

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[35] Court of Justice of the European union, 1952.

[36] White & Case, 2019; Another FRAND decision in Europe: Clarity or Confusion? White & case publications.

[37] See e.g. *Archos S.A. v. Koninklijke Philips N.V*. 2017, *Koninklijke Philips N.V. v. Wiko SAS* 2019; *Sisvel v. Haier*, Düsseldorf Regional Court, n°4a O 144/14, judgment on 3 November 2015, *Sisvel v. Haier*, Dusseldorf Court of Appeals (Oberlandesgericht), Cases I-15 U 65/15 and I-15 U 66/15, judgement on 13 January 2016; Commission's decisions *Motorola & Samsung* 2014; *Saint Lawrence Communications v. Vodafone*, Case 4a O 73/14, judgement on 31 March 2016; *Unwired Planet v. Huawei* EWHC 958 (Pat), judgement on 29 April 2016 & EWHC 711 (Pat), judgement on 05 April 2017; *Conversant v Huawei & ZTE*, EWHC 1687 (Pat), judgement on 4 July 2019.

contributed with on a European level. Consequently, the thesis shall not examine case law's effects on an international level, solely European court's rulings.

By researching SEP licensing, it is only natural to include European competition law, specifically Article 102 Treaty of the Functioning of the European union (TFEU)[38]; many issues within the EU, with regard to SEP licensing, has, as briefly mentioned earlier, a connection to competition law principles, including the ruling of *Huawei technologies v. ZTE*. Although, the main objective within the thesis shall not be competition laws, it is fair to include aspects of it towards analyzing the pros and cons of the SEP licensing system as a whole.

1.3. Structure of the thesis & delimitation

The thesis is divided into five (5) parts. Each part settles a vital element in the formation of the thesis's purpose. Whilst part one covers the background and basic knowledge of the thesis, including research question and methodology, part two examines the basic facts of both software and licensing. It is important to understand the basic elements that standard essential patents are based on, in order to examine SEP licensing thoroughly. Accordingly, FRAND terms are examined profoundly in the light of competition laws and Article 102 TFEU. Further, part three of the thesis delivers a case analysis on ECJ's judgment in *Huawei technologies v. ZTE* and undertakes an analysis thereto. The most integral part of the thesis is part four, discussion and analysis, in which the thesis identifies the issues and their effects the EU faces, mentioned throughout the thesis, and further provides policy recommendations for SEP licensing under FRAND terms thereunder. To conclude the thesis, the final part wraps up the current situation based on the analysis and proposes future actions.

The thesis shall not examine international case law nor patent pools extensively in order to delimit the thesis. As aforementioned, the thesis examines European case law and tries

[38] *See* Article 102 Treaty of the Functioning of the European Union (2012/C 326/01).

to find a middle-ground solution regarding the European legal system, hence, international case law is needless to analyze in the thesis, apart from the mentioning of integral cases. Additionally, the thesis shall not examine the elements of a patent pool although they have a connection to SEPs. The thesis shall focus on the dilemma between SEP and FRAND licensing solely in the EU. Additionally, the thesis shall not examine software from a copyright point of view, instead focus on patentable computer software and essentials thereto. However, the thesis shall only discuss briefly the copyright perspective to give the reader a found on how computer programs may be protected. Additionally, the thesis shall concisely discuss the background and meaning of software, Free and Open Source Software (FOSS) as an alternative protection method and the concept of licensing from primarily a patent point of view, mentioning copyright protection due to its interoperability with patent protection, in order to analyze the research question profoundly.

1.4. Methodology

Methodologies of legal research are not enhanced by general rules nor guidelines. Instead, choices regarding epistemological (*information collecting*) and ontological (*existence*) will guide the scope of the thesis, the theoretical approach and the selected sources of law. Accordingly, the choices made will have an impact on the methodology of the thesis.[39] The thesis follows a legal-dogmatic research method as a means to identify, systematize, interpret and analyze existing laws, principles, doctrines, international agreements and case law as they are written.[40] The legal-dogmatic research method has been well known within the Nordic countries for its subjective research method.[41] In addition to legal-dogmatism, the thesis shall use comparative law for the analyzation of what ought to change within the European patent system by comparing European case

[39] *Hirvonen,* 2011. pp. 58–61.

[40] *Peczenic*, 2005. p. 249.

[41] Bärlund et al., 2016, p. 36.

law. The thesis shall especially compare German and United Kingdom's case law, by focusing on ECJ's ruling in *Huawei Technologies v. ZTE*.

The research methods are relevant since the thesis will analyze and interpret existing laws and case law valid within European Union in order to analyze and establish policy recommendations. As *Aarnio* points out*,* the legal dogmatic truth is reciprocal; there may be multiple perceptions for a single legal issue. The majority of people will choose the perception which has the best arguments, and therefore, in order to convince such group of people, one is allowed to use any interpretation, all things considered, in case the perception has a legal basis and the hierarchy of law is accordingly adhered to.[42] As *Husa* points out, comparative law means roughly legal comparison, born in the nineteenth century, in continental Europe, conjointly with the academic thinking and analyzation. Comparative law was first seen as a comparative legal science which further means, that comparative law is usually connected to academic contexts. Additionally, according to *Husa*, comparative law is both seen as a 'research branch' and as a 'research method'.[43]

The thesis shall examine laws on a European level and above all Article 102 of the TFEU – the European Union can be described as a legal person; the base for the whole EU is de facto TFEU. Our national laws are governed by EU law and regulations; EU legislation can be divided into three legal acts: i) regulations; ii) directives; and iii) decisions. A regulation is the strongest form of legislation within the EU, it is binding for every member state simultaneously. Directives on the other hand ought to be implemented and harmonized into national law within a certain timeframe. Directives normally sets a minimum-standard the member states have to achieve. Decisions are only binding for the ones to whom it may be addressed.[44] Article 102 that shall be examined in the thesis is

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[42] *Aarnio*, 1978. pp. 103 and 124.

[43] *Husa,* 2015, pp. 16–17.

[44] *Bärlund et al*., 2016, p. 5.

part of EU's constitutional pillar – each member state has to follow the TFEU in the same way as their own jurisdiction.[45]

Jurisprudence is directed by rule of law and rationality; In the pursuance of achieving such, one has to be able to prove one's findings. By providing strong arguments one has to identify the legal problems and provide coherent solutions.[46] The thesis shall follow such interpretations and legal problem solving – references and material used in the thesis consists of literature such as monographs, doctrine and articles, international agreements and specifically European case law as presented above. The thesis examines closely European case law as well as European conventions in order to analyze its core challenges and develop policy recommendations, which makes the legal dogmatic research method along with comparative law a natural choice for the purpose of identifying, interpreting and systematically analyzing case law.

[45] 2012/C 326/01

[46] *Hellner,* 1998, p. 488.

2. SEP Licensing

2.1. Introduction

Basic facts regarding software and licensing has already been presented, however, it is fair to acknowledge that the thesis has to enhance both elements in order to analyze the research question further. The expression 'software' has actually never been defined in a legal sense; however, it is yet commonly known as a collection of materials that helps the computer to function, but which does not include hardware[47]. Software includes preparatory design material, source and object code, development tools, computer media, data files, outputs, displays, languages among other things.[48] Besides software, it is imperative, that the thesis clarifies the expression of licensing, since the thesis will examine licensing to a high extent. By licensing a product one gives away (licensor) the right to another actor in the same industry (licensee) to use the product against a specified payment. Licensing helps other actors to instantly market and produce certain products that other companies have spent years on building, whilst in return the licensor gets paid for the granted license, for example a specific percentage i.e. royalties of the revenue sold from licensor's original product.[49]

In addition to defining software and licensing as two different elements in this chapter, SSOs will be examined as a private voluntary institution incorporating the most exemplary patents into a standard, who represents industry participants with highly essential patents.[50] As mentioned, there are a lot of issues arising from SEP licensing, evidently SEPs are five times more in litigation disputes than normal patents, mostly in

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[47] Computer hardware is the tangible part of a computer and related devices that one can see. Hardware usually includes software. *See* Techopedia.

[48] Bainbridge, 1999; software copyright law. p. 2.

[49] Small Business encyclopedia; *Licensing.*

[50] Tsilikas, 2017; *Antitrust enforcement and standard essential patents: moving beyond the FRAND commitment*. p. 11.

the context of 'smartphone wars'.[51] The chapter will additionally undertake an examination regarding European competition laws, especially Article 102 TFEU.

2.1.1. Software that may become protected

Computer program/software is difficult to classify, hence, the legal protection of such is still problematic. Software, as stated earlier, is a set of instructions to perform certain tasks, where after the instructions which leads to the desired task follows an algorithm[52]. One should not get confused when hearing 'computer' software – it applies on all devices that uses computer technology e.g. mobile phones or smart televisions. In order for a computer software to perform its task, it has to go through the following phases:

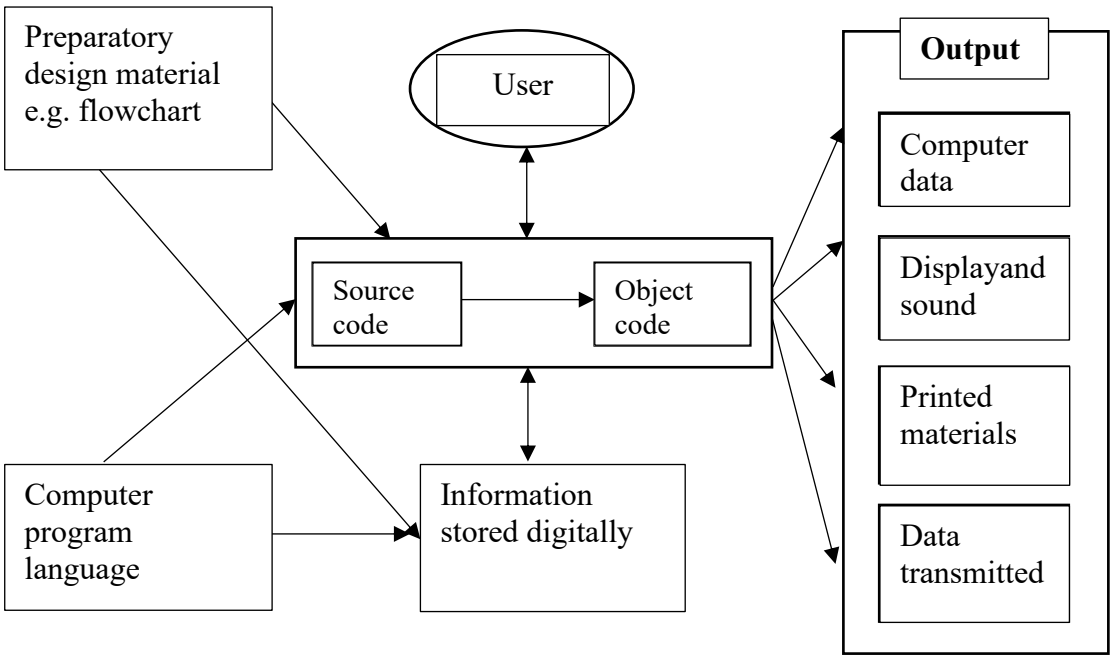

Figure 1.[53] Computer software items

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[51] Ibid. p. 12. Further see *Beldiman,* 2015 pp. 23-26 regarding the expression 'smartphone wars'.

[52] An algorithm is a comprehensive set of certain instructions for the purpose of carrying out an activity or further, solving a problem. Computers use algorithms to e.g. list comprehensive instructions for carrying out the said activity. To accomplish such tasks, appropriate data have to be instituted into the system. *See* Techopedia.

[53] See Bainbridge, 1999; software copyright law. p. 3.

Figure 1 explains the different items a computer software consists of. It is imperative to understand each element in this sequence, since each element could be an invention as such, which further means that legal rights are connected thereto. Let us begin by explaining the base of the figure; '*preparatory design material'* is the base of the software, the plan of the process and algorithms. The logic map for the software consists of a flowchart which includes input (what the software user wants the computer to accomplish), output (the information produced by the computer) and in between the processing of the algorithms and decision (see figure 2).[54] The source code is a result of the implemented flowchart, which further turns the implemented flowchart into a set of instructions, using a programming language of choice. The code is later translated into the chosen machine language which is referred to as object code. The operation is not yet, however, complete; the object code needs memory based executable code which it receives from *'information stored digitally'* box. This stage of the operations gives the object code the missing variable addresses and personal routines. Finally, the operation reaches its end as the computer completes the tasks the user wanted, called outputs.[55]

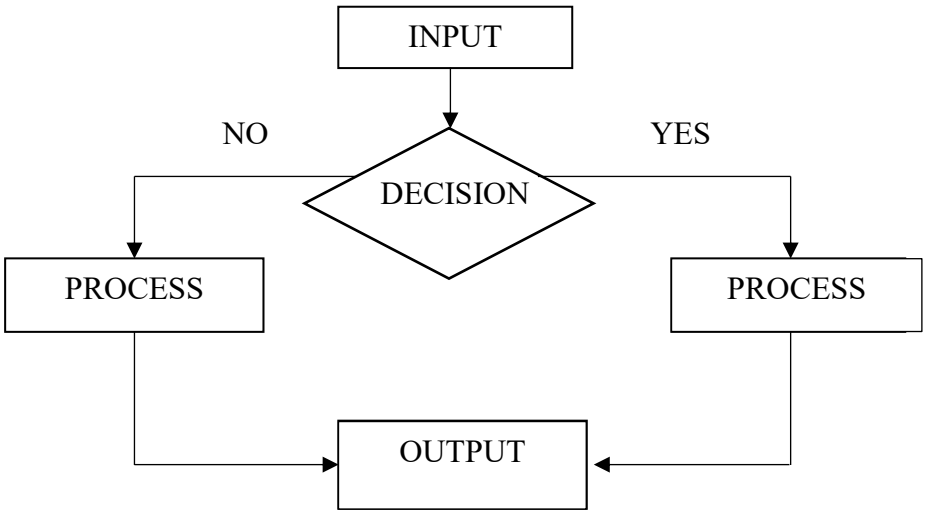

Figure 2.[56]
Flowchart of computer decisions

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[54] *Kizza*, 2016, p. 89.

[55] *Ibid.* p. 90.

[56] *See* Ibid. p. 89. Figure 2 explains the decision-making a computer makes when user inputs a task which results in an output.

2.1.1.1. Legal protection of software

After a short introduction on how computer software works, it is only natural to define which parts, and why, are protected by patents, principally, and briefly copyright protection in order to enhance the interoperability between the two protection methods. Patents have a huge impact on our society; patents can contribute with encouragements to innovation and to publicly display technological information. A patent can be seen as a bargain between society and an innovator – the innovator receives monopoly whilst the innovations are made available to the public.[57] As mentioned before, it is imperative that there is a disclosure requirement regarding patents, it would be a waste of useful time if innovators would not have access to patents, instead, it is the purpose of patent law to enable competition and rivalry by disclosing patents.

If software would be developed for the use of only one person, the need for legal protection would be irrelevant. However, in the vast majority of cases, software has a market value and competitors finds it useful to acquire a copy of the software for their own purpose of use. An innovator faces two problems; first, some users wish to copy the software without payment which leads to an infringement of the patent. Second, rivalries wish to examine the patent further in order to make competitive inventions. In both cases, the inventor faces economic risks and hence, it is important to examine patent laws further.[58] Accordingly, an invention has to comply with the following requirements in accordance with the Article 52 EPC[59] (see below) in order for the patent to become valid:

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[57] *Mylly,* 2011, p. 1.

[58] Bainbridge, 1999; *software copyright law.* p. 9.

[59] Computer programs are actually not yet considered as patentable under the EPC if a patent application is in connection to computer programs *as such*. The wording *as such* refers to source and object code (*see* page 12), since computer programs are considered a non-technical process. However, this does not mean a computer program is not patentable: EPO board of appeal's Vicom-ruling (T 208/84) established the meaning of *technical effect* that a computer possesses which means computers are after all patentable due to its *technical effect* despite computer program's lack of patentable subject matter. *Haapanen, 2017,* pp. 70–71 and *Shemtov,* 2017, pp. 179–180.

1) The invention has to include a technical character;
2) The invention has to be novel;
3) The invention has to involve an inventive step that is non-obvious to someone in the relatable field of industry;
4) The invention is responsive to industrial application.

If an invention does meet all the aforementioned criteria, the innovator is eligible to seek for a patent. If an invention receives protection, the patent will become available for the public, as well as receive a protection of twenty (20) years. When a patent has expired, anyone can take advantage of the lapsed patented invention.[60] The EU faces however standard issues regarding a unitary patent system, since the legislation is contradicting and has loopholes, which contributes with national interpretations by not expressing enough specific criteria for patent granting[61], as will also be examined later on regarding the FRAND term.

All European Countries are part of the Paris Convention[62] which concerns the protection of patents, even if the convention does not clarify the criteria for patentability nor the patentable subject matter. In addition to the Paris Convention, TRIPS agreement[63], under the WTO, does regulate the aforementioned expressions. Article 27 TRIPS applies on any invention as long as the invention fulfils the criteria as presented above. Article 27 sets a non-discrimination principle and possibilities to exclude patents (does not apply on computer programs). The interpretation of national courts regarding the Article is rigorous, since they have to recognize computer-implemented inventions if they are to obey the Article.[64]

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[60] *Uotila*, 2019, p. 21.

[61] See EPO's (European Patent Office) interpretation of IBM I and II cases and *Virtanen,* 2013, pp. 620–632.

[62] Paris Convention for the Protection of Industrial Property, 20 March 1883.

[63] Agreement on trade-related aspects on intellectual property rights, 1 January 1995.

[64] *Mylly,* 2011, p. 6.

The European Commission proposed a draft for Directive COM (2002) 92[65] in 2002, which aimed to harmonize the various practices by member states regarding computer programs. The Commission observed that the European patent system lacked certainty, however, the Directive received lobbying and never entered into force. Consensus has never been reached on the subject and therefore, computer program's patent protection in Europe is still vague and solely based on national laws that partly comply with the EPC and EPO case law.[66] Hopefully, a change is upon us since the EU needs some kind of unitary patent system, which would solve the ambiguousness and loopholes in our legislation. Accordingly, in 2013 the Unitary Patent Regulation (UPR) was adopted, however, it has not yet become effective[67]. The aim with the regulation is to receive a European patent with unitary effect, with exclusive competence in infringement and invalidity. Additionally, the forthcoming Unified Patent Court (UPC) is also binding to ECJ's decisions.[68] The reform would not change the patentability but instead the issues and exceptions the EU faces would become uniform with equal effects on European patents, excluding compulsory license regulations which would still be up to member states to decide.[69] Without further ado, time will tell whether such regulation shall combine the interpretations and determine a final scope of patent protection.

Although the thesis focuses on patent protection, it is paramount to enhance copyright protection of software as well.[70] As mentioned earlier, computer programs can receive both patent and copyright protection, however, the key is the interoperability that exist between the two protections – both covers areas that the other one does not, which makes them dependent on each other. As a clarification, if an invention is in connection to software the invention may receive both copyright and patent protection, but if software

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[65] *See* supra note 14.

[66] *Haapanen*, 2007, p. 73.

[67] It shall become valid when the Unified Patent Court Agreement enters into force. *Kur, 2013,* p.153. See also *Pila,* 2015, chapter 3.

[68] *Ibid.* pp. 151–155.

[69] *Mylly,* 2013, p. 49–50.

[70] 2009/24/EC

does not fulfil the patent requirements, then the software receives solely copyright protection. For the avoidance of doubt, the ultimate outcome for a software developer would be to accomplish the patent requirements as an addition to the already received copyright protection.

2.1.1.2. Alternative protection methods for software

In order to understand the whole concept of software licensing and different methods one can use, it is fair to describe Free and Open Source software[71] (FOSS) briefly. In the 1960s it was common for universities and technology companies to share source code, which lead to source code circulating to developers and customers. IBM at the time, was the most dominant manufacture in the hardware business and its computer programs were simply a promotion of IBM's hardware. Accordingly, IBM sold its customers the source code and permitted them to improve and share the changes within the software; in only a short time, software as such had found its own market. Microsoft was one of the first technology companies to restrain the use of their software in the manner of redistribution and modification.[72] The last decades has contributed with tremendous evolution in the use of FOSS in commercial contexts, and FOSS is often seen as a default approach to software. FOSS is often licensed if the software complies with the Free Software Definition[73] (see below) set by the Free Software Foundation (FSF):

1) the freedom to run the program for any purpose;
2) the freedom to study how the program works and the freedom to change it;
3) the freedom to redistribute copies of the program;
4) the freedom to distribute copies of modified versions of the program.

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[71] Free and open-source software (FOSS) grants users the right to edit, modify or reuse the source code of the software, which further gives developers a chance to improve software program's functionalities by modifying them. The term *free* illustrates the lack of copyright on the software. The term *open source* illustrates that the software is still in project form, enabling software development to collaborate worldwide without any need for reverse engineering. *See* Techopedia.

[72] *Välimäki* 2005, pp. 14 and 21–24.

[73] See Free Software Definition written by Richard Stallman and published by the FSF.

In addition to the Free Software Definition, computer program's license terms have to comply with the Open Source Definition[74] (see below) set by the Open Source Initiative (OSI) and allow/restrict the user to:

1) distribute or sell the software, without royalty fee;
2) access the source code of the software;
3) modify and distribute the modified version under the precise same license;
4) protect the virtue of the original author's source code;
5) discriminate persons, groups or fields of endeavors;
6) distribute the license;
7) specify the licensing to a certain product or restrict other software;
8) not to be biased.

Each contributor to FOSS should understand which rights are actually licensed when licensing under FOSS terms – which rights are actually received and distributed. We live in a fierce competitive world, thus, IPR owned rights are a huge asset. License terms should be clearly identified in order to prevent unexpected impacts or infringements i.e. does the license include sublicensing rights?[75] FOSS licenses have been controversial for quite a long time and the licenses are often characterized with contract law and thus, the majority of countries, not only in Europe, apply basic contract law principles on FOSS licenses. Problems that arise of license-contract law disputes are often solved pragmatically. *Axel Metzger* claimed that "*one should not overestimate the legal consequences*" coming from the characterization of FOSS licenses seen as contracts.[76]

2.1.2. Software Licensing

[74] See Open Source Definition written by Eric Raymond and published by the OSI.

[75] *Haapanen*, 2017, pp. 16–19.

[76] *Metzger,* 2016, p. 45.

The software industry is an inconclusive concept; the industry is growing all the time and is characterized by hasty technological development. During the last fifty years, the industry has been built by various expansions and technological paradigms. The majority of the technology companies founded in the 1950s and 1960s are gone, and today there are only a handful of companies who rule the markets and therefore, licensing is of paramount importance. [77] The one who has invited an innovation (licensor) grants rights to another party (licensee) to use the software in the manner the licensor have granted the rights i.e. the licensor may refuse the licensee from using the software in certain ways or to sub-license the software. Licensing is fairly one of the best ways to expand one's business both nationally and internationally. Within the license agreement parties have to agree on some of the following terms; to which extent the licensee is allowed to use the software, an explanation of the existing patent protection of the software, export restrictions, liabilities, warranties, terms of payment, confidentiality clauses and so on.[78] Accordingly, and most importantly, both parties ought to understand the rights and restrictions of the license agreement.[79]

A typical license agreement is written in 'jargon' and 'legalese' which means it may be fairly difficult to understand, and certain terms may be hidden within the sentences. Software licensing usually address and restrict what the licensee can do with the licensed software, including for what purposes it can be used and if one infringes the clauses what consequences shall apply. A question brought up regarding software licensing is whether a licensed software shall be seen as a 'work of authorship' or a 'copy of the software'? There is usually a specification within the license agreement that the software is not being 'sold', which means the licensor maintains ownership over IP. An interesting fact, however, is that the licensor usually keeps title over the original IP but also over the

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[77] *Välimäki*, 2005, p. 13.

[78] Aalto-Setälä et al., 2016, pp. 69–70. Within telecommunications cross-licensing has been the most used model – more efficient to license a whole patent portfolio instead of patent-by-patent licensing. See *Harkrider,* 2013, p. 22.

[79] As a clarification, one should not confuse 'software licensing' with 'patent licensing'. They do differ in the way that 'technology licensing' does not specifically include a patent whilst 'patent licensing', on the other hand, does explicitly indicate on patents.

copy.[80] Further, copyright aspects are often considered in software licensing; in a classic proprietary software license the user i) is granted a limited right to use the program; ii) is not entitled to make amendments or corrections to the program; and iii) the user is not provided with access to source code.[81] Open source license provides, on the other hand, much broader rights to the user. The main characteristics of an open source license, allows the user: i) a broad right to copy the program; ii) to make amendments and error corrections to the program; and iii) access to source code.[82] Therefore, an open source license provides the user with a broader right to amend and further develop the computer program.

The most prominent type of FOSS licensing is the General Public License (GPL)[83] which is used for example in Linux and other FOSS projects. GPL grants the licensee the right to use, modify, copy and distribute the licensed software along with licensee obligations to provide the license text to the recipient of the distributed software and to duplicate all features of the program in the distributed copy. There is also a license called a 'simple open source license' BSD license[84] which do not, on the contrary, provide obligations for the licensee. Other license communities have learned from the Open source development and created own distribution models in different sectors e.g. Creative Commons (CC)[85]. CC is a liberal standardized license regime which allows redistribution – not all licenses provide modification rights. Some CC licenses contain a somewhat 'share-alike' clause

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[80] *Philips,* 2009, pp. ix–8.

[81] *See* Article 4 2009/24/EC.

[82] *Riis*, 2016, pp. 101–106.

[83] See GNU GPL at www.gnu.org. GPL includes also a so called *copyleft* provision that limits the licensee's freedom to distribute amended and secondary versions of the software. In other words, the provision requires all amendments to the software to be licensed under the same license term as the original program. See *Riis,* 2016, p. 105. The GPL is having a so called strong copyleft whilst e.g. BSD has a weak copyleft and further, MIT (https://opensource.org/licenses/MIT) or Apache version 2.0 (https://www.apache.org) does not contain any copyleft at all.

[84] See BSD at www.opensource.org.

[85] See www.creativecommons.org.

which is comparable to 'copyleft'[86]. In addition to CC, Wikipedia is a known 'open-content' platform where anyone can distribute and modify the contents.[87]

It is important to promptly decide the legal nature of a software license i.e. is it more of a sale of goods contract or perhaps a service contract? It is fundamental to decide the subject-matter for the license in order to determine the legal effects and constraints contained within the license. Usually though, organizations will be part of license agreements which directly excludes consumer protection within the license deal. Usually the owner of a software has de facto the stronger position when licensing, especially in patent licensing if the patent is part of a standard; the owner may license his products expensively and unduly interfere with the licensee's use of the software.[88] Accordingly, the next chapters shall more extensively examine specifically patent licensing, including SEPs, standards, FRAND and competition laws governing patent licensing

2.2. Standard Essential Patents

Patents and standards are both important for innovation, development and further, for the interplay between the two. The interoperability is ensured by standards and further, technologies are extensively displayed between corporations and private consumers. Patents, on the other hand, provide R&D[89] which encourage and permits innovators to receive a return on investments.[90] A standard essential patent (SEP) is a patent that

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[86] *Supra note* 83.

[87] *Metzger,* 2016, pp. 4–6.

[88] Bainbridge, 1999; Software Licensing. pp. 84–85.

[89] Research and Development.

[90] Royalties based on patent licensing can be seen as an 'industrial tax' since the patent is already available to the public and thus, the sole use of the patent is costly even though the information is public. Accordingly, patent infringement happens quite often due to the fact that the users do not see themselves obliged to pay for something that is already available.

protects technology essential to a specific standard.[91] Accordingly, SEPs protect inventions i.e. technologies that are, in other words, essential for complying with such a technical standard. Standards do not only encourage innovation and growth in Europe, but also provides interoperability of technologies. Known standardized technologies are e.g. long-term evolution (LTE), WiFi, or Bluetooth which are all naturally protected by SEPs. As a result of the widespread use of standardized technologies, interconnectivity is possible.[92]

Each device such as smartphones or Wi-Fi have different technological components, but each part has to work together in order to function, which further means that these devices have to comply with standards i.e. a set of instructions that such devices follow and communicate with in order to achieve their goals. Such standards may affect patents that are part of such devices i.e. a patent that is part of such a technology, which is used in a standard, may call itself a SEP. A SEP is a patent that must be used whether a company wishes to commercially deploy an adopted standard.[93] The owner of a SEP (as part of a standard) will receive remarkable business engagements since the owned SEP has to become part of each technological device that goes under the standard terms e.g. the revenues received from licensing a SEP will rely solely on the standard's value and not the SEP per se. In other words, SEP holders ought to ensure access to their SEPs in order for a standard, that include the SEP, to become widely ratified. However, if a SEP holder refuses to license the SEP due to the SEP's presumed value in comparison with the standard, it is called a licensing 'hold-up'[94]. Fortunately, standard setting organizations (SSO) try to avoid licensing hold-ups by cautiously accepting SEPs into a standard in the

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[91] See further *Lee,* 2006, pp. 7–8: A SEP is a patent that a company have to use if they wish to produce standard compliant products.

[92] *Verhoeven,* 2019 at https://premiercercle.com.

[93] *Atik,* 2019, p. 949.

[94] Hold-up is an economic term for defining when a SEP holder claims excessive royalties for its technology after a standard is adopted. *Horizontal Guidelines 2011,* paragraph 269. Further see Pentheroudakis, European Commission, 2017. Compare 'patent hold-out' where licensees do not take a license in order to pressure the SEP holder to agree to licensee's below FRAND terms, see iam-media, 2020.

first place. Additionally, SSOs created the so called FRAND[95] terms (Fair, Reasonable, and Non-Discriminatory) under which the SEP have to be licensed.[96]

SEPs are both controversial and important since they are simply essentials to a standard. The computer and telecommunications industries depend on SEPs and standards, in order for the companies to cooperate i.e. if a computer uses Wi-Fi the computer sends and receives data according to a set of instructions[97]; such instructions are patented and claimed to be necessary in order to implement Wi-Fi. Therefore, if one wants the phone to communicate with other devices through Wi-Fi, the phone has to comply with the instructions. Standards are important, but since they are so important, SSOs worries whether patent holders may exclude other companies from using standards which would interfere with the interoperability. Therefore, the SSO have limited the acceptance of patents for standards. Further, the SSOs require patent holders to license their SEPs under FRAND terms to anyone who ratifies the standard (in which the technology/patent in question is part of).[98] In spite of licensing limitations i.e. FRAND-encumbrances, SEPs are yet extremely powerful; entire industries ratify standards and pay licensing fees every time the standards are used.

Evidently, our developing society is depending on today's standards, however, we are sometimes blind towards them. Standards indicate technological development, interoperability and tries to lower transaction costs. Due to standards we can smoothly use our smartphones and connect them to Wi-Fi or use computer hardware standards, for example USB. Additionally, on the one hand, standards encourage competition and innovation, but on the other, the risk of hold-ups increases. SEP holders may unfairly but

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[95] Outside Europe it is more often referred to as RAND (Reasonable and Non-Discriminatory) or F/RAND, leaving out the 'Fair' part.

[96] *Lewis,* 2014, p. 2.

[97] *Wireless Fidelity* is a type of wireless network technology. Wi-Fi works the same way as a radio; sends waves to a detecting device that decipher the waves and sends it back to the Wi-Fi data router. *See* Techopedia.

[98] *Lemley,* 2019, pp. 609–610.

rightfully target non-licensed users with patent infringement lawsuits by demanding royalties along with injunctions.[99] A smartphone may contain thousands of SEPs which further allow interoperability across platforms; in order to produce one smartphone without infringing thousands of patents the patents have to be licensed.

2.2.1. Standard Setting Organization

Standardization was first introduced in the European Union to promote the 'free movement of goods', when tariffs were removed between the member states in 1968 – it may also be seen as the beginning of the harmonization of technical standards. The harmonization comprised, however, issues regarding different technical regulations in different member states. In order for the European Union to achieve a common harmonized market, technical standards, and regulations regarding them, had to become harmonized. Standardization encourage the functioning of a single market and supports among others competitiveness, innovation and protection of health and safety.[100]

SSOs establish and disseminate technology standards in various industries. There are thousands of standards organizations establishing different standards. The SSO adopts a standard if the majority of its members vote for the standard in question and if the standard maximizes their market returns, so basically the SSO chooses the most economically beneficial standards.[101] SSOs can vary in both size and formation, hence, the European Commission has identified three different categories of SSOs[102]: i) formally recognized standardization bodies[103]; ii) quasi-formal standardization bodies e.g. international

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[99] *Lim,* 2014, pp. 3–4. As aforementioned, the SSOs put the FRAND requirement in order to avoid hold-ups. However, theoretically, SEP holders may produce their services and charge significant royalties outside the standards. *See* Xiaowen, 2015, p. 6.

[100] *Zhang,* 2012, p. 21.

[101] *Spulber*, 2018, p. 3.

[102] European Commission, 2014, p.31. See further *Bharadwaj et al.,* 2018, p. 2.

[103] For example, International Organization for Standardization and the European Telecommunications Standards Institute (ETSI).

organizations that possess same characteristics as formal organizations[104]; and iii) standardization consortia[105]. Despite the different categories, usually the stakeholders of standardization bodies produce standards voluntarily and not the SSOs themselves. If a stakeholder participates in the standardization process and hides the fact the he or she holds essential patents to the standard which is being developed, it is called a 'patent ambush'.[106] The SSO is a joint movement of members that are usually competitors outside the SSO. European SSOs are governed by the EU acquis Communautaire and are commonly instructed by the European Commission – they deliver 'EU standards" known as European Norms[107] (ENs). All European standardization bodies have to comply with EU legislation, and specifically competition laws. The following figure explains the institutional and regulatory framework of SSOs and the connection it has to the EU:

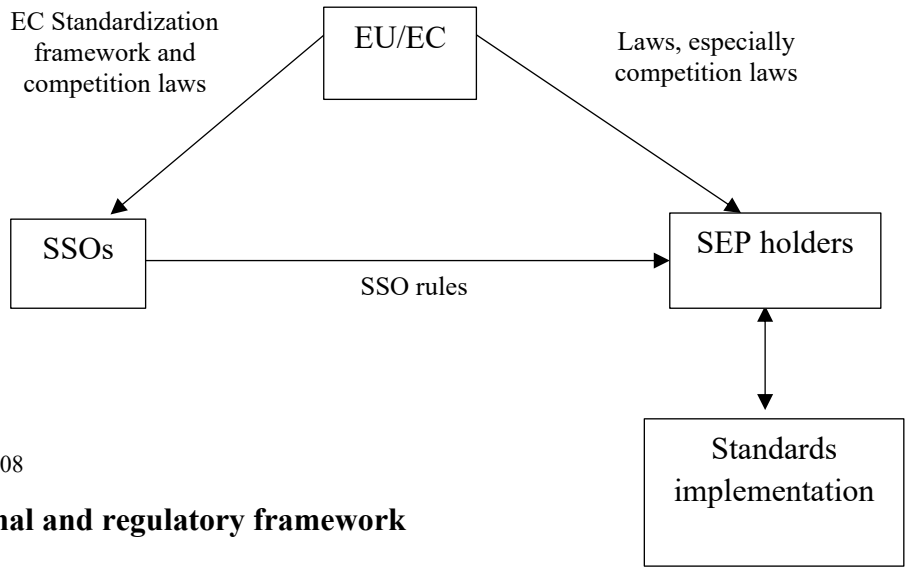

Figure 3.[108]
Institutional and regulatory framework

[104] For example, the IEEE Standards Association and ASTM International.

[105] For example, Bluetooth and USB.

[106] *Randakevičiūtė,* 2015, p. 27. See Commission's Decision in case *Rambus COMP/38.636*, decision on 9 December 2007 and *Dell Computer Corp.,* 121 F.T.C. C-3658, Decision 20 May 1996.

[107] Each European Standard's reference code contains 'EN'. For a European Standard to exist, the standard must have been adopted by one of the three European Standardization Organizations (ESOs): CEN, CENELEC or ETSI. A European Standard must be established by all interested parties through a transparent, open and consensus-based process. *See* CEN at https://www.cen.eu/.

[108] *See* European Commission, 2014, p. 31. The framework enlightens the connection between the three main actors; 1) the connection between the EU and SSOs; 2) the connection between SSOs and patent

SSOs main tasks are to promote technical standards and to evaluate its members' patented technologies. Further, the SSO adopts a standard by declaring it 'open' or 'closed' – the sole difference is that closed standards require royalty licensing whilst open standards can be adopted freely. Further, as already mentioned, SSOs have requirements on SEP holders in exchange for adopting their technologies.[109] A standardization process comprises work of stakeholders of the industry in question, where they figure out the relevant technical questions in order to decide on the content of a standard. The SSO have a couple of core goals, firstly maximizing the technical quality and secondly maximizing the adoption by encouraging innovations and R&D and ensure barrier-free implementation of the standard by granting licenses under FRAND terms.[110]

As explained above, with help of figure 3, the Commission co-operates among industries for the development of new technologies and supports its competitiveness and ensures interoperability between products.[111] Despite the benefits standards causes, they may reduce competition if a single standard is adopted, whilst similar standards that could have been adopted are not. SSOs are however, not considered anti-competitive since they put up requirements which ought to help standards avoid anti-competitive results. Accordingly, it is mandatory for SSOs to adhere to EU's laws and regulations, including but not limited to, competition law requirements.[112] The collaboration within an SSO might raise question regarding competition laws, taken into account SSOs associated collusion and exclusive risks. SSOs create a platform for users (competitors) to solve technical issues; such collaboration might promote collusion and enforce restrictions on products which further results in higher prices and thus restricts consumer's choice.[113]

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holders; and finally, 3) the connection between the EU and patent holders. The arrows institute the direction of influence, although they are two-way relationships.

[109] *Viitanen,* 2017, pp. 41–42. Further see *Speegle,* 2012, p. 849.

[110] *Seppänen,* 2017, p. 8.

[111] White Paper, COM (2009) 324, in Brussels 3.7.2009. p. 1.

[112] Horizontal Guidelines, 2011. The guidelines have three requirements; transparency, openness and effective access to FRAND terms.

[113] *Riis*, 2016, pp. 168–169.

2.2.2. Fair, Reasonable and Non-Discriminatory

SSO activities may be recognized as a potential source of economic efficiency; SSOs promotes and requires both communication and collaboration among its members, that would most likely be competitors in the outside market, thus, the standard setting process requires caution regarding competition laws. The international and market-wide scope of technological agreements within SSOs, might be a potential source of dominant position for SEPs holders. However, the risk of such dominant position has contributed with SEP implementers requiring SSOs to license technologies adopted in the standard under FRAND terms.[114] A FRAND commitment requires a SEP holder to voluntarily assimilate its patent into a standard and at once the SEP is incorporated into the standard, the holder is obliged to license the SEP under FRAND terms to all willing parties i.e potential licensees.[115] ETSI requires a SEP holder to give promptly, but no more than within three months, an irrevocable proposition diligently in writing to grant FRAND licenses or at least to the following extent:

> "*1) Manufacture, including the right to make or have made customized components and sub-systems to the licensee's own design for use in manufacture; 2) sell, lease, or otherwise dispose of equipment so manufactured; 3) repair, use, or operate equipment; and use methods"*[116].

Yet, a FRAND commitment is not a license per se*,* moreover, it is a non-binding-commitment for negotiating parties to enter into *bona fide* negotiations to regulate FRAND terms for the license.[117]

Members of an SSO i.e. SEP holders, have to commit to license their key IP needed to adopt a standard to whomever requests it. The owner of the IP has to either license the SEP on a royalty-free basis or under FRAND terms. The question whether FRAND is

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[114] *Bharadwaj et al.,* 2018, p. 19.

[115] *Chappatte,* 2009, p. 327.

[116] ETSI Directives, 2019, p. 39.

[117] *Jakobs,* 2018, p. 142.

binding and how serious the commitment actually is has concerned observers; accordingly, a royalty-free license is more definite than a FRAND promise.[118] FRAND commitment provide an assurance to users, that as long as they pay reasonable royalties to the SEP holders, they can manufacture products depending on a standard.[119] Further, the requirements assures the SEP holder benefits when others are using the patent (without gaining unfair bargaining), and also facilitates a widespread use of a standard. There is actually no regulation governing FRAND obligation, but the SSO require its members to follow the terms, in other words, the SEP holders makes a commitment to the SSO in question and not to the public. Therefore, difficult problems arise regarding whom can indeed carry out a FRAND commitment – national courts have seen SSO members as third-party beneficiaries between a SEP holder and an SSO, the question, however, is whether non-members who are using the standards can be seen as a third-party beneficiary?[120]

Although SEP holders have agreed to grant license under FRAND terms, they successfully use the threat of injunctive relief to hindrance competition and collect higher revenue e.g. royalties.[121] Although the Horizontal Guidelines 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 after the industry has been locked-in to the standard or by charging discriminatory royalty fees."*[122]

Henceforth, the practical purposes of FRAND may be described as *"1)to prevent refusal to supply 2) to prevent patent hold-up and 3) to prevent discriminatory royalty".*[123] Yet,

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[118] *Chiao et al.,* 2005, p. 18.

[119] *Xiaowen,* 2015, p. 7.

[120] *Lewis,* 2014, pp. 2–4. See further US cases regarding third-party beneficiary; *Microsoft Corp. v. Motorola, Inc.,* 854 F. Supp. 2d 993, 999 (W.D. Wash. 2012) and *Apple, Inc. v. Motorola Mobility, Inc.,* 886 F. Supp. 2d 1061, 1085 (W.D. Wash 2012).

[121] *Seppänen*, 2017, p. 2.

[122] Horizontal Guidelines, 2011, paragraph 287.

[123] *Xiaowen,* 2015, p. 7.

the enforceability of FRAND and the meaning of 'fair' and reasonable' has been disputed – SEP holders claim that they actually charge whatever the market can deliver regardless of FRAND requirements. The terms used are all in connection to competition law regulations, specifically abuse of dominant position. Consequently, courts ought to apply competition laws in order to enforce FRAND commitments.[124]

Generally, SSOs do not determine anything that has to do with the scope of the term FRAND, including without limitation, the meaning of FRAND royalties and further, SSOs' licensing principles cannot be identical or applied analogy due to different jurisdictions – FRAND commitments are in conjunction with contractual obligations which means governing laws regarding licensing will not be uniform. Basically, it means that FRAND obligations and commitments are not standardized. The often-used vague language within license agreements leaves interpretation-room over licensing terms, which should be consistent. Yet, the aim of FRAND requirements is, as stated above, to assure that SEP holders do not: i) use the SEP to extort fees from SEP users or demanding cross-licensing – licensing terms must be Fair; ii) refuse to license on Reasonable licensing fees; and iii) shut out competitors from the market by refusing to license to them – the license must be Non-Discriminatory.[125]

The question whether FRAND requirements are binding have been discussed in US cases *Meatswitch, Mircrosoft and Innovatio*.[126] The evaluation whether SSO commitments are legally bound has been viewed from different perspectives; in *Meatwsitch* the court claimed that the assumption of a binding obligation may be seen reasonable, to the extent the damages are evaluated in regard to the essence of a FRAND commitment. In

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[124] *Chappatte,* 2009, pp. 319–320.See further *e.g.* case European Commission Decision No. IP/14/489, 29 April 2014

[125] *Lewis,* 2014, p. 4. and *Bharadwaj et al.,* 2018, pp. 24–25.

[126] *Metaswitch Networks Ltd. v. Genband* US LLC, No. C-14-744, ECF No. 299 (E.D. Tex., 2016), *Microsoft Corporation v. Motorola, Inc*., 795 F.3d 1024 (9th Cir., 2015) and *In re Innovatio IP Ventures, LLC Patent Litigation*, No. C-11-9308, ECF No. 975 (N.D. Ill., 2013).

Microsoft, on the other hand, the district court's decision[127], was appealed since the claim regarded a breach of contract where Microsoft alleged that Motorola had breach its obligations to license its SEPs under FRAND terms, due to Motorola's commitments to an SSO. In *Innovatio* the question at issue, was whether FRAND commitments are inherited by an acquiring party when an entity acquires a SEP that is committed to an SSO, the court affirmed that the SEP is subject to FRAND commitment.

Although the mentioned cases are viewed from different perspectives, they all have one factor in common regarding the legality of FRAND commitments – the commitment one does to an SSO is seen as a legally binding contract. The commitment one does to an SSO can be seen as a 'declaration' or 'letter of assurance'. *Jakobs*, on the other hand, claim that a possible FRAND obligation should simply be seen as a result of an independent contract between the parties i.e. the SEP holder and the SSO. According to *Jakobs*, the FRAND commitment is undoubtedly voluntary in the following two ways: i) a SEP holder does not have to become a member in an SSO, which indicates that a SEP holder has all the right to decline a membership and thus has no obligations thereunder; ii) members of an SSO are requested and not required to license under FRAND terms and may evaluate whether he or she wishes to act accordingly on a patent-by-patent basis. Yet, ETSI *requires* its members to provide, in writing, a declaration of a commitment to license under FRAND terms.[128]

The requirement to license the SEP on 'Reasonable' royalty is not tied to a fixed price, henceforth, it is rather difficult to know whether the license fulfills the 'Reasonable-requirement. Since the term is as vague as it is, SEP holders still charge excessive royalties due to lack of definition of the expression. SSOs do not take part in the license negotiations processes, which further leads to the obliviousness of knowing the license terms i.e. the royalty fees. Further, since there is a lack of transparency within the SSO

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[127] *Supra note* 120: the case concerned RAND licensing (note the lack of Fair) and anti-suit injunction. *Microsoft*, who was a third-party beneficiary, filed a suit against *Motorola* claiming *Motorola* had abused its RAND license agreement. The court held that a RAND commitment is a binding contract against all parties.

[128] *Jakobs*, 2013, pp. 54–55.

and FRAND licensing, it may be challenging for a licensee to calculate the royalty fee for the sake of evaluating whether the royalty is reasonable or not, especially when Non-disclosure agreements (NDA) are usually attached to a license agreement.[129]

Article 102 TFEU, which enhances abuse of dominant position, prohibits: *"directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions"*[130], which translates into explaining during which circumstances a SEP holder might abuse its dominant position by e.g. imposing unfair conditions to the licensee. In case *United brands v. Commission,* the ECJ held, that by charging a price that lacks reasonable affiliation to the actual determined economic value of said device, is seen as an abuse since the undertaking by someone in a dominant position, directly or indirectly, sells the products over market value[131], which further translates into to the above printed Article. Further, in case *Scandliens Sverige AB v. Port of Helsingborg*[132] the Commission held that one has to consider two questions to define the reasonableness of a price: first, is there an extensive contrast between the cost and price and second, are competing products within the same price range.[133] Unsuccessfully, neither European courts nor the Commission has suggested an equivalent boundary of when the profits becomes excessive.[134]

Quite a few scholars have discussed what a patent holder needs to do/not to do to in order to fulfill the 'fair and reasonable' commitment*:*

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[129] *Pitkämäki,* 2016, pp. 22–24. See further *ETSI Directives,* 2019, p. 68 where ETSI specifically prohibit members on talking about licensing terms within ETSI.

[130] Aticle 102 TFEU (2012/C 326/01).

[131] United Brands Company and United Brands Continental BV v Commission of the European Communities (case 27/76), judgment 14 February 1978.

[132] Scandliens Sverige AB v. Port of Helsingborg (COMP/A 36.568/D3), Decision 23 July 2004.

[133] *Ibid.,* paragraph 252.

[134] *Zhang,* 2012, p. 223.

i) "not charge more than the cumulative value of the product over the next best technical alternative";[135] *ii) "not negotiate for a royalty-free-cross-license";*[136] *iii) "base the royalty rate on a mathematical proportion of all SEPs to the practice of standard";*[137] *iv) "not request royalty rates after the standard has been adopted";*[138] *and v) "not seek injunctive relief against a standard implementer if they fail to agree on the license terms".*[139]

The debate whether FRAND commitment is binding, and the meaning of excessive on a royalty scale, and the right to enforce injunction against a SEP implementer is still ambiguous and lacks a coherent answer – the solution to the debates is to jointly agree on the contractual commitment FRAND illustrates. If FRAND commitment can be seen as a legally binding contract, then contract law principles are applied, which further means that methods of contract interpretation shall be used to deal with mentioned issues. According to *Jakobs*, if a FRAND commitment is seen as a contract and therefore taken seriously, then we could develop cumulative royalty cap, formulas calculating royalties, limitations on remedies against infringements, all with a basis due to contractual interpretation.[140]

2.2.3. Non-practicing entities & Patent trolls

Briefly explained, non-practicing entities (NPEs) also known as patent trolls, are by definition, according to *Chien et al.,* companies that do not produce any goods themselves, rather their business model is to claim patents by traditionally using the threat of injunctive relief to reach a settlement with the infringer on royalties.[141] Their business model and revenue is established by licensing and further, infringement actions. Thus,

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[135] Lemley et al., 2007; Tample Lang, 2007.

[136] *Dolmans,* 2007.

[137] Chappatte, 2009; Temple Lang, 2007.

[138] Shapiro et al., 1999; Swanson et al., 2005; Chappatte, 2009.

[139] Temple Lang, 2007; Farrell et al., 2007.

[140] *Jakobs,* 2013.

[141] *Chien et al.,* 2012, p. 2.

they are in the need for SSOs to adopt their technologies in order to become owners of a SEP, where after they bypass the FRAND obligations.[142] Since NPEs are not producing any goods themselves their business model is to hide their patents and claim royalties / infringements after a standard is adopted.[143]

The expression 'patent troll' describes well the companies' intentions; instead of actively making use or developing of their inventions, they let them sit unused until they find someone who may use their technology and thereupon, demand royalties for the use. If the users refuse to pay royalties, they usually go to court.[144] Yet, for example Nokia has been called a patent troll even though they are certainly not; Nokia has contributed with millions of dollars in R&D in order to create the software we use today and additionally, prior to that, they produced and sold their own cellphones. The patent troll accusation is based on Nokia's business model today, which is licensing. Yet, they license the same technology they created during the time they produced cellphones and, therefore, they cannot be accused to be a patent troll even though they simply license patents nowadays.[145]

Larson defines NPEs as: "*individuals or entities that initiate business models entirely around purchasing, acquiring, or filing for their own patent rights, and enforcing those patent rights to generate revenues*." Further, *Larson* claims that it has been difficult to agree on the definition of the expression by academics – the NPE was created as a courtesy way to address 'patent trolls.[146] In *Highland Plastics, Inc. v. Sorensen*

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[142] *Kallio,* 2013, p. 28.

[143] *Hoevnkamp,* 2012, pp. 17–18.

[144] *Matsuura*, 2008, pp. 101–102. See case *VirnetX Inc. v. Apple inc.* No. 6:10-cv-00417-RWS, judgement 15 January 2019.

[145] *See e.g.* Apple and Nokia settles patent dispute at www.telegraph.co.uk and Apple hurls the 'patent troll' insult at Nokia at www.nytimes.com.

[146] *Larson*, 2017, p. 23.

Research[147] the defendant demanded that the plaintiff removes the word 'troll' from the complaint, since the expression did not have any conjunction with the alleged claims and is not degrading. However, the judge denied the defendant's request since the expression is commonly used and understood in patent litigation.[148]

2.3. Competition laws regarding licensing

If SSOs and SEP holders cannot agree on what FRAND terms actually mean, within a license agreement (note the prohibition of talking about licensing terms within an SSO), does the SEP holder have the right to seek injunction to stop an infringement, due to exclusive rights provided under IP law, even though it is not evident what lies within the license agreement? As *Pitkämäki* argues, the focus is laid on Article 102 TFEU – to what extent does Article 102 restrict IP abuse and can ownership of a SEP result in a dominant position in the market?[149] In a recent case, the Commission fined Qualcomm €242 millions for exercising in predatory pricing.[150] The case begun already in 2005 when Nokia, Ericsson and Panasonic alleged that Qualcomm had abused its dominant market position and further, not licensed under FRAND terms under ETSI policy.[151] Yet, the commission has not agreed to delve deeper into deciding on what constitutes FRAND and what is seen excessive in the context of FRAND commitments.[152]

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147 Highland Plastics, Inc. v. Sorensen Research & Dev. Trust, CV 11-02246 SJO, judgement 17 August 2011.

148 See *Larson*, 2017, p. 24, footnote 117; Lee, Edward, 2015; *Patent Trolls: Moral Panics, Motions in Limine, and Patent Reform*, discussing cases where judges have banned the use of the term "patent troll" in litigation.

149 *Pitkämäki,* 2016, p. 25.

150 *Qualcomm v. Commission* Press release at 18 July 2019 at https://europa.eu/rapid/press-release_IP-19-4350_en.htm. See further Commission's decisions on *Motorola & Samsung,* 2014.

151 *Lundqvist,* 2014, p. 310.

152 *Beldiman,* 2015, p. 27.

An abuse of dominant position, as managed in Article 102 and mentioned above, needs to be assessed in casu whether the Article applies or not on the case. One has to start by defining the relevant market, since an abuse of dominant position can only exist in one relevant market i.e. proposing unfair royalty rates for a licensee in another business / market is not seen as an abuse of Article 102. The market is based on both geographical and product indicators: i) a geographical market means that the abuse has to take place in an area where homogenous legislation applies i.e. EU; and ii) a product market means that an abuse may take place if the products can be substitutes for each other.[153] Abuse of dominant position will distinctively be discussed here on after, focusing on explicit markets where an abuse is considered colossal and may have substantial effects.

When a SEP is adopted into a widely harmonized standard, the SEP receives a significant market power; the SEP engages all the standard users automatically when the standard is set.[154] As stated above, contract law principles applies on SEP licensing under FRAND terms, if a SEP holder agrees to the obligation, since FRAND obligation is voluntary. Even though the obligation is voluntary (exception ETSI), competition rules applies on SEP licensing due to its important and considerable part within an industry. In other words, due to the fact that a SEP holder ship may result in a dominant market position, the SEP holder ought to follow FRAND licensing, even though he or she did not agree on it during the standard setting process. *Atik* explains the interpretation well:

> "*Operation of the Intellectual Property ("IP")-related "essential facilities doctrine" under Article 102 TFEU may justify the imposition of remedies that resemble FRAND regardless of the presence or absence of a FRAND declaration by the intellectual property rights holder.*"[155]

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[153] European Commission, *Antitrust procedure in abuse of dominance (Article 102 TFEU case*s).

[154] *Atik,* 2019, p. 951.

[155] *Ibid.* pp. 952–953. See further *Chappatte,* 2009, p. 333.

2.3.1. EU regulations on competition law

Competition law principals on a European level are featured in Article 102 of the TFEU – the article establishes what constitutes an abuse of dominant market position between member states. The scope of the term 'abuse of dominant position' is imperative in SEP licensing, as will further be developed below. Article 102 states as follows:

> *"(a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions; (b) limiting production, markets or technical development to the prejudice of consumers; (c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage; (d) making 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."*[156]

Part a) and c) of Article 102 is written in the sense that the former regards 'fair and reasonable' and the latter 'non-discriminatory' in the scope of FRAND. As *Xiaowen* points out, if FRAND is a mirror-image of Article 102, then the FRAND commitment per se is in vain, but if FRAND contains stricter requirements than Article 102, then the FRAND commitment should be simply enough. Yet it is unknown, as previously mentioned, how FRAND should be interpreted and what the obligations mean per se. It should not be understood, that complying with FRAND, means complying with competition law and vice versa – each case have to be decided in casu whether a SEP holder abuses its dominant position under Article 102, or if the claimed violations is not seen as a breach of a FRAND commitment.[157] Due to this ambiguousness, it is necessary to examine each subject matter separately and define to what extent they complement each other and how it is dealt with de facto in practice.

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[156] Article 102 Treaty of the Functioning of the European Union (2012/C 326/01). Formerly Article 82 of the EC treaty.

[157] Xiaowen, 2015, pp. .35–37. See also *Anderman et al.,* 2006, p. 253 definition of FRAND commitment.

Market power is a useful tool when determining whether competition law principles and/or FRAND commitments has been breached, and further identify competition law sources. According to the ECJ, by simply owning a SEP, holders do not put themselves in the position where they would be considered as abusive.[158] Accordingly, the ECJ held in cases *United brands* and *Hoffman-La Roche* that a dominant market position is derived from different factors which means, that by simply owning a SEP, which is part of a highly fundamental standard, does not implicate that the SEP holder automatically abuses a dominant market position.[159] Even though Article 102 and a FRAND commitment operate as independent sources, competition law principles are imposed when a party refuses to license its SEP on fairly and reasonably terms e.g. a SEP holder charges excessive royalties from the SEP user. Yet, there is no definition of what 'excessive' actually mean, thus, we cannot evaluate whether the royalty imposes abuse of the FRAND commitment and/or Article 102. Therefore, it is imperative and inevitable to examine case law in order to define the scope of Article 102 and its conjunction to FRAND commitment.

In a joint copyright case from the ECJ, the court held that in some scenarios an IPR owner is obliged to license the IPR (compulsory license). The court upheld a decision from the Commission where a group of Irish broadcasters were obliged to license on non-discriminatory basis. The Irish broadcaster groups had refused to license essential IP-protected material to the development of a new product; hence, the refusal was an abuse of their dominant position and therefore a violation of Article 102.[160] *Atik* comments the case as follows:

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158 *Zhang,* 2012, p. 181. See further *Brisimi,* 2016.

159 Case C-27/76 United Brands v. Commission, 1978 and Case 85/76 Hoffman- La Roche v. Commission, 1979.

160 Joined Cases C-241/91P & C-242/91P *Radio Telefis Eireann v. Commission*, judgement 6 April 1995.

> "*The refusal to license a copyright in these circumstances constitutes the violation of TFEU 102—an actionable abuse of a dominant position. A FRAND-like licensing obligation is the remedy for this violation*"[161].

As previously discussed, the FRAND obligation is a so called 'voluntary commitment', yet the ECJ sets guidelines which refers to the fact that an IPR owner (as well as a SEP holder) have to license their essential IPR on a non-discriminatory basis. In a similar case *Microsoft Corp. v. Commission*, the court held that Article 102 was violated by Microsoft due to the fact that Microsoft refused to license interoperability information to its competitors in the Windows work group server market. An IPR-license have to be made available in situations where competition laws are concerned and where technical development is prevented due to the refusal to license. Further, a similar FRAND-like commitment was demanded on Microsoft as a remedy for its violation of Article 102.[162]

IPR laws do not give a *carte blanche* to violate competition law principles, in other words, by owning an IPR one does not receive immunity from being accused of a violation of competition laws. There are tensions between the European competition law and patent law due to diverse interpretations[163] – as discussed earlier, the EU lacks a conjointly working legislation. Further, it complicates the competition law's principles role – the EU needs a unitary relationship between competition principles and patent rules. Patent rules have been based on national laws and interpretations, while competition principles are embedded in EU treaties. If EU reaches some kind of unitary patent system, the dilemma between the two will automatically be fixed if the patent system is compatible with our existing competition principles.[164] Moreover, until we reach amended patent legislation on an European level that co-exist and is compatible with our competition law principles, we have to rely on case law from both national courts and the ECJ. Yet the

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[161] *Atik,* 2019, p. 957.

[162] Case T-201/04 *Microsoft Corporation v. Commission,* judgment 17 September 2007 (grand chamber). And *Ibid.,* p. 958. See further case T-139/98 *Amminiastrazione Autonoma dei monopoli di Stato (AAMS) v. Commission,* judgement 22 November 2001.

[163] *Waldeck und Prymont,* 2009, pp. 157–161.

[164] *Pila,* 2015, p. 130.

ongoing plan for the unitary patent system may not be a solution per se, we still might need an alternative legislative change, perhaps within TFEU in defining abuse of dominant position from a patent perspective?

As explained, before one can assess whether a company abuses its dominant market position one has to define the relevant market.[165] The determination of what is part of the same market and further, does it constitute a dominant position raises a lot of concerns regarding theoretical and practical difficulties, which the European Commission have to take into consideration in casu and with fresh eyes. As already established and as *Väisänen* points out, an interesting future question is indeed whether the EU will adapt their interpretations of Article 102 in order to apply it to FRAND commitment.[166] Unless the EU finds a way to adopt Article 102, Member States have to, by themselves, find a common ground for what 'excessive' mean in the light of the ECJ judgments.

2.3.2. Seeking Injunctions

An injunction functions as a remedy, ordered by a court, to prohibit the continuation of the IPR infringements. An IPR holder has the right to seek injunctive relief under the IP Enforcement Directive. [167] According to *Xiaowen* an injunction sought by a SEP holder is quite controversial; licensing a SEP means that anyone using the standard, in which the SEP is implemented, has the same right to primarily, enter into licensing negotiations, and secondary, into a licensing agreement under FRAND terms, therefore, the threat of seeking injunctions may raise antitrust concerns.[168] Scholars have proposed a so called 'waiver theory' which refers to the fact that a SEP holder who has licensed under FRAND terms waivers its right to seek injunctions. If the theory were true, then anyone could

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[165] See for example case C-53/92 P *Hilti AG v. Commission*, judgment 2 March 1994.

[166] *Väisänen,* 2011, pp. 33 –46

[167] Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the enforcement of intellectual property rights.

[168] *Xiaowen,* 2015, p. 47.

basically use the SEP without paying a single royalty. Anyhow, the theory lacks legal basis in both law and regulations and in case law.[169]

An interesting case regarding seeking injunction is the *Orange Book Standard* case in which Sony and Philips had developed CD-Rs and CD-RWs. The elements within the patents were never accepted during a standard setting process. However, the products had already become a *de facto*[170] standard without containing any SEPs. Moreover, since there were no SEPs involved, there had not been any negotiations regarding FRAND terms. However, the court held that the defendant could be granted a so-called FRAND defense in order to avoid injunction, if the defendant: 1) makes an unconditional license offer with terms the IP owner could not refuse; and 2) propose a license agreement with adequate counting of payment if the defendant was already using the IP. The defendant did not fulfill the set requirements which lead to the plaintiff was granted the right to seek injunction.[171]

The case lead to other German courts applying the same standards requiring the defendant to waive their own defense concerning non-infringement, resulting in the FRAND defense being quite unappealing, not only in *de facto* cases, but also in *de jure*.[172] In the Netherlands, variously, the District Court in The Hague rejected the FRAND defense on the following grounds: i) the fact that the defendant is intitled to compulsory license would mean that the owner of the IPR cannot enforce its rights; ii) by allowing the defendant's reasoning it would mean that users can enforce patens prior to obtaining a license; and iii) the defendant should have requested a license prior to the use of the patent

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[169] Geradin, Damien *et al.,* 2007, p. 117.

[170] As explained on page 6, a *de facto* standard is a standard adopted by the public without having been adopted by an SSO. Compare *de jure* standard which is established by stakeholders and SSOs. See *Torti*, 2015, pp. 50–52.

[171] Case KZR 39/06 *Orane Book Standard*, German federal Court of Justice, judgment 6 May 2009.

[172] *Pitkämäki,* 2016, p. 55.

and if the IPR owner had refused the license, then the defendant would have had the right to proceed for obtaining a compulsory license.[173]

2.4. Conclusion

As discussed, and discovered during this lengthy chapter, it is imperative to understand the basics and backgrounds to various elements that create and combine both SEPs and the issues that relies within. During this chapter the basics of software protection and licensing has been discussed which contributed with the examination of SEPs and further FRAND terms, not to mention the issues that follows of Article 102 TFEU. All of the mentioned elements are part of a greater complex which constitutes the basis of whole technological communities and organizations that establish rules that we ought to obey in order to participate in the aforementioned.

The interpretation of FRAND has been extensively addressed – while we are concerning us on how to interpret the expression, it is easy to forget about the fact that the term in itself may vary from country to country. As previously mentioned, FRAND, as an expression, is widely used within Europe, but in the US, for example, the expression is addressed as RAND, leaving out the 'fair' part. What does it mean in practice that 'fair' is left out? Since the FRAND expression does not have an official definition, one cannot answer the question whether which of the expression is 'the right one'. One can only imagine the issues, both in arbitration and litigation way, the word 'fair' may cause. Accordingly, not only Europe, but the world needs a unitary SEP licensing system which allows holders to grant licenses on the same basis throughout the world. Yet, the future is quite uncertain in reaching such goal, due to the fact that the expression is already now harmonized differently due to varying interpretations.

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[173] Joined cases 316533/HA ZA 08-2522 and 316535/HA ZA 08-2524 *Koninklijke Philips Electronics N.V. v. SK Kassetten GmbH & Co. KG,* District Court of The Hague, The Netherlands, judgement 17 March 2010.

As discussed, a SEP holder is obliged to license under FRAND terms, or at least, in accordance with Article 102 TFEU to avoid abuse, but is there an obligation to license to every component manufacturer of a product or simply to the end-user? For clarification, when e.g. Apple manufacture an iPhone, they use several components from different producers and licenses SEPs from other innovators, thus, the question arises whether the SEP holders is obliged to solely license the SEP under FRAND terms to Apple (the end-user), or to every single producer who has manufactured components which are part of the end-product, the iPhone. From the SEP holder's perspective, it would be more profitable to only license the SEP under FRAND terms to the end-user whilst the component manufacturers consider that the SEP holder have to license to everyone who asks, as is the original meaning of FRAND.

To conclude this chapter and the issues the EU faces, it is only essential to include them: i) the discussion whether FRAND obligation is compulsory and further, what laws and principles governs it; ii) the definition of FRAND and what can be seen as excessive royalties and non-discriminatory; and iii) the lack of a unitary patent system that conjointly works with EU legislation i.e. Article 102 TFEU. The sole measure to avoid future confusion and contrasting interpretations is for the EU to solve these issues by e.g. adopting and putting into force a unitary patent systen made under the TFEU and from there develop a comprehensive definition of FRAND, which further will support the solving of the correlating issues. The issues will be discussed further on in the thesis, along with the upcoming policy recommendations that will be extensively discussed in chapter four 'Analysis and discussion', after the case analyzation of *Huawei Technologies v. ZTE* which is, as mentioned, a contributing factor to the interpretations circling around Europe.

3. Procedural framework for SEP negotiations

3.1. Introduction

In 2015, the ECJ gave a preliminary ruling, requested by the Landgericht Düsseldorf (the German Federal Court of Justice) under Article 267 TFEU, regarding the interpretation of Article 102 TFEU apropos abuse of dominant position in license negotiation of a SEP[174]. The ruling provided fundamental guidance for SEP licensing, that are subject to FRAND commitment.[175] Furthermore, the ruling enumerates certain steps that ought to be followed during SEP licensing negotiations. The case is being analyzed due to the importance it brought to national courts, or would it be more appropriate to say, the confusion it created. By cause of, the thesis will analyze the case further by tearing down the background of the case, the proceedings, the judgement and follow-up cases in pursuance of understanding the cause for the interpretations, and additionally, reaching the core objective of the thesis by providing possible policy recommendations for emerging issues.

The case was brought before the ECJ by Huawei against ZTE, both being Chinese technology companies. The case was brought before the court in Germany, due to the fact that ZTE was marketing products, which assimilated software in conjunction to the LTE standard.[176] Huawei and ZTE had, in fact, entered into licensing negotiations in pursuance of reaching an agreement, under FRAND terms, for the use of Huawei's patent, but they never reached a compromise regarding royalties. Due to the inability of reaching an agreement, Huawei brought an action before the Landgericht Düsseldorf for the infringement of its SEP, since ZTE had used/continued to use the SEP without a license agreement. Huawei pursued in the claim: i) an injunction in pursuance of prohibiting the

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[174] The SEP in question is patent application EP 2 090 050 B1 "*method and apparatus of establishing a synchronization signal in a communication system"*, date of filing 29.04.2008.

[175] C-170/13

[176] The patent was filed to ETSI in 2009 under which Huawei gave commitment to granting licenses under FRAND terms. See Opinion of the Advocate General M. Wathelet, delivered on November 20, 2014 in case C-170/13, paragraph 5.

continuation of the infringement; ii) an order for the rendering of accounts; iii) he recall of products; and iv) an award of damages.[177] ZTE's defense, before the court, was that Huawei abuses its dominant position by seeking injunction whilst ZTE is willing to negotiate a license of the use of Huawei's SEP.

The Advocate General Wathelet gave his opinion on the case on 20th November 2014, prior to ECJ's ruling, concluding that a SEP holder have to give a notice to the infringer of the infringement, and providing a license offer complying with FRAND terms. Where after, the infringer must respond promptly to the offer in a diligent manner, either by accepting the offer or by presenting a counteroffer.[178] According to the Advocate General, a legal action or claim does not per se constitute a dominant position:

> *"The fact that the SEP-holder takes legal action to secure the rendering of accounts does not constitute an abuse of a dominant position. It is for the national court in question to ensure that the measure is reasonable and proportionate. The fact that the SEP-holder brings a claim for damages for past acts of use for the sole purpose of obtaining compensation for previous infringements of its patent does not constitute an abuse of a dominant position."*[179]

The ECJ follows the Advocate General's opinion but in a more extensive way; the ECJ start by distinguishing between i) seeking a prohibitory injunction or recalling of products and ii) rendering of accounts and award of damages. The latter will not have an effect on competitive products still being manufacturer and appearing on the market.[180] The ECJ held that the former, on the other hand, will not constitute an abuse of Article 102 TFEU,

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[177] C-170/13, paragraphs 27.

[178] Opinion of the Advocate General M. Wathelet, C-170/13, paragraph 103.

[179] *Ibid.* paragraph 103. It is also fair to acknowledge that the ECJ never investigated Huawei's dominant position per se since it was not disputed at any point. See paragraphs 53-58.

[180] C-170/13, paragraphs 72-75.

in case the SEP holder has given a FRAND commitment to an SSO, provided, however, that before the SEP holder brings the action, the SEP holder has (see below)[181]:

1) Alerted the infringer of the alleged infringement by letting the infringer know in which way it has been infringed;
2) Provided a license agreement under FRAND terms, after the infringer has expressed its willingness to license; and
3) The infringer continues to infringe the patent and has not promptly given a response to the license offer in accordance with good faith.

Furthermore, the ECJ held that the possible infringer, who has not accepted the SEP holder's offer, may only invoke the prohibitory injunction / recall of products if the infringer has submitted diligently, promptly and in writing, a specific enough counteroffer under FRAND.[182] Although the ECJ's ruling answers the questions inquired, the ruling leaves room for further discussion and analysis on the subject.

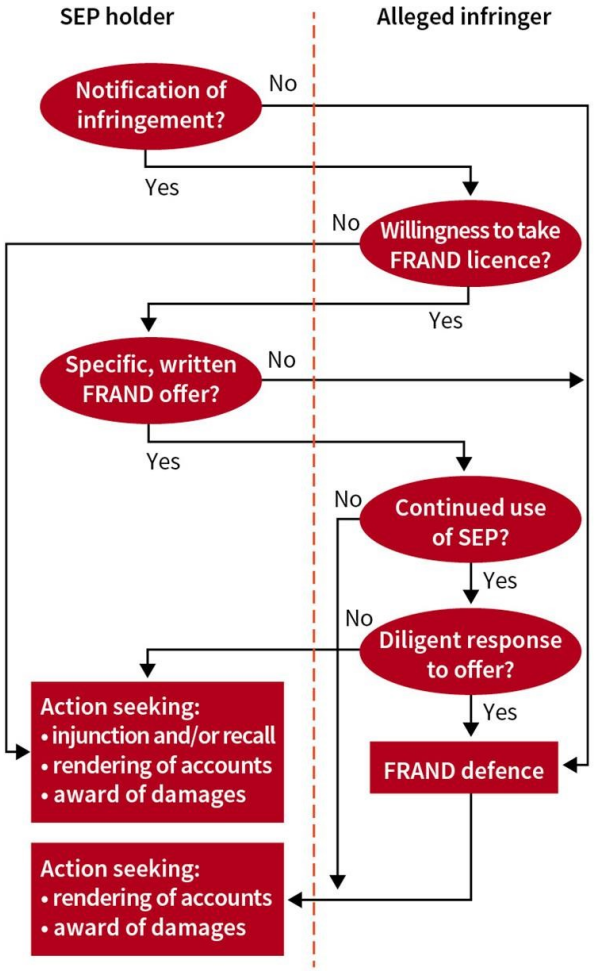

Figure 4.[183]
Procedural framework for actions against SEP infringement

[181] *Ibid.* paragraph 83–86.

[182] Kuhnen K. Rainer; Huawei v ZTE – ECJ sets framework for injunctive relief regarding SEPs found at www.iam-media.com, 11 April 2016.

[183] *Ibid.,* 2016, Kuhnen K. Rainer. The figure shows the actions a SEP holder and a willing licensee/alleged infringer have to take in order to seek an injunction/ receive a FRAND defense.

3.2. Legal issues arising out of the procedural framework

The ruling has set a procedural framework for possible actions against infringers of SEPs, especially to SEP holders seeking injunctive relief as explained in figure 4. The framework somewhat supports infringers from SEP holders' threats with injunction, provided that the users of the standard are willing to take a license, and vice versa, an infringer has to diligently agree to a FRAND license promptly and in written, before accusing a SEP holder of abuse of Article 102 TFEU, and further, its dominant position. The ruling is a fairly good compromise between the *Orange Book Standard*[184] regarding a *de facto* standard decision and Commissions *Motorola and Samsung*[185] decision regarding a *de jure* standard. Furthermore, the case raised several issues at the coalition between patent law and competition law – when is it legitimate for competition law regulations to trespass on exclusive IPR rights?[186]

Moreover, the ECJ considered that a SEP holder must, at its best ability, prior to seeking an injunction, ensure that an equal harmony is achieved between the parties, in order to not abuse its dominant position under Article 102 TFEU.[187] Yet, the ruling lacked the answer to what might happen when the parties' offers are not FRAND compliant – is it still an possibility to seek an injunction due to the fact that the infringer did not make a FRAND compliant counteroffer or is it simply an abuse since the SEP holder's offer was not acceptable from the very beginning.[188] As expressed earlier, the infringer would naturally invoke the so-called FRAND defense.[189]

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[184] Case KZR 39/06, judgment 6 May 2009.

[185] *See Commissions decision 2014;* The Commission held that is was an abuse of dominant position to enforce an injunction while there is a willing licensee who agreed to the terms.

[186] *Jones*, 2014, p. 2.

[187] C-170/13, paragraphs 48-55.

[188] *Pitkämäki,* 2016, p. 70.

[189] See on page 38 'FRAND-defense'.

The ECJ simply disclosed that if the parties cannot reach an agreeable outcome on royalties, an independent third party should determine the royalty if both parties agree to it, otherwise the only way to proceed is by enforcing the injunction.[190] Sadly, the ECJ left the Landgericht Düsseldorf to determine the questions whether Huawei actually abused its dominant position under Article 102 TFEU by seeking injunction relief, despite its FRAND promise.[191] By not giving a clear guideline on the matter, and since there are no cases that could be in correlation to be applied to the case, the ECJ's ruling lead to national courts interpreting the case differently.

Although, the ruling of the court is vague, the ECJ demonstrated guidelines, a set of rules, regulating parties' negotiation process the parties ought to follow, in order to not breach Article 102 TFEU, and hence, the case was distinguished from previous cases.[192] The ECJ basically classified the FRAND commitment as a circumstance that could limit the SEP holder's right to injunctive relief.[193] According to *Tsilikas*, the strict requirements in the affirmation of SEPs, will raise the bar for court's to grant injunctions against users that are willing to license, and further, it provides guidelines for licensor and licensee for future licensing negotiations.[194]

Furthermore, the ruling provides a preference for FRAND determination regarding licensing negotiations between licensor and licensee; the ECJ reveals incentives to all involved in the FRAND licensing negotiations to achieve an agreeable outcome through prompt good-faith bargaining.[195] The court uses competition liability and enforcement of injunctions as levers, in order to uphold opportunism by both parties.[196] The court simply

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[190] C-170/13, paragraphs 66-69.

[191] *Ibid.,* paragraph 70.

[192] *Ibid.,* paragraph 48.

[193] *Ibid.,* paragraph 51–53.

[194] *Tsilikas,* 2017, pp. 47–48.

[195] *Lundqvist*, 2015, p. 391.

[196] *Petit,* 2015, p. 6.

seeks to strengthen licensing negotiations by imposing competition law liability on SEP holders – the requirement for a SEP holder to i) inform the infringer of the infringement and of what patent is being infringed, ii) submit a formal written offer and iii) propose a royalty rate based under FRAND, provides strong incentives for SEP holders to e.g. develop licensing programs harmonizing FRAND.[197]

As *Tsilikas* continues to argue, an important question national courts have to decide by interpreting the case, is whether the ruling is to be followed step-by-step or by a cumulative approach. A step-by-step basis means that if the patent holder fails to e.g. submit a FRAND offer, injunctive relief will automatically be seen as an abuse despite the behavior of the licensee. A cumulative approach, on the other hand, suggests that in case the patent holder fails to comply with the requirements, the licensee still have to meet its requirements in order for the licensor to abuse Article 102 TFEU.[198] A cumulative approach is only natural, since if courts are to apply the step-by-step approach, licensees will never agree on taking a license. However, courts should always decide in casu which approach is to be used, taken into account all aspects i.e. the offer, the counteroffer, promptness and *bona fide*.

SSOs should take the ruling into account – a framework of consistent rules have to be established[199], which would further contribute with successful licensing negotiations. SSOs should collaborate in creating a policy reform based on the ruling's negotiation framework, in order to reach a solution that would fit the market – SSOs ought to have more 'power' within defining FRAND by providing a set of consistent rules how to negotiate a license, not simply that the license have to be 'under FRAND terms', which would further contribute with better performance of collaborative standardization. Henceforth, the ruling could actually be seen as a chance for the European Commission

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[197] *Tsilikas,* 2017, p. 21.

[198] *Ibid.,* p. 22.

[199] Opinion of the Advocate General M. Wathelet, C-170/13, paragraph 11.

to reassess its policy regarding the enforcement and implementation of Article 102 in FRAND disputes.[200]

Furthermore, the Commission should additionally take into account Advocate General's opinion and criticism regarding *Motorola and Samsung* decision, that the Commission's decision resulted in under-protection of IP.[201] The Huawei ruling wished to foster bilateral negotiations, renouncing the Commission's 'broad safe harbor'[202] approach in which possible licensees would decline to negotiate in *bona fide* and not care about increased litigation costs nor uncertainty. Therefore, the ruling marks a culmination in the operation of EU competition law within SEP licensing. The Court based its ruling on the belief that private parties are more likely to establish FRAND during sealed licensing negotiations by themselves and that a court's ruling ought to be the ultimate last resort after the parties fail to agree on an acceptable and pleasant fallout.[203]

As discussed above, the case brought both some positive and negative approaches to patent licensing. The ruling created the aforementioned guidelines for SEP holders seeking injunctive relief, yet, as Advocate General Wathelet expressed, it is for the national courts to decide, whether the actions taken are reasonable and propriate.[204] From one point of view, the guided framework can be seen as a positive aspect of the ruling, however, the fact that the ECJ did not firmly assess consistent guidelines on: i) to what extent the guidelines should be followed; ii) what happens in the situations where the guidelines are not followed; iii) how should FRAND be interpreted; iv) what is seen as an 'excessive' royalty rate; and v) what constitutes an abuse of Article 102 TFEU.

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200 *Tsilikas,* 2017, p. 24.

201 Opinion of the Advocate General M. Wathelet, C-170/13, paragraph 50 – 51.

202 A safe harbor concept is a provision which reduces liability when particular conditions have been met. *See* www.investopedia.com.

203 *Tsilikas,* 2017, p. 25.

204 Opinion of the Advocate General M. Wathelet, C-170/13, paragraph 103.

Due to the fact that the ECJ did not conclude the meaning of FRAND, licensing parties cannot really know whether they are complying with the requirements or not i.e. the expression that the licensee have to "*diligently respond*"[205] in compliance with "*recognized commercial practices in the field*"[206], leaves quite a lot of space for interpretation. Furthermore, Commissioner *Vestager* and *Lundqvist* have both interpreted the ECJ's Huawei ruling on a following basis. According to their interpretation, the right to seek an injunction should be removed from a SEP holder, who has committed themselves to license under FRAND terms, in case there is a willing licensee.[207] According to *Petit*, *Vestager's* opinion is based on paragraph 53 of the ruling[208]:

> *"In those circumstances, and having regard to the fact that an undertaking to grant licences on FRAND terms 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 by the proprietor of the SEP to grant a licence on those terms may, in principle, constitute an abuse within the meaning of Article 102 TFEU."*[209]

It is understandable, and might even be true, that *Petit* believes Commissioner *Vestager* bases her opinion solely on paragraph 53, since the paragraph clearly states that a FRAND commitment constitutes 'legitimate expectations' for third parties. Yet, due to the vagueness of the expression, FRAND cannot be seen as groundwork for the formation of legitimate expectations.[210] As *Petit* points out, legitimate expectations can only be expected when the administration gives explicit assurances.[211] Further, in the case of

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[205] C-170/13, paragraphs 65.

[206] *Ibid.,* paragraph 67.

[207] Commissioner *Vestager's* speech, 11 September 2015 and *Lundqvist,* 2015, p. 391.

[208] *Petit,* 2015, pp. 4-5.

[209] C-170/13, paragraphs 53.

[210] *Seppänen*, 2017, p. 55.

[211] *Petit,* 2015, p. 38.

Branco v. Commission[212], the court regulated three conditions that have to be met for legitimate expectation to be fulfilled: "*1) precise, unconditional and consistent assurances must be given; 2) those assurances must be such as to give rise to actual legitimate expectations; and 3) the assurances given must comply with the applicable rules*"[213]. Can FRAND at all constitute such an assurance as mentioned above? – in the light of Huawei ruling yes. As discussed earlier, the FRAND commitment is not compulsory and does not put any obligations to actually license under FRAND terms, it is more of a suggestion or incentive to avoid abuse of dominant position.

As already mentioned above, the ruling leaves out the question of what the true meaning of a FRAND commitment is – is it solely used, *inter alia,* as a basis for the parties to calculate royalties *bona fide* or does the commitment also contribute with providing fair compensation. The court left out crucial answers to the questions requested by the referring court i.e. the court did not answer the question of 'what is seen as abuse' they rather answered, 'what is not seen as abuse'.[214] Due to the lack of establishing 'what is seen as abuse', the case has received a great amount of critique – a SEP holder has pretty much always the stronger position towards the licensee and, therefore, it is shocking that the court did not assess what constitutes an abuse of such dominance. Further, critics have criticized the ruling on the following basis; the ruling does not take into account SSO's rules regarding licensing negotiations, and specifically royalty negotiations[215], which further leads to patent pooling and cross-licensing.[216]

The dilemma between *de facto* and *de jure* standards[217], as seen in the *Orange Book* ruling, should not be applied on the Huawei ruling. It is inevitable, that in the Huawei

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[212] *Eugénio Branco, Ldª v. Commission (*T347/03), judgement given on 30 June 2005

[213] *Seppänen*, 2017, p. 55 and T347/03, paragraph 102.

[214] *Pitkämäki,* 2016, p. 78.

[215] *Farrell et al.*, 2007, p. 630.

[216] *Galli,* 2015, p. 194.

[217] Supra note 170.

ruling, the patents were indeed essential to a certain standard, and therefore, FRAND-encumbered, taken as a main rule. However, whilst in other cases where the standards are not administered by any SSO, the FRAND commitment is not imposed[218], with an exception in the *Microsoft* case, in which the commission held that it was abuse of dominant position, regardless of being a SEP or not, but simply due to the importance of the technology involved and the prevention of others from accomplishing technological development. Therefore, the Huawei ruling should not be applied analogy to cases which handles *de facto* standards. Ultimately, the Huawei ruling should be interpreted as an incomparable ruling, it assessed a procedural framework for licensing negotiations, which imposes duties on both parties[219], whilst previous cases regarding abuse of dominant position has not established as specific guidelines as the Huawei ruling, rather solely certain steps that ought to have been taken for the avoidance of abuse of dominant position.[220]

3.3. Interpretation of the procedural framework in Germany and the United Kingdom

The ruling has had important implications, not only for national courts around Europe, but also for SSOs and the European Commission's policies. The main concern has, however, been with the national court's interpretation of the ruling – they face difficulties of applying the guidelines in practice. Especially German courts face difficulties (the ruling was requested by the Landgericht Düsseldorf in the first place), since they are forced to change from legal standards, they have been using for several years, to the requirements set in the Huawei case. One important aspect to lift up already now, is the fact that all of the German rulings favored the SEP holder and refused to examine whether the procedural framework were met. In addition to German rulings, two UK rulings will

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[218] *Seppänen*, 2017, p. 61 see further *Larouche et al.,* 2017, p. 31.

[219] *Ibid.,* 2017, p. 20.

[220] See joined Cases C-241/91P & C-242/91P and *IMS Health v. NDC Health* (C-418/01), judgement on 29 April 2004.

be analyzed.[221] All the mentioned cases have faced some of the following issues which will be further discussed below: i) can an injunction take effect if the licensee is willing to take license; ii) does all the requirements of the Huawei ruling have to be met, and if one is not met, can a court dismisses the case; and iii) in what case does a royalty rate abuse FRAND.

In *Sisvel v. Haier*[222]*,* the parties failed to reach an agreeable licensing negotiation outcome, which led to Sisvel issuing an infringement action against Haier. The Higher Regional Court in Düsseldorf (appellate court) held in *Sisvel v. Haier* that in order to determine whether a license is FRAND-encumbered, each license term have to be closely examined by a court.[223] Beforehand, the Regional Court issued an injunctive relief since Haier had failed to comply with the procedural framework set up by the Huawei ruling. Moreover, the court held that the licensee was not 'willing' to enter into a license agreement and therefore, it was irrelevant to investigate whether the Huawei requirements were met or not.[224] The case was de facto appealed, where after the Higher Regional Court blamed the Regional Court for a misguided ruling, by not investigating whether the Huawei requirements were met, as previously stated. Accordingly, the case was appointed back to the District Court.

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[221] The cases that will be analyzed are *Saint Lawrence Communications v. Telekom Deutschland, Mannheim,* Case 2 O 103/14, judgement on 10 March 2015*; Sisvel v. Haier,* Cases 4a O 93/14 and 4a O 144/14, judgement on 3 November 2015*; Sisvel v. Haier,* Cases I-15 U 65/15 and I-15 U 66/15, judgement on 13 January 2016*; Saint Lawrence Communications v. Vodafone*, Case 4a O 73/14, judgement on 31 March 2016; *Unwired Planet v. Huawei* EWHC 958 (Pat), judgement on 29 April 2016 & EWHC 711 (Pat), judgement on 05 April 2017; Conversant v Huawei & ZTE, EWHC 1687 (Pat), judgement on 4 July 2019.

[222] Cases 4a O 93/14 and 4a O 144/1.

[223] Morrison Forester; FRAND case law in Europe after Huawei z. ZTE, found at www.mofo.com, 5 April 2019.

[224] Cases 4a O 93/14 and 4a O 144/1, paragraph 91.

In *Saint Lawrence v. Telekom*[225] the SEP holder, Saint Lawrence, brought an action against Telekom and HTC seeking, once again, an injunctive relief.[226] The accused infringement of products included HTC's supplied mobile phones which made HTC part of the court proceedings as they supported Telekom.[227] Telekom had rejected a license offer given by Saint Lawrence, whilst HTC did give a counteroffer limited to the area of Germany. Telekom referred to a FRAND defense and to HTC's offer, which the court rejected. The Mannheim Court held that the offer was not specific enough – it did not include specific royalty amounts. Further, two questions were left unanswered from the case: 1) Saint Lawrence did not notice the infringers of the infringement prior to filing an action; and 2) the counteroffer was made by HTC and not by the defendant itself.[228] The Mannheim Court was clearly not as strict as the Düsseldorf Regional Court in *Sisvel v. Haier*. However, it is imperative to note that in both of the cases the court rules in favor of the SEP holder and neither court reviewed whether the requirements set by the Huawei ruling were met.

Saint Lawrence has been dragged into another SEP dispute against Vodafone concerning an infringement against the exact same patent.[229] However, this time the Düsseldorf Regional Court carried out an actual analysis regarding the Huawei requirement[230] of expressing one's willingness to enter into a license agreement. The Regional Court held that in order for a FRAND defense to become compelling, operators must manage to entrust on a FRAND defense of the manufacturer or supplier.[231] Yet, the defendant, Vodafone, did not meet the requirements regarding submitting its willingness to conclude

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[225] Case 2 O 103/14.

[226] Against Saint Lawrence's European Patent EP 1 125 276.

[227] Mannheim Regional Court rejects FRAND defense in its first ruling on the issue following the ECJ ruling Huawei vs. ZTE found at http://eplaw.org.

[228] Ibid.

[229] Case 4a O 73/14.

[230] C-170/13, paragraphs 61.

[231] Case 4a O 73/14, paragraph 335-336.

a license. Furthermore, the court analyzed additionally, the SEP holder's obligation to submit a written FRAND offer concerning royalties. The Court assessed that a corresponding offer does not violate FRAND[232], which means that a royalty rate ought to correspond with similar available standard royalty rates. Further, the European Commission's publication commented the case concerning royalties:

> *"As FRAND is usually not an exact amount but rather a range, the claimant is not required to disclose a mathematical derivation. It is, therefore, in principle sufficient to disclose the basic considerations that led to the amount of the claimed royalty. Saint Lawrence Communication was held to have fulfilled this obligation by referring to a standard licensing royalty and its acceptance in the market."*[233]

In 2017, The High Court of London (patent court) gave a ruling at the original request of Unwired Planet, who brought an action against Huawei back in 2014.[234] Unwired Planet had a large patent portfolio which included SEPs regarding, *inter alia,* 2G, 3G and LTE. Unwired Planet sued the defendants Huawei, Samsung and Google for an infringement of five SEPs of the mentioned standards.[235] The High Court had to decide on granting an injunction by examining, if Unwired Planet had in fact i) abused article 102 TFEU, and therefore its dominant position; and ii) the requirements set in the Huawei case. Numerous of different trials begun i.e. technical trials determining the validity and infringement and non-technical trials addressing both FRAND and competition law issues.[236] Later on, both Samsung and Google settled the claims with Unwired Planet leading to Huawei becoming the sole defendant.[237] The Court held, that two patents were valid and further,

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[232] *Ibid.,* paragraph 274.

[233] Pentheroudakis, European Commission, 2017, p. 99.

[234] EWHC 958 (Pat), judgement on 29 April 2016 and EWHC 711 (Pat), judgement on 05 April 2017. The dispute is regarding the European Patent Application EP 1230818.

[235] Blackstone Chambers: *Unwired Planet v Huawei, Samsung & Google* found at https://www.blackstonechambers.com.

[236] EWHC 711 (Pat), judgement on 05 April 2017, paragraph 1–3.

[237] *Ibid.,* paragraph 10.

that they had indeed been infringed.[238] And finally, the Court held that Huawei ought to take a global license from Unwired Planet

The High Court provided clearly how the present case can, versus cannot, be deviated from the Huawei ruling, comprising of a list of eight elements. The list includes discussion of the procedural framework regarding negotiation as provided in Huawei, criticism against ECJ's lack of decision concerning the identification of what constitutes 'abuse'[239] along with the courts own reasoning of what constitutes de facto an 'abuse', and note, for the first time, how to calculate a FRAND royalty rate.[240] The court held that a FRAND royalty rate may be assessed by taking into account following factors: i) the royalty rate should be compared with a wide range of different licenses; ii) same license equals same royalty rate; iii) circumstances and time may affect the license rate; iv) the license rate cannot be in conjunction with a wider arrangement; v) the license must eliminate both hold-up and hold-out theories; vi) if a licensee seeks the exact same license as another licensee, the royalty rate may only be the exact same if the difference does not distort competition; vii) size and value of a patent portfolio may affect the rate; and finally viii) a license rate is always uncertain and therefore, it cannot be overly precise.[241]

Huawei appealed the ruling on three grounds: i) the court does not have jurisdiction to issue a global license; ii) a licensee may not demand a lower royalty rate than the benchmark the court already assessed; and iii) Unwired Planet abused its dominant position by not compelling with the procedural framework. However, it is worth mentioning that the appeal did not concern the royalty assessment as the High Court had

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[238] *Ibid.,* paragraph 2.

[239] Compare *Philips v. Wiko* (6U 183/16), judgement on October 30, 2019 in which the court acknowledged that dominance ought to be weight from all the viewpoints of the case. Further, according to *Alex Woolger* at ipkitten.blogspot.com a SEP holder has extensive power if he or she has fulfilled all of his or her obligations. Accordingly, if a SEP holder has not fulfilled its obligations, it will constitute an abuse.

[240] *Ibid.,* paragraph 744 i) –viii).

[241] FTI consulting, 2017; *Unwired Planet v. Huawei A Valuation Perspective.*

determined. The Court of Appeal dismissed all of the three grounds of appeal and held that Unwired Planet had not abused its dominant position.[242]

On 21st of October 2019, Huawei made an opening submission against Unwired Planet to five UK Supreme Court Justices claiming inconsistency within the English Courts, due to the previous ruling with Unwired Planet.[243] Huawei's appeal to the Supreme Court includes the following issues: i) English Court's lack of power to set royalty rates for foreign patents and grant injunction of UK SEPs without a global license and without parties' agreement; ii) if English Courts does have the power as stated in i), is England the right place for proceedings taken into account Conversant proceedings[244]; iii) the true meaning of non-discriminatory within FRAND undertaking i.e. must the same license be offered to Huawei as already offered to Samsung; and iv) Does ECJ's Huawei ruling actually indicate that a SEP holder can seek an injunction restraining infringement of SEPs.[245] It will be fascinating to see the outcome of the ruling considering the first ever attempt to asses on FRAND royalty rates, however, it remains to be seen whether the court possesses enough power for setting such royalty rates in practice.

Within *Conversant v. Huawei & ZTE*[246], which is on-going at the Supreme Court analogy with *Unwired Planet v. Huawei*, the Court of Appeal held that a global FRAND license was effective on the same reasons as in *Unwired Planet v. Huawei*, however, the plaintiff could not impose the license but rather injunct the defendants if they did not accept the license terms. The case was appealed to the Supreme Court by the defendants by referring to the court's jurisdiction of determining a global FRAND license i.e. the royalty

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[242] James Marshall, 2018; *Further analysis: Unwired Planet v . Huawei.*

[243] Kirkland & Ellis: *UK Supreme Court Case Tracker: Unwired Planet v Huawei; Conversant v Huawei and ZTE* found at https://www.kirkland.com.

[244] EWHC 1687 (Pat), judgement on 4 July 2019 and See *Conversant v. Huawei & ZTE* [2019] UKSC 2019/0042, case summary.

[245] See *Unwired Planet v Huawei*, UK Supreme Court, UKSC 2018/0214, case summary.

[246] EWHC 1687 (Pat), judgement on 4 July 2019. The dispute is regarding the European Patent Application EP 1 797 659.

assessment from *Unwired Planet v. Huawei,* and not only a UK one.[247] The court hearing was held at the Supreme Court on 24 October 2019. The Supreme Court face the exact same questions as in *Unwired Planet v. Huawei*[248] – the two cases will most likely be judged analogy due to the similarities between the cases.

Both of the UK cases are very intriguing, due to the fact that they actually did assess on how to decide on a FRAND royalty rate, and further, that the assessment of the royalty rate was never appealed to neither the Appeal Court nor the to the Supreme Court, still awaiting to be judged. Even though the cases still await their faiths, it is a benchmark for our precedent, taken into account that these are the sole rulings that have even the slightest examined the issue and meaning of FRAND from a royalty rate perspective, and extensively discussed them. Yet, one should not take the royalty assessment too severe – even though we have received guidelines on how to assess a FRAND royalty rate, we have not yet assessed on the term 'FRAND' itself, which makes the whole assessment rather senseless. However, as the courts focused on determining a FRAND royalty rate, they lacked an analysis of the enforcement of injunctive relief – one can consider which question is more imperative to examine?

3.4. Conclusion

Ultimately, there are two major cases on going in the United Kingdom, regarding the definition of FRAND. It will be exciting to see the outcomes of the courts; the judgement will not only be from the Supreme Court, but additionally, the disputes include both Huawei and ZTE as parties, who was part of the 'original ruling', which led to the debate these cases faces now. These rulings might set new requirements to SEP licensing under FRAND terms, provided that the Supreme Court supports the High Court's assessment regarding FRAND royalties. The Supreme Court's ruling might even overrule the Huawei

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[247] EPLAW; *UK Court considers essentiality and validity of patent in FRAND dispute* found at http://eplaw.org.

[248] See *Conversant v. Huawei & ZTE* [2019] UKSC 2019/0042, case summary.

ruling – the courts might actually finally define FRAND from different perspectives and establish rules on what constitute an abuse of Article 102 TFEU as reliable precedent.

As stated above, there has been quite a few follow-up cases after the Huawei ruling. All the mentioned cases have basically faced the same issues: i) can an injunction take effect if the licensee is willing to take / offers a license; ii) does all the requirements of the Huawei ruling have to be met, and if one is not met, can the case be dismissed; and iii) in what case does a royalty rate abuse FRAND. Most of the cases have been appealed, and even some have reached the Supreme Court – which strengthens the conception of FRAND's complicated and complex framework. Yet, questions remain unanswered, and one may ask, why these uncertainties have not received a concise answer, rather, varying answers from different jurisdictions; when does a license offer actually comply with the regulations of FRAND or in which situations has the licensor abused its dominant market position? The following chapter shall analyze and discuss the findings this chapter has provided, and further examine policy recommendation possibilities for both the questions case law faces and the general issues the EU faces.

4. Analysis and discussion

4.1. Introduction

By licensing under FRAND terms, it is possible to avoid and to prevent risks, including but not limited to, patent hold-up or excessive royalties and further, to ensure interoperability and accessibility to a standard. Yet, there are issues arising out of such licensing such as anti-trust issues due to FRAND-encumbrances.[249] In addition to competition law concerns, the vagueness of the scope of the term 'FRAND' has been the cause of several disputes along the way between licensing parties. The solutions to these questions remain unanswered; each party participating in SEP and FRAND, both licensing and standardization process, are part of the solution – each party has its own role.

As of today, we can only expect more disputes arising out of SEPs due to 5G and Internet of Things (IoT), and there does not seem to be any rapid solution by the EU in reaching a unitary solution for the current issues, not to speak of the upcoming issues thereunder. Nonetheless, licensing parties are aware of what needs to be done in order to avoid injunctions, but the simple meaning of FRAND is still unanswered, which is, mostly, the cause of disputes presently. And the disputes are only growing, since not only mobile phone technologies, but also e.g. smart home technologies are increasing, which further means that new stakeholders and manufacturers are stumbling on SEP disputes i.e. litigation.[250]

As *Rudi Bekker* from Eidenhoven University of Technology points out; if there are regulations on an EU level, then it applies to every single technology, but solely in Europe. However, if SSOs are setting the regulations, then it applies only to the one

[249] *Xiaowen,* 2017, p. 71

[250] *Pool-Party: the future of SEPs in Europe* found at www.juve-patent.com.

technology i.e. the standard, but it is applicable in the whole world.[251] Which solution is more suitable? Additionally, as WIPO and the UK rulings points out, SEP license rates and license terms, including royalty rates, differ from country to country, and even from region to region, which means that basically all possible licensees are unique and may differentiate from other licensees, but still comply with FRAND terms.[252] Therefore, FRAND cannot be definite, it may vary and should be assessed in casu.

4.2. Results of analyzing case law

There are several positive, but also negative, justifications from the above interpreted cases. The mentioned cases were based on both German and United Kingdom's prime SEP cases regarding FRAND disputes.[253] The biggest different between the two countries' rulings are the interpretation of the procedural framework provided from *Huawei v. ZTE*[254].

The Huawei ruling, as already discussed, provided incentives but also confusion. The underlying confusion of the case lie within the phrase 'up to national courts to decide'[255], but at the same time the court wishes to leave substantial decision-making room for the licensing negotiations parties, to assess by themselves what FRAND is. The fact that there was not, prior to the Huawei ruling, any precedent regarding the constitution of abuse of dominant position in SEP licensing negotiations, makes it even more peculiar, that the ECJ did not determine it. Instead, they created the procedural framework and i) let national courts decide on the abuse of dominant position and ii) provide opportunities for the parties to agree prior to court's interference.

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[251] *Ibid.,* See further WIPO's article *Worldwide activities on licensing issues relating to standard essential patents* which explains how the landscape of SEPs have become more complex as we expand to new areas such as IoT, AI, block chain etc.

[252] *Supra note* 251.

[253] See chapter 3.3.

[254] C-170/13

[255] Opinion of the Advocate General M. Wathelet, C-170/13, paragraph 103.

The case can be observed from two angels, the first would state that the case is quite meaningless and the other, that it is an essential ruling. The latter is the typical view on the matter due to the created procedural framework, which helps both the licensor and licensee, to avoid/reach injunctions. The former view, and the lesser popular one, has grounds due to the lack of definition and interpretation room left by the ruling, in other words, even though the ruling created something useful for SEP holders and potential licensees, the ruling increased the uncertainty that already existed in scope of SEP licensing – especially taken into account IoT and the rise of SEPs thereof. The question however is, which angle of the ruling weights more? Yet, the most integral part of the ruling is the national court's interpretation of it, and their effects on both precedent, future rulings, regulations and licensing negotiation parties.

The Huawei ruling has had a big effect on German courts, since the original request of a preliminary ruling to the ECJ came from a German court, which makes it rather bizarre that German courts favored the SEP holders and refused to review whether the requirements set by the Huawei ruling were in fact met.[256] What was the whole purpose of the Huawei ruling, if courts are not following the created framework – did the German courts have such a strong covenant towards their already used guidelines that they simply neglected the ruling?

Despite the neglect against the Huawei ruling's procedural framework, the German courts took into account and investigated the determination of a FRAND offer i.e. submitting an offer that is specific enough. According to the courts, not only a licensor's offer, but also the counteroffer of a licensee has to be specific enough, especially in regard to royalty rates – the party submitting the offer, has to express its willingness to enter into a license agreement, henceforth, it is of high importance that the parties' offers are definite in order to follow the procedural framework/receive a FRAND defense and to avoid/enforce

[256] Case 2 O 103/14*;* Cases 4a O 93/14 and 4a O 144/14; Cases I-15 U 65/15 and I-15 U 66/15*;* Case 4a O 73/14.

injunctions. Yet, the courts failed to assess on the continuing matter on determining excessive royalties.

The United Kingdoms' cases[257], as has already been acknowledge, are yet to be decided by the Supreme Court. However, the lower courts examined the procedural framework provided and gave their rulings according to it – both pending cases examined the determination of a global FRAND license, including how to assess a FRAND royalty rate. However, as it seems, in neither of the cases were the defendants i.e. the licensees, satisfied with the rulings. The jurisdiction of the courts has been disputed by the licensees – can one jurisdiction really 'force' parties into a global license with a threat of restraining an infringement? Furthermore, does the jurisdiction additionally have the right to set a global FRAND royalty rate for that license, even though, as it seems, royalty rates may vary from region to region, depending on several factors. Evidently the licensor, in other words, the SEP holder, would not argue with a court's decision to set a global FRAND license, but at the same time, they eschew the chance to restrain the ongoing infringement. Further, would a licensor be content with the fact that a court may decide whether the license is FRAND compliant, as well as determine the royalty rate of the global license?

The German and UK rulings are quite dissimilar; however, they both favored the SEP holder rather than the willing/unwilling licensee. Neither of the jurisdiction found that the licensee had done enough to avoid injunctive relief and further, neither of the jurisdiction examined whether the SEP holder had abused its dominant position. Yet, both of the jurisdictions' rulings have faced more difficulties, than practical benefits of the Huawei ruling, due to the inadequacy and absence of a persistent set of rules, in addition to the procedural framework. From one point of a view, it seems as the courts made it more difficult than it already was, by not complying with the given guidelines, but on the other hand, the courts found new viewpoints towards FRAND-encumbrances and the meaning of such, at least within the UK courts. Furthermore, the UK courts were clearly stricter than the German courts – as already mentioned, the German courts did not seem to care

[257] EWHC 958 (Pat),& EWHC 711 (Pat); EWHC 1687 (Pat).

at all about following previous precedent, meaning the Huawei ruling, only about their own point of views and frames.

As stated, the biggest differences between the two jurisdictions' rulings is the endeavor the UK courts concluded, whilst the German courts basically ignored the whole procedural framework. If there is a willing licensee, then all the facts ought to be examined i.e. has the SEP holder informed the infringer of the infringement, where after the licensee has agreed to enter into a license agreement and diligently answered to the offer thereof. Accordingly, within the UK, the cases have reached the Supreme Court, whilst in Germany, the rulings never reached higher courts, which is rather contradict – as acknowledged, German courts did not examine the cases profoundly nor did they follow the procedural framework, but the parties were still, to some extent, content with the rulings, since only one of the cases were disputed by the licensee. Nevertheless, the rulings from the UK Supreme Court will be awaited – it will be a groundbreaking benchmark for future FRAND disputes.

There are several observations and questions arising out of the case analysis: i) standard of review[258]; ii) selective enforcement; iii) global license; iv) royalty stacking/portfolio splitting[259]; and v) calculation of FRAND royalties. Whilst the first and second observation are primitive and essential, the third and fourth are distorted questions, and the last is an on-going mystery, although it was assessed by the High Court. Standard of review by higher courts have shown to be a favorable act – especially when lower courts have not been diligent enough. Additionally, the selective enforcement, as it seems, has occupied both the courts and the parties; the parties are accredited to construct a favorable outcome i.e. by following the procedural framework or, in less fortunate cases, ending up with an injunctive relief. The courts seem to also have an effect on the enforcement i.e.

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[258] A *standard of review* is when a higher court examines the lower court's ruling for inconsistency. *See* The writing center, Georgetown University Law Center.

[259] *Royalty-stacking* means that a licensee has to pay royalties to multiple parties, whilst *portfolio-splitting* is a strategy to restrict competition by transferring certain patents to another party in order to increase the royalty rate. *See* royalty stacking clauses at IP Draughts and *Bharadwaj et al.,* 2018, p. 96 & *Kung-chung et al.,* 2020, chapter 3.2.7.

the UK cases, wherein the courts ‘forces’ the parties to enter into a global license with the threat of restraining the injunction, which includes our third question regarding obtaining a global license.

Royalty stacking/portfolio splitting and the calculation of FRAND royalties are questions that might never be fully understood. The former has to be analyzed with regard to Article 102 TFEU and abuse of dominant position, whilst the latter, is in conjunction with the former but also as an independent element. It is not sufficient to determine FRAND royalty rates if the scope of the expression is not coherent, which is why SEP licensing is, as of today, disjointed due to mandatory FRAND-encumbrances. Furthermore, even though the UK court assessed on how to determine a FRAND royalty rate, the royalty cannot be taken for granted since the term FRAND itself has never been fully determined. Moreover, the royalty assessment should not be taken too sincerely, rather as a ‘safe-harbor’ provision.

4.3. Identification of the issues and their effects

Issues relating to SEP licensing has been presented throughout the thesis – as seen, it is not always evident nor straightforward to determine the issues per se. As it concludes, the following issues have been identified:

1) The struggle of defining the scope of the term ‘FRAND’;
2) What laws and principles govern SEP licensing;
3) How specific does a license offer have to be in order to agile with the procedural framework;
4) In what cases can an injunction be enforced;
5) What is seen as an excessive royalty rate;
6) SEP holders breach or neglect of FRAND commitments.
7) Patent hold-out

As listed above, there are a handful of identified issues regarding SEP licensing, all of which concern different elements thereunder. One of the most difficult issues to solve is the definition of the scope of the term FRAND – as seen, there has never been a persistent explanation of the term in practice. FRAND is interpreted differently i.e. 'Fair' is not even always included in the definition, and the 'Non-Discriminatory' it still vague. A SEP holder's abuse of dominant position is linked with the 'Non-Discriminatory' component. As seen through case law and monographs, the abuse of a dominant position has never been distinctly defined, the expression is more or less determined in casu, without a persistent set of rules to follow. As know, competition law principles, including Article 102 TFEU, is regulating FRAND due to its restrictions of how a SEP holder may act. Furthermore, contract law principles have been used on regulating SEP licensing, however, it has never been determined whether contract law principles are legitimate to be applied thereunder. Accordingly, we await a solution that will combine our existing legislation in pursuance of creating a *so called* 'unitary patent system', without loopholes and national interpretations/judgements.

In continuance of the compiled issues list, the question regarding how specific a FRAND offer has to be has caused quite a few disputes, not only from the licensor's point of view, but as it seems, also for the licensee's counteroffer. A license offer has to specifically apprise all of the aspects constituted by a license agreement, included but not limited to, royalty rates. Additionally, the offers have to be submitted diligently after receiving them. Accordingly, the offer has to be submitted with a hasty schedule and be definite, which provides a clear understanding to the fact that offers may be incomplete. The fourth issue, what is seen as an excessive royalty rate, goes hand in hand with specifying a license offer. Even though there are some guidelines on the matter it remains vague due to the fact that royalty rates may vary from region to region and the term FRAND is yet not determined exclusively.

Both perspectives of seeking injunctions have been discussed; it has been enforced and denied. But the question remain, in which cases can an injunction be enforced – does all of the procedural framework steps have to be fulfilled or can one seek an injunction even if all of the steps are not met? Furthermore, can a SEP holder enforce the injunction if all

of the steps are met, even though the infringer expresses willingness to take a license? Once more, enforcing an injunction does not seem to have an ending, prior to receiving precedent that cannot be avoided nor interpreted. Furthermore, the UK Supreme Court's rulings are awaited and hopefully they will bring clarity to the current situation.

The aforementioned, an abuse of dominant position, is part of the identified issue a SEP holder's breach or neglect of FRAND commitments. A SEP holder may not i) discriminate a willing licensee, ii) enforce an injunction before notifying the licensee of the infringement and iii) impose unfair license terms within the license agreement, that further have to be submitted promptly in written. As stated, several times throughout the thesis, we still lack a persistent definition of what constitutes an abuse; is it the fact that a SEP holder directly discriminates a licensee, or does it additionally include indirect discrimination such as demanding, unknowingly, unfair royalty rates. Furthermore, the fact that a SEP holder would not inform the infringer of the infringement, prior to seeking an injunction, indicates on the dominant position, and perhaps that is indeed the position the licensor wishes to show off. An infringer has to be given the chance to enter into a license agreement before an injunction takes force – can the SEP holder enforce the injunction if the infringer is undoubtably unaware of the infringement, and would very much like to enter into a license agreement?

One aspect that may have gone unnoticed for many, is the patent hold-out theory, caused by the licensee or implementer of the patent, whilst the patent hold-up theory concerned SEP holders extracting excessive royalty rates.[260] Licensees may seem to be in good faith from one point of view, but from another, they might actually undertake the patent hold-out theory – the licensee, or implementer, ignores the SEP holders license offer in order to aggravate the other party to agree to terms which are way below the actual FRAND commitment. This argument starts the debate; could competition law principles be implemented on a licensee's behavior as well?

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[260] *Supra note* 94.

4.4. Policy recommendations for licensing under FRAND terms

The previous parts of the chapter have identified the issues that have been debated about from beginning to end. As the issues are so vast and lacking solutions, this part of the thesis will provide policy recommendations thereof. The recommendations will not solve an issue per se – the essence of the recommendations is to provide an alternative way for licensing negotiation parties and authorities to avoid the specified issues. The policy recommendations provided hereunder are based on existing precedent, monographs, doctrines and most importantly, on the discussion provided formerly in this thesis.

First of all, for the avoidance of doubt, each party of licensing negotiations are part of the process of avoiding disputes by abiding FRAND commitments i.e. authorities can aid to diminish licensing issues by reviewing actor's complying with competition law regulations and further, SSOs should try to institute cogent governances so that members are aware of what principles ought to be followed and determine a persistent set of rules determining what is a FRAND-royalty rate, by applying the UK ruling's assessment. Accordingly, each and every one is depending on one another to create a functioning market. Therefore, the first recommendation, or merely an advice than a rigorous policy recommendation, is for participants to collaborate more well-organized and in sync, in order to dodge disputes and ambiguousness, pursuing some kind of unitary patent system. The patent system within the EU have to become more transparent in order to answer, including but not limited to, what makes an essential patent essential to a standard or how to set explicit terms for FRAND licensing.

We need to achieve more stability within SEP licensing – the dynamics between licensor and licensee have to be based on rules which are not ambiguous. An entire policy cannot be based on i) one viewpoint or ii) millions of different viewpoints. Therefore, we need incentives and motivational factors for each party of the process for them to agree to follow common rules and customary laws, take as an example *lex mercatoroia* – parties should be able to have faith in each other. Furthermore, as IoT is increasingly growing and becoming part of the SEP market, time is of the essence to achieve such customary

laws each service area and market ought to follow, including but not limited to, the telecommunication market.

In addition to transparency and cooperation between actors and authorities, the European policies concerning SEP and FRAND licensing, ought to be changed by taking into account both patent hold-up and patent hold-out theories. Although, the analyzed case law has clearly taken into account to some extent the obligations a licensee faces, however the theory per se should be promoted and develop the evolution of our future unitary patent system. Accordingly, the term 'hold-out' should be used in practice, rather than only in a hypothetical manner. Which is why, the European Commission should take into account this reflection as they currently revise the antitrust guidance on standardization agreements from 2011.[261] Further, the Commission should acknowledge the rulings regarding SEP licensing, as well as ongoing disputes in the 'real world' and not only amend the guidelines on an literature level or leave it for national courts to decide, since that would simply lead to more contradictions. It is imperative to understand the relationship between a licensor and a licensee and understand their competitiveness against each other – both parties can, and potentially may, act in *mala fide.*

Bilateral licensing agreements have imprinted at least the mobile communication market which, as seen, has caused several disputes between the parties. A solution to bilateral disputes would be to engage in multilateral licensing agreements i.e. patent pools – especially for smaller patent holders that do not have as much competitors and within IoT which is still an emerging business. Moreover, perhaps patent pools should additionally be encouraged within the scope of EU competition law. Yet, bilateral negotiations might continue to be the prime solution for companies that dominate the mobile communication market i.e. Nokia, Samsung or Apple due to the fact that the amount of money that are at stake is exponentially more compared to other markets' standards.[262] Further, the patent

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[261] *Horizontal Guidelines 2011.* See www.iam-media, 2020.

[262] *Supra note* 251.

pool solution might not be a one-fits-all-solution, but rather provide an alternative solution to bilateral negotiations that might work for certain markets.

As it seems, there is not a clear solution for the issues mentioned in the thesis, moreover, the policy recommendations should be seen as advices for actors to avoid greater controversies. Yet, the core solution for the issues lies within the parties themselves – governments and courts try to balance the meaning of FRAND aiming at business owners reaching an agreeable outcome by themselves – yet, FRAND licensing may not always be the best outcome for negotiating parties. Parties of licensing negotiations are capable of mutually agree on their own FRAND terms and further, reduce transactions costs due to their own views and unique circumstances. Furthermore, parties should pursue in reaching their own flexible and unique license agreements based on their own viewpoints due to the fact that FRAND varies from origin to origin and from market to market, and a FRAND commitment has to be established in casu – as *Johnson* points out in WIPO Magazine: "*FRAND for one is not FRAND for all – at least not anymore*"[263].

[263] WIPO Magazine *Worldwide activities on licensing issues relating to standard essential patents.*

5. Concluding remarks

As the thesis has worked its way through all of the elements comprising SEP licensing and examined the issues thereto, in particular in conjunction with the term FRAND, it is fair to acknowledge on the grounds of the thesis, that the issues of SEP licensing cannot be solved easily. As the research question of the thesis is to identify and evaluate the problems arising out of SEP licensing under FRAND terms, including case law observations around Europe, the policy recommendations provided should not be seen in a strict sense, merely as a bunch of advices on how to avoid greater issues, but conceivably not solving the current ones. However, for the avoidance of doubt, FRAND issues are so complex that it is impossible to determine 'one' solution, instead, one ought to acknowledge the issues in order to not complement them farther. Accordingly, one should not forget about competition law principles and their part in SEP licensing, regardless if the standard in question is a *de jure* or a *de facto* standard. Furthermore, the Huawei ruling should be seen by negotiating parties as a 'safe-harbor' provision, providing them assistance in avoiding the enforcement of injunctions and abuse of dominant position. Moreover, the comprised list of such core issues from both case law and monographs, including their effects, should be furthered examined – it is up to future scholars to examine these issues further, including worldwide case law for the sake of expanding the research area and material in order for these actors to develop feasible *de lege ferenda* solutions.

As we are going into the future, inventing new essential technologies and creating new standards, we should stop and think about what the situation, including its issues, looks like now, instead of only looking forward as we are habited to do. If we do not solve the issues of today, the issues of tomorrow will only increase and become more difficult to solve on both a national and international level. The true meaning of FRAND has always been to benefit both parties, regardless of size and power, and neither the licensor nor the licensee has ever chosen nor aimed at creating disputes voluntarily. As the 5G network and IoT is rapidly growing, they will undoubtedly bring new problems, adding on to the already existing ones, which is why the resolution of SEP licensing ought to take into

account all aspects, including all actors in different markets, when figuring out our future technological IP regime. As *Fransisco Migorance* stated:

> *"Today is a good day for consumers around the world, as well as the many businesses – small and large – that will rely on 'fair reasonable and non-discriminatory' access to the 5G open technology standard to create new products and services for the upcoming Internet of Things." "IP Europe's members welcome any initiative that will lead to smoother licensing negotiations. We note that this is particularly important for our SME members because they need as much support in the licensing process as the SME implementers."*[264]

[264] *Fransisco Migorance,* Executive Secretary of IP Europe, found at http://ipkitten.blogspot.com.