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INTERSECTION OF ANTITRUST LAWS WITH EVOLVING FRAND TERMS IN STANDARD ESSENTIAL PATENT DISPUTES

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ABSTRACT

This article addresses the issues of overlapping enforcement of antitrust laws and FRAND (Fair, reasonable and non-discriminatory terms) in standard essential disputes. Briefly, this article observes that the evolving FRAND terms will affect the degree that antitrust laws may intervene into SEP license practice. Part I of this article is a brief introduction to the background and main sections. Part II describes the evolvement of FRAND into a globally converged standard of royalty determination and a process through joint efforts of global courts. Part III discusses the changing interaction of FRAND with antitrust laws in three major jurisdictions, respectively China, European Union and the U.S., in light of evolving FRAND. Part IV finds when FRAND is able to constrain the monopoly created by standardization as what happens in a highly competitive market, antitrust laws should gradually step down from interfering with SEP license practice to avoid over-burdening the SEP owners and curtailing innovation.

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I. INTRODUCTION

Standard essential patent disputes ("**SEP**") have been a key part of intellectual property law practice for almost a decade. Global courts have been endeavored to provide consistent legal guidance for SEP owners and implementers to reach FRAND (fair, reasonable and non-discriminatory) consensus. At the same time, competition law agencies are relentless in pursuing FRAND violations, with promulgation of various guidelines. Needless to say, the legal system has made considerable progress in resolving many issues that were once considered difficult surrounding SEP practice. At least, FRAND terms are no longer as vague and as puzzled for practitioners and enforcers as they used to be due to the recent development. They have been steadily moving toward clarity, predictability and transparency.

The evolving FRAND terms triggers an old question of the Intersection of FRAND and antitrust enforcement in SEP disputes. In what circumstances may FRAND breaches give rise to antitrust violations has long been heavily debated in practice. Recently, there is a voice that FRAND breaches should be left to the hands of contract laws rather than antitrust laws, as the latter's intervention is both unnecessary and may disturb market and innovation.[1]

This article, without agreeing that the SEP license practice is ready to take an antitrust-free system, observes that the intersection of FRAND with antitrust laws is a dynamic process, and with the FRAND terms evolving into perfection, the antitrust laws have begun and will continue to refrain from intervening FRAND-violating behaviors. Specifically, part II of the article addresses the evolvement of FRAND into a globally converged standard of royalty determination and process. Part III discusses the changing interaction of FRAND with antitrust laws in three major jurisdictions in light of evolving FRAND. Part IV finds when FRAND is able to constrain the monopoly created by standardization as what happens in a highly competitive market, antitrust laws should gradually step down from interfering with SEP license practice to avoid over-burdening the SEP owners and curtailing innovation. However, an important note to be made is that AML should continue to watch out for behaviors that extend SEP market power into upstream or downstream markets that is beyond the reach of even a perfect FRAND.

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[1] *See Assistant Attorney General Makan Delrahim Delivers Remarks at the USC Gould School of Law's Center for Transnational Law and Business Conference*, U.S. DEP'T OF JUSTICE (Nov. 10, 2017), https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-remarks-usc-gould-school-laws-center [hereinafter USC Speech].

II. The Evolvement of FRAND into Clear, Transparent and Forceful Standards

FRAND terms today are certainly not unfamiliar concepts to global courts and enforcement agencies. Over the years, standardization process has played a vital role to products interoperability worldwide, and FRAND terms which were designed to facilitate the process by curtailing issues of hold-up and royalty stacking,[2] also evolved to greater clarification and scope. Regardless of how courts have enforced FRAND through contract or patent laws or both, the term "fair, reasonable and non-discriminatory" essentially narrows down to two critical issues: FRAND royalty determination; and conditions of injunctions.[3] FRAND is steadily moving toward a clear, predictable and transparent system that may adequately address these two issues one day.

A. Global Convergence of FRAND Royalty Determination

The ultimate goal of FRAND is to reach a "fair, reasonable and non-discriminatory" royalty. The most fundamental principle behind a FRAND royalty determination is that the SEP owners can only charge the amount of royalties equal to the incremental value that the patented invention adds to the product, not any value added by the standardization of that technology.[4] In recent years, the courts in EU, U.S. and China have made progress towards a uniform, international method in how to calculate worldwide FRAND royalty through a combined Top Down and comparable license approach. This combined approach, along with its accumulative patent value and license analysis, allows courts and industry players to make reliable calculations of royalty fees to be charged by each SEP owner based upon its relevant portfolio contributing to the same standard, thus providing a certain level of clarity and certainty for SEP owners to avoid making blunt excessive offers which would trigger antitrust concerns.

1. Top Down Approach

The Top Down approach rests upon the very basis that an SEP owner is entitled to collect only a share of the profit margin contributed by its share of SEPs, which is consistent with the essence of FRAND. So far, it has been adopted by U.S., Japan, EU, and China courts[5], and also incorporated in the newly issued SEP guidelines by

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[2] *See* TCL Communs. Tech. Holdings Ltd. v. Telefonaktenbologet LM Ericsson, et al., 2014 U.S. Dist. LEXIS 197319, at *12 (C.D. Cal. July 28, 2014).

[3] Yann Ménière, *Fair, Reasonable and Non-Discriminatory (FRAND) Licensing Terms – Research Analysis of a Controversial Concept*, JOINT RESEARCH CENTER (July 2015), http://publicati ons.jrc.ec.europa.eu/repository/handle/JRC96258 ("Practically, discussions have been progressively narrowed down to a few technical but high-stake issues – such as the conditions for using injunctive relief against patent infringers, the appropriate methodology for determining FRAND royalties, or the choice of a relevant royalty base").

[4] Ericsson, Inc. v. D-Link Systems, 773 F.3d 1201, 1232-33 (Fed. Cir. 2014).

[5] The "Top Down" method was first introduced by the U.S. District Court for the Northern District of Illinois in *In re Innovatio IP Ventures, LLC*, 2013 U.S. Dist. LEXIS 144061 (N.D. Ill. Sep.

global courts and administrative agencies.[6] The Top Down method involves a simple two-fold calculation: 1) determining the fair and reasonable total royalty burden for all patents to a standard; and 2) apportioning the royalty to the SEP owner based upon the relative value of its portfolio against the value of all patents essential to the standard.[7]

The Top Down model was embraced for two obvious advantages. First, it completely mitigates the royalty stacking problem created by each SEP owner demanding a royalty when the total exceeds the reasonable royalty burden.[8] Second, as long as the royalty burden is FRAND and the value share is properly apportioned, it prevents hold up by ensuring each SEP only collects its entitlement rather than the value of other patented essential or non-essential technologies.[9] Accordingly, for the TOP Down approach to arrive at a reliable FRAND rate, the court must discreetly determine the "total royalty burden" used to cap the overall FRAND royalties and the "value share" of respective SEPs should reflect the correct contribution of SEP owners.

At least for the telecom industry, courts of major jurisdictions have reached the consensus that the total royalty burden should be 6% -10% for 4G, and 5% for 2G and 3G cellular standards. As early as in *Samsung v. Apple* decided in 2014, the IP High Court of Japan ("**JP High Court**") had accepted that the total royalty burden of 3G should be 5% relying on the declaration of several major 3G SEP owners.[10] Later in *TCL v. Ericsson*, the U.S. central district of Central District of California ("**C.D. Court**"), also relying on the subsequent declarations of the same SEP owners, found the total royalty burden of 5% for 3G and 2G and 6% and 10%[11] These declarations have their merits for being disclosed around or prior to when standardization started reflecting the expectations of SEP owners and implementers at the same time.[12] Two months after the C.D. Court ruling, the Shenzhen Intermediate People's Court

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27, 2013), and then by the IP High Court of Japan in *Apple Japan Godo Kaisha v. Samsung Electronics Co.* (May 16, 2014). More recently, it was used by UK High Court in *Unwired Planet Int. Ltd. v. Huawei Tech.* [2017] EWHC (Pat) (Eng.), by U.S. central district of Central District of California in *TCL Commc'ns.*, 2014 U.S. Dist. LEXIS 197319, and by Shenzhen Court of China in *Huawei v. Samsung* (Jan. 14, 2018).

[6] *See, e.g.*, GUANGDONG HIGH PEOPLE'S COURT, GUIDELINES FOR JUDICIAL REVIEW OF CASES CONCERNING DISPUTES ON STANDARD ESSENTIAL PATENTS, (广东高院发布审理通信领域SEP专利纠纷案工作指引) (drafted by Guangdong High People's Court, published on Apr. 26, 2018) [hereinafter Guangdong Court Guidelines]; EUROPEAN COMMISSION, COMMUNICATION FROM THE EUROPEAN COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL AND THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE—SETTING OUT THE EU APPROACH TO STANDARD ESSENTIAL PATENTS (2017) [hereinafter EU SEP Approach]; JAPAN PATENT OFFICE, GUIDE TO LICENSING NEGOTIATIONS INVOLVING STANDARD ESSENTIAL PATENTS (2018) [hereinafter JPO Guide].

[7] *TCL Commc'ns.*, 2014 U.S. Dist. LEXIS 197319, at *14.

[8] *Id.* at *15.

[9] *Id.*

[10] Chiteki Zaisan Kōtō Saibansho [Intell. Prop. High Ct.] May 16, 2014, Apple Japan Godo Kaisha v. Samsung Electronics Co., Ltd., 2013 (NE) 10043 (Japan).

[11] *TCL Commc'ns.*, 2014 U.S. Dist. LEXIS 197319, at *20-24 (It should be noted there that Ericsson declared a 6-8% for its 4G IPRs as the maximum aggregate LTE royalty, but it also jointly with Alcatel-lucent, NEC, NextWave Wireless, Nokia, Nokia Siemens Networks announced a reasonable maximum royalty burden level for LTE essential IPR in handsets is a **single-digit percentage** of the sales price. This single-digit percentage admission led the court to conclude the 4G royalty burden was certainly not higher than 10%.).

[12] *Id.* at *25-26.

("**Shenzhen Court**") in *Huawei v. Samsung*, a dispute involving neither *TCL* nor *Ericsson,* acknowledged the total royalty burden found by the C.D. Court, and used 8% to cap 4G upper rate.[13] The 3G and 4G total royalty burden was also verified in *Unwired Planet v. Huawei* by UK High Court of Justice ("**UK High Court**"), which engaged a reversed TOP Down approach to cross-check the benchmark rates derived from the comparable license approach (detailed in next section).[14] The UK High Court first arrived at the benchmark rates of Unwired Planet of 0.062% for 4G and 0.032% for 3G.[15] Then divided by the share of Unwired Planet, the total royalty burden of 4G SEPs should be 8.8% and 5.6% of 3G SEPs,[16] remarkably consistent with the early declarations of SEP owners and acknowledged by U.S., Japan and China courts.

As for the proportional share of the relevant SEP owners, courts have to rely on the patent counting method.[17] The basic way is to count the number of SEPs of a particular patentee (the numerator) and the total number of SEPs to a standard (dominator), and then divide them.[18] The process could involve essentiality and validity period assessments, exclusion of infrastructure and expired patents, and assignment of individual SEPs to different standards and final adjustment [19] Patent counting should also consider the strength and value of each individual patent so as to better reflect the value contribution of SEP owners. In the WiFi standard setting, the N.D. Court in *re Innovatio* accepted the proposal that 10% SEPs account for 90% of the overall value, and assumed all patents of Innovatio are top 10% patents.[20] But the *TCL v. Ericsson* Court rejected the proposed importance analysis because the method was considered too flawed.[21]

Until September 15, 2015, the overall declared number of SEPs is 153,000 as found in *TCL v. Ericsson*.[22] Thus even without the importance analysis, patent counting still requires a substantial amount of work in patent and economic analysis. The good side is that most SEP disputes are concerned with the same set of telecom standards and right owners, and subsequent courts can rely on achievements of courts before them. After all, there is no need to repetitively count the patents unless there is room for refinement or supplements. Additionally, courts could rely on the analytical reports of research institutes to arrive at the proportional share. Many

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[13] *See Huawei Technologies Co Ltd v. Samsung (China) Investment Co. Ltd et al.* (华为技术有限公司诉三星（中国）投资有限公司、惠州三星电子有限公司、天津三星通信技术有限公司、深圳市南方韵和科技有限公司侵害发明专利权纠纷), SHENZHEN INTERM. PEOPLE'S CT. Jan. 4, 2018, at 314, http://www.chinaipmagazine.com/upload/%E5%8D%8E%E4%B8%BAVS%E4%B8%89%E6%98%9F%EF%BC%882016%EF%BC%89%E7%B2%A403%E6%B0%91%E5%88%9D816%E5%8F%B7.pdf. [hereinafter *Huawei v. Samsung*].

[14] *See* Unwired Planet Int. Ltd. v. Huawei Tech. [2017] EWHC (Pat) (Eng.) [hereinafter *UP v. Huawei*].

[15] *Id.* ¶ 478.

[16] *Id.* ¶ 476.

[17] *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶ 806 ("In assessing a FRAND rate counting patents is inevitable.").

[18] *TCL Commc'ns.*, 2014 U.S. Dist. LEXIS 197319, at *26.

[19] *Id.* at 26-36.

[20] In re Innovatio IP Ventures, LLC, 2013 U.S. Dist. LEXIS 144061 at *85 (N.D. Ill. Sep. 27, 2013).

[21] *TCL Commc'ns.*, 2014 U.S. Dist. LEXIS 197319, at *38-40.

[22] *Id.* at *27.

research institutes and experts, such as ABI research, Cyber Creative Institute, Fairfield Resources International, Thomson Reuters and Rudi Bekkers provide reports over the number and share of patents/declarations and essentiality analysis.[23] The Shenzhen Court directly relied on these reports to find Huawei held 10% of 4G SEPs and 5% of 3G SEPs.[24] It is global consensus that absolute certainty and precision in a FRAND royalty setting is not possible.[25] Essentially it comes down to the reliability and convincing force of the expert evidence and analysis that enable a sound effort.[26]

2. Comparable License Approach

The comparable license approach**,** also known as the market approach, is more widely used in global practice and not substitutable by Top Down.[27] It rests upon the theory that such licenses are what real parties have agreed upon in real negotiations,[28] and as a result the arrived FRAND rate would represent the terms to be agreed upon in hypothetical negotiations, and hence the market value of the relevant SEPs.

The critical step to arrive at a FRAND comparable rate is finding the right comparables. Usually it starts with licenses executed by the same licensor (or at least licensors once owned the same set of patents) and "similarly situated" licensees.[29] The term "similarly situated" has been represented less and less in FRAND determinations. The FRAND terms are to set a royalty as close as possible to the objective market value of concerned SEPs, which should bear no relation to the identity of the licensee. In practice, because small companies with less bargaining power are more likely to suffer a higher price, courts are apt to look at terms agreed upon by well-established global firms that could resist hold ups and receive a fair market value.[30] "Local kings," firms selling most or all of its devices in a single country, were excluded because geographic scope would affect patent portfolio and hence the royalty terms.[31] Other factors excluded include the firms' overall financial success or risk, brand recognition, the operating system of their devices or existence of retail stores.[32]

One persistent concern with the comparable license approach is the poisonous tree situation. The royalty rate arrived at from the comparable license approach can

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[23] *See*, *e.g.*, *Huawei v. Samsung*, SHENZHEN INTERM. PEOPLE'S CT. Jan. 4, 2018, at 314.

[24] *Id*. at 314.

[25] *TCL Commc'ns.*, 2014 U.S. Dist. LEXIS 197319, at *14 ("[T]he search for precision and absolute certainty is a doomed undertaking").

[26] *Id*. ("The Court's effort has been to determine whether each expert's work has a reasonable level reliability and convincing force that allows the Court to make a judgment whether to accept the ultimate conclusions advanced.")

[27] *Id*. at *15 ("[A] top down method…is not necessarily a substitute for a market-based approach that considers comparable licenses").

[28] *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶ 170.

[29] *Id*. ¶ 175; *see also TCL Commc'ns.*, 2014 U.S. Dist. LEXIS 197319, at *54

[30] *TCL Commc'ns.*, 2014 U.S. Dist. LEXIS 197319, at *56-58 (considering the license reached with 6 well-established companies: Apple, Samsung, LG, HTC, Huawei, and ZTE).

[31] *Id*. at *59.

[32] *Id*. at *58.

only reflect the market value of the patents if the comparables are not the result of a hold-up in the first place. Historically, courts have excluded licenses reached during settlement discussions or the course of litigation, which represents the presence of hold-up.[33] Another type of license usually excluded is a license that was the result of arbitration, which may not represent arm's length negotiations.[34] Moreover, the confidentiality of arbitration proceedings renders courts unable to access the reasoning and soundness of the arbitration decisions.[35] In contrast, decisions of courts in other jurisdictions, accessible nearly in whole, are more valuable for reference depending on their reasoning.[36] For instance, the *Huawei v. InterDigital* rate was referenced by UK High Court to find that China rates are substantially lower than other courts.[37] It is interesting to note that the same decision was rejected in *Huawei v. Samsung* on the ground that InterDigital was a non-practicing entity with a serious over-declaration problem.[38] Huawei also submitted their worldwide license as a result of arbitration to show that the *Huawei v. InterDigital* rate was never adopted.[39]

In most circumstances, finding the right comparables is not sufficient for courts to directly reach a FRAND royalty rate. First, the comparable royalty terms may involve lump sum payment and/or a cross license which would need to be unpacked to reach a royalty rate. The unpacking process involves many assumptions of sales revenue at the time of the license as well as the portfolio strength comparisons, and thus the process can be easily manipulated to deviate from the actual terms the parties have agreed on.[40] As early as in *Huawei v. InterDigital*, the Shenzhen Court unpacked the InterDigital – Apple license by simply dividing the lump sum arrangement with the actual sales revenue of Apple products after the license was concluded.[41] The determined 0.019% rate was one hundred times lower than the offered royalty because the calculation did not reflect the actual projections of Apple's sales of InterDigital at the time of the license.[42] On the other hand, the arrived at rates of *TCL v. Ericsson*, relying on a much more sophisticated unpacking method, are very close to the result of the Top Down method.[43]

It should be noted that when comparable licenses of the same licensor are not available, courts have to look at third party licensors and make portfolio comparisons to reach the final rate.[44] The portfolio comparison derives from the Top Down method, with the only difference being that the benchmark royalty rate is the alleged FRAND royalty rate of a third party licensor rather than the overall royalty burden.

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[33] *Innovatio*, 2013 U.S. Dist. LEXIS 144061, at *64.

[34] *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶ 411.

[35] *Id*. ¶ 171.

[36] *Id*.

[37] *Id*. ¶ 473.

[38] *Huawei v. Samsung*, SHENZHEN INTERM. PEOPLE'S CT. Jan. 4, 2018, at 309.

[39] *Id*. at 20.

[40] *TCL Commc'ns.*, 2014 U.S. Dist. LEXIS 197319, at *64.

[41] *See* Huawei Tech. Co. v. InterDigital Commc'n Co. et al. (华为技术有限公司诉交互数字通信有限公司、交互数字技术公司、交互数字专利控股公司、IPR许可公司标准必要专利许可使用费纠纷), GUANGDONG HIGH PEOPLE'S CT. Oct. 16, 2013, at 74 [hereinafter *Huawei v. InterDigital FRAND*].

[42] *Id*. at 75.

[43] *TCL Commc'ns.*, 2014 U.S. Dist. LEXIS 197319.

[44] *See, e.g.*, *UP v. Huawei*, [2017] EWHC (Pat) (Eng.).

In such a case, the comparable license approach also requires patent counting to determine the strength ratio of two licensors.

3. Combinational Use

As addressed above, recent courts have been relying on both the Top Down and the comparable license approaches to ensure that final rates are as close as possible to the market value of the concerned portfolio. In an ideal scenario, the license rates derived from comparable licenses, resulting from arms-length negotiations, should be consistent with the portfolio share of the SEP owner over the total royalty burden. But a distorted market may have driven up the royalty rate of each SEP owner resulting in the total royalty burden exceeding the contribution of overall portfolio. The Top Down approach starting with a capped total royalty burden prevents the royalty stacking issue. On the other hand, the Top Down approach may neglect what is considered to be a market-accepted rate, which is fixable by the comparable license approach. Thus, the two approaches offer good cross-checking and/or adjustment of each other. The newly issued guidelines by Guangdong Court, EU and Japan Patent Office have embraced both as reliable methods to arrive at a FRAND rate.[45]

Under both approaches, courts are also more willing to decide a worldwide rate rather than a country-based rate to provide the parties an effective resolution. Because patents are governed by laws of each country, courts in early decisions are refrained from deciding a license rate outside of its jurisdiction.[46] However, the UK High Court in *Unwired Planet v. Huawei* found insistence by Huawei on a country-based license is un-FRAND.[47] The Guangdong Court Guidelines also gives itself the discretion to decide a worldwide license.[48] It should be noted that the portfolio strength of each SEP owner varies by country. If the licensee in dispute operates mainly in a few countries in which the concerned portfolio is weak, then country-based rates would be more appropriate.[49]

The global convergence of FRAND royalty determination significantly eased the workload and improved the certainty and predictability of FRAND calculation. At least in the telecom industry, from which most SEP disputes have arisen, courts can avoid repetitive patent counting and unpacking of the same comparable license submitted in different disputes.[50] The two are purely economic calculations insusceptible to influence of different legal systems. Unless there is a compelling

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[45] *See* Guangdong Court Guidelines art. 18, 23; EU SEP Approach at 8; JPO Guide, *supra* note 6, at 34-41.

[46] *See*, *e.g.*, *Huawei v. InterDigital FRAND*, GUANGDONG HIGH PEOPLE'S CT. Oct. 16, 2013, at 74.

[47] *See*, *e.g.*, *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶ 572 ("I conclude that a worldwide license would not be contrary to competition law. Willing and reasonable parties would agree on a worldwide license. It is the FRAND license for a portfolio like Unwired Planet's and an implementer like Huawei. Therefore, Unwired Planet is entitled to insist on it. It follows that an insistence by Huawei on a license with a UK only scope is not FRAND.").

[48] *See* Guangdong Court Guidelines, *supra* note 6, art. 16.

[49] *Id.*

[50] In *TCL*, the court unpacked 6 licenses of Ericsson respectively with Apple, Samsung, LG, HTC, Huawei, and ZTE among which the Ericsson – Huawei license was submitted in *Huawei v. Samsung*.

reason/evidence to deviate from prior conclusions, courts should feel conformable to base its decisions upon the shoulders of other courts. What subsequent courts could do is refine or supplement the previous results through a more sophisticated and thorough calculation. As for predictability, parties on both negotiation tables can perform a portfolio strength analysis and estimate what would be accepted as the FRAND rate with the total royalty burden decided. Either the parties will quickly reach a consensus, or they can resort to courts or arbitration with their respective strength analysis for a quick resolution. Predictability can largely shorten the time of negotiation which may take more than half a decade.[51] In 2015, when Qualcomm was fined about 1 billion dollars by Chinese NDRC,[52] one would expect that was a big downturn for Qualcomm. However, within a few years, Qualcomm quickly signed over a hundred licenses with Chinese mobile manufacturers based upon its alleged NDRC-accepted royalty disclosure in the rectification plan.[53] Thus, a predictable FRAND, even without absolute accuracy, could offer desired speedy resolution of disputes in the SEP setting.

B. FRAND as a Process

The other significant development of FRAND is its expansion into specific protocols/requirements governing the negotiation process, rather than a set of license terms. Under the new FRAND, both SEP owners and implementers should take a FRAND approach to negotiate a license.[54] A FRAND-encumbered negotiation not only helps to avoid hold-ups (reverse hold-ups), but also helps expedite a FRAND resolution by offering transparency.

The requirements of FRAND negotiation arise in the context of SEP owners seeking injunctions against potential licensees. As the SEP owners are under a commitment to grant licenses, they should not be allowed to weaponize injunctions for a supra-FRAND license. At first, the negotiation protocol was provided to guide the negotiating parties in order to avoid antitrust scrutiny. In *Huawei v. ZTE*, the ECJ asks SEP owners to provide infringement notice and offers that conform to FRAND terms (with method of calculation), and SEP implementers to make prompt and substantive responses.[55] The set protocol allows EU courts to assess the antitrust legitimacy of injunctions sought by SEP owners.[56] Subsequently, the global courts and administrative agencies began to embrace FRAND itself as a process that

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[51] *See, e.g.*, *Huawei v. Samsung*, SHENZHEN INTERM. PEOPLE'S CT. Jan. 4, 2018, at 41 (The parties had started negotiation in 2011).

[52] *See* Fa Gai Ban Jia Jian Chu Fa 2015 No. 1 (中华人民共和国国家发展和改革委员会行政处罚决定书发改办价监处罚〔2015〕1号) [Sanction Decision] (promulgated by the Nat'l Dev. and Reform Comm'n of P.R.C., effective Feb. 9, 2015), http://www.ndrc.gov.cn/gzdt/201503/t20150302_666209.html. (China) [hereinafter NDRC Decision].

[53] *OPPO and Qualcomm concluded 3G/4G patent license*, CNMO.COM (Aug. 1, 2016), http://www.cnmo.com/news/554231.html.

[54] *See, e.g.*, *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶ 163.

[55] *See* Huawei Techs. Co. Ltd. v ZTE Corp., 2014 E.C.R. 2391, Case C-170/13, (July 16, 2015) [hereinafter *Huawei v. ZTE*].

[56] *Id.*

prescribe terms of how negotiations should proceed.[57] The *Guide to Licensing Negotiations Involving Standard Essential Patents* of the Japan Patent Office offers an extremely detailed 5-Step protocol from initial offers to ultimate dispute resolution to ensure a good faith negotiation.[58] The same guide also advises that parties provide and agree to a timeframe to avoid unexpected prolonged negotiations.[59]

In China, the FRAND-encumbered negotiation entails procedural and substantive requirements. Procedurally, the SEP owner has to 1) send out a notice of negotiation with scope of license, 2) offer its license terms supported by calculation, 3) provide patent lists and claim charts, 4) not to interfere or terminate the negotiations,[60] 5) offer/accept arbitration as a way to resolve the disputes.[61] Substantively, the SEP owners have to offer FRAND terms during the negotiation[62] and the option of taking an SEP only license.[63] The demands of FRAND negotiation also extend to SEP implementers generally requiring prompt and meaningful responses and FRAND counter offers.[64] In *Huawei v. Samsung*, the Shenzhen Court even held a court-led mediation to help resolve the dispute and observe whether the parties complied with FRAND terms.[65] The substantive requirement of asking SEP owners to make FRAND offers is premised upon a clear and predicable FRAND royalty. If FRAND is nothing but vague and unclear terms, asking the SEP owners and implementers to make FRAND offers at the negotiation is unreasonable and overly burdensome. In early *Microsoft v. Motorola*, U.S. district court explicitly found that the FRAND terms did not require SEP owners to make FRAND offers.[66] However, when FRAND royalties reach a certain level of clarity and certainty, the industry expects the sophisticated players to make offers conforming to the value of its SEP portfolio. Failure to do so would suggest bad faith.

Expanding FRAND into negotiation protocols pushes the parties to engage into meaningful discussions during negotiation. Most of the SEP negotiations take years to conclude[67] and often involve multiple litigations marched globally.[68] The debate ranges from executing confidential agreements to providing patent lists and claim

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[57] *See* e.g. *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶ 162; JPO Guide, *supra* note 6, at 5 ("Although FRAND means 'fair, reasonable and non-discriminatory,' there are two aspects to FRAND: (1) the negotiation process itself and (2) the terms of the resulting license.").

[58] *See* JPO Guide, *supra* note 6, at 5-22.

[59] *Id*. at 23.

[60] Guangdong Court Guidelines, *supra* note 6, art. 13.

[61] *Huawei v. Samsung*, SHENZHEN INTERM. PEOPLE'S CT. Jan. 4, 2018, at 288.

[62] *Id*. at 310.

[63] *Id*. at 273.

[64] Guangdong Court Guidelines, *supra* note 6, art. 14.

[65] *Huawei v. Samsung*, SHENZHEN INTERM. PEOPLE'S CT. Jan. 4, 2018, at 273.

[66] Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217 at *2 (W.D. Wash. Apr. 25, 2013) ("However, the court has also held that initial offers do not have to be on RAND terms so long as a RAND license eventually issues.").

[67] See, *e.g.* IWNCOMM Co. v. Sony Mobile Commc'n Prod. (China) Co. (西安西电捷通无线网络通信股份有限公司诉索尼移动通信产品（中国）有限公司侵害发明专利权纠纷), BEIJING HIGH PEOPLE'S CT. Mar. 28, 2018, at 10-14 [hereinafter *IWNCOMM v. Sony*] (IWNCOMM, a local Chinese SEP owners negotiated with Sony for 6 years before initiating the SEP infringement action).

[68] *See, e.g.*, *Federal Judge Allowing Apple to Proceed with These Lawsuits Against Qualcomm*, REUTERS (Sep. 8, 2017), http://fortune.com/2017/09/08/apple-qualcomm-lawsuits/ (Apple filed 11 foreign lawsuits against Qualcomm excepted the ones filed in United States.).

charts.[69] Information asymmetry could place the SEP implementers in a disadvantaged position for being unable to assess the essentiality and strength of the to-be-licensed portfolio.[70] The expansionist FRAND has disallowed SEP owners from hiding its patent lists and claim charts. With the knowledge of the portfolio strength, both parties could arrive at their reasonable royalty rates, and the numbers should be close to each other because FRAND encumbered negotiation also demand both sides making FRAND offers and counter offers. Everything added up together will largely improve the efficiency of SEP license negotiations and avoid costly litigations.

III. The Dynamic Intersection of FRAND and Antitrust Laws

Courts and competition agencies in three major jurisdictions: China, European Union ("**EU**") and the U.S. have, to some extent, addressed how antitrust laws may intersect with FRAND terms. The process as revealed below is a changing one. The enforcement of antitrust laws is through private litigation and competition law agencies, and FRAND terms are enforced by private litigations under contract and/or patent laws. The unclarity and non-transparency of FRAND terms in early times seems to have resulted in a mixed or even synchronized enforcement in practice. As FRAND terms are evolving, there have been attempts of courts and/or agencies to take opportunistic FRAND breaches out of the reach of antitrust laws, but it is never clear where to draw this line. Opposite voices from industry players and academics demanding more, rather than less, antitrust intervention are also present.[71] However, it is clear that the evolving FRAND terms changes how antitrust laws may or may not address FRAND breach.

A. China

Chinese courts and two major state competition agencies, National Development and Reform Commission ("**NDRC**") are among the earliest to use antitrust laws addressing FRAND breaches. China is an enormous market of telecom products and a pro-licensee nation based upon *Huawei v. InterDigital*, making China one of the main battlefields for SEP implementers. The growing SEP disputes provide Chinese courts and competition agencies ample opportunities to interpret FRAND terms and use antitrust laws to regulate SEP abuse.[72] As of today, the practice in China largely

[69] *See*, *e.g.*, *IWNCOMM v. Sony*, BEIJING HIGH PEOPLE'S CT. Mar. 28, 2018, at 10-14.

[70] Dieter Ernst, *Standard-Essential Patents within Global Networks - An Emerging Economies Perspective*, 6 (Nov. 21, 2016), https://ssrn.com/abstract=2873198 ("Implementers are being diadvantaged in licensing negotiations (making excess payments or entering into skewed cross licenses) because of information asymmetry regarding the extent and value of the SEP portfolio of licensors"); *See also Huawei v. InterDigital FRAND*, GUANGDONG HIGH PEOPLE'S CT. Oct. 16, 2013, at 13.

[71] *See* Multi-Association White Paper, *Standards, Licensing, and Innovation: A Response to DOJ AAG's Comments on Antitrust Law and Standard-Setting*, ACT ONLINE (May 30, 2018), http://actonline.org/wp-content/uploads/05302018_Multi-Assn-DOJ-Delrahim-SEP-White-Paper_FINAL.pdf [hereinafter White Paper]; *See also* A. Douglas Melamed & Carl Shapiro, *How Antitrust Law Can Make FRAND Commitments More Effective*, 127 YALE. L.J. 2110 (2018).

[72] *See e.g., Huawei v. InterDigital FRAND*, GUANGDONG HIGH PEOPLE'S CT. Oct. 16, 2013; IWNCOMM v. Sony, BEIJING HIGH PEOPLE'S CT. Mar. 28, 2018; 西电捷通公司关于诉苹果、索尼移动

conforms to a synchronized FRAND and antitrust law enforcement based upon the established practice of *Huawei v. InterDigital* in early 2013, only with a recent non-binding judicial legislative work suggesting a direction of differentiating FRAND and AML violation. Chinese courts may have the chance to revisit this issue in the high-profile dispute *Apple v. Qualcomm*.[73]

Under the synchronized system, FRAND obligations are generally deemed *per se* illegal under antitrust laws. The adoption of such a system is related to the analytical framework of Chinese antitrust laws and the timing of the first SEP dispute. Chinese Antimonopoly Law ("**AML**") enacted in August 2008 prohibits three main types of violations: Chapter 2 -vertical and horizontal monopoly agreements, Chapter 3- abuse of market dominance, and Chapter 4-concentration of operators.[74] Chapter 2 and 3 violations apply to business entities that engage in horizontal competitions or vertical trading, where the former focuses on business arrangements of two or more entities (e.g. cartel), and the later on abusive acts of a single entity.[75] Article 50 provides the standing to bring private actions against monopolies.[76] It is worth it to note that China also enacted the *Anti-unfair Competition Law* ("**AUCL**") in 1993 before the AML, but the AUCL is intended to target disruptive behaviors that damage business entities or consumers, rather than monopolies.[77]

The FRAND violations are frequently observed and alleged under Chapter 3 of AML, which prohibits (1) excessive pricing or underpricing, (2) dumping, (3) refusal to deal, 4) restriction on trade partners, (5) tie-in arrangements or attaching unfair trading conditions, (6) discriminatory treatment, and (7) other abusive conducts found by NDRC.[78] FRAND violations have yet to appear under Chapter 2 in China, but the possibility of monopoly agreements through SEP owners jointly setting royalties or implementers jointly holding out licenses apparently exists.[79]

At the time that Huawei filed two parallel actions, one FRAND and one AML (Chapter 3 violations), against InterDigital in 2011, the Shenzhen Court was

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侵犯WAPI标准必要专利系列纠纷案件的情况通报 [*Report on a series of lawsuits filed by IWNCOMM Co. Ltd against Apple and Sony for infringing the WAPI standard essential patents*], IWNCOMM.COM (March 6, 2018), http://www.iwncomm.com/cn/ShowArticle.asp?ArticleID=730; *Huawei v. Samsung*, SHENZHEN INTERM. PEOPLE'S CT. Jan. 4, 2018*; Qualcomm Comments on Apple's Lawsuits in China*, QUALCOMM.COM (Jan. 25, 2017), https://www.qualcomm.com/news/releases/2017/01/25/qualcomm-comments-apples-lawsuits-china.

[73] 苹果在中国起诉高通滥用市场地位 索赔10亿元人民币 [*Apple sues Qualcomm for abuse of market dominance in China and request 1 billion RMB*], REUTERS: SINA TECH (Jan. 26, 2017), http://tech.sina.com.cn/it/2017-01-26/doc-ifxzyxmu8043646.shtml.

[74] *See* Fan Long Duan Fa (反垄断法) [Anti-Monopoly Law] (promulgated by the Standing Comm. Nat'l People's Cong., Aug. 30, 2007, effective Aug. 1, 2008) (China) [hereinafter AML].

[75] *Id.* art. 13, 17.

[76] *Id.* art. 50.

[77] Fan Bu Zheng Dang Jing Zheng Fa (反不正当竞争法) [Anti-Unfair Competition Law] (promulgated by the Standing Comm. Nat'l People's Cong., Aug. 30, 2007, amended Nov. 4, 2017, effective Jan. 1, 2018), ("[F]or the purposes of this Law, 'act of unfair competition' means that in its production or distribution activities, a business disrupts the order of market competition and causes damage to the lawful rights and interests of the other businesses or consumers, in violation of this Law.").

[78] AML, *supra* note 74, art. 17.

[79] USC Speech, *supra* note 1, at 4 ("The Antitrust Division will carefully scrutinize what appears to be cartel-like anticompetitive behavior among SSO participants, either on the innovator or implementer side.").

completely out of any guidance. The standard setting organizations which created the FRAND terms in their IPR policies made no efforts to define FRAND terms.[80] No FRAND determination judgments had been issued in other jurisdictions either.[81] The Shenzhen Court innovatively looked at general principles of good faith and fair dealing under Chinese *Contract Law* to offer a basis for FRAND breach, and granted itself the judicial power to decide a FRAND rate on the ground of "necessity" to provide SEP implementers redress in negotiation failures.[82] Eventually, after the Shenzhen Court decided the FRAND complying rate should be 0.019% of the end product price by unpacking the InterDigital – Apple license, it subsequently concluded InterDigital committed the following FRAND violations: 1) making supra-FRAND offers to Huawei;[83] 2) demanding a free cross-license from Huawei;[84] 3) tying non-SEPs with SEPs in a portfolio license.[85] The injunctions sought before the U.S. International Trade Center by InterDigital was also found to be forcing upon supra-FRAND offers.[86] The same set of FRAND violations directly gave rise to abuse of market dominance in the AML judgment after InterDigital was found to possess dominance in the license market of each individual SEP.[87] The court's underlying consideration is that the damage to market competition was presumed with the presence of FRAND violations, after all, the FRAND was created as a weapon to preclude market power abuse.[88]

Huawei v. InterDigital, a very early case, built up the first analytic framework to address hold-out and royalty pricing of SEP owners through FRAND terms and AML. Relying on *Huawei v. InterDigital,* SEP owners and implementers have been making parallel AML and FRAND assertions before Chinese courts, expecting that AML violations would flow from FRAND breaches.[89] However, these disputes were either

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[80] Philippe Chappatte, *FRAND Commitments: The Case for Antitrust Intervention*, 2 EUR. COMPETITION J. 319, 328 (Aug. 2009), https://www.slaughterandmay.com/media/1428378/frand_commitments_the_case_for_antitrust_intervention.pdf.

[81] Broadcom Corp. v. Qualcomm Inc., 501 F.3d 297, 315 (3d Cir. 2007); Research in Motion Ltd. v. Motorola, Inc., 644 F. Supp. 2d 788, 797 (N.D. Tex. 2008) (Though both cases addressed the potential antitrust violations of SEP owners, neither involved a FRAND royalty determination.).

[82] *See Huawei v. InterDigital FRAND*, GUANGDONG HIGH PEOPLE'S CT. Oct. 16, 2013, at 15.

[83] *Id*. at 16.

[84] *Id*. at 17.

[85] *Id*. at 18.

[86] *Id*. at 19.

[87] *See* Huawei Technologies Co. v. InterDigital Technology Inc. et al. (华为技术有限公司诉交互数字技术公司、交互数字通信有限公司、交互数字公司滥用市场支配地位), GUANGDONG HIGH PEOPLE'S CT. Oct. 21, 2013 [hereinafter Huawei v. InterDigital AML].

[88] *See Huawei v. InterDigital FRAND*, GUANGDONG HIGH PEOPLE'S CT. Oct. 16, 2013, at 16 ("to prevent the patentee from abusing the dominance position brought by patent standardization, from refusing to provide license to competitors that will result exclusion of competitors in the market… or from using the mandatory nature of standard implementation to extort excessive patent royalties, which will result patent holdup, the fair, reasonable and non-discriminatory patent license principles was formed.").

[89] *See*, *e.g.*, 从高通起诉状来看，魅族必输无疑要流氓也没用 [*From Qualcomm complaint, Meizu will certainly lose*], SOHU.COM (June 28, 2016), http://www.sohu.com/a/86738999_407895 (Qualcomm requested the court to "declare the license terms offered to Meizu in ….do not violate AML, and is consistent with Qualcomm's FRAND commitment"); Apple Inc. et al. v. IWNCOMM Co. (西安西电捷通无线网络通信股份有限公司、苹果电子产品商贸（北京）有限公司等滥用市场支配地位纠纷), BEIJING HIGH PEOPLE'S CT. (Dec. 18, 2017) (China), https://www.tianyancha.com/lawsuit/ee7a6a295e7711e8b0207cd30ae00c08; Apple Inc. et al. v. IWNCOMM Co. Ltd. (西安西电捷通无线网络通信股份有限公司

withdrawn or remain undecided. Despite that, FRAND terms continue to evolve outside of contract laws. In several SEP infringement cases, Chinese courts used FRAND to decide the availability of injunctions and appropriate damages. For instance, *Huawei v. Samsung* rendered by the Shenzhen Court comprehensively addressed what FRAND entails in the process of negotiation procedurally and substantively, and embraced the Top Down method used to reach a FRAND royalty.[90] Theoretically, Huawei could have enforced the AML against such non-FRAND offers by filing a subsequent action. But following *Huawei v. Samsung*, the Guangdong Court, the superior court of Shenzhen Court, issued its *Guidelines for Judicial Review of Cases concerning Disputes on Standard Essential Patents* ("**Guangdong Court Guidelines**") in April 2018, which conveniently created a gap between FRAND and AML enforcement. Specifically, Articles 27 to 31 provide "FRAND violations do NOT necessarily give rise to AML violations", and ask courts to assess market power on a case-by-case basis as well as consider "retracting and exclusionary effect to competition" before finding excessive pricing, refusal to deal (seeking injunction), and tie-in licenses.[91] This may have saved Samsung from being found directly abusing its market dominance. The Guangdong High Court Guidelines is quite a breakthrough of earlier *Huawei v. InterDigital* judgments. Though court guidelines are not legally binding in terms that even lower courts of the same jurisdiction have no obligation to observe or can rule completely against such guidelines[92], it represents a changing attitude of Chinese courts using AML to enforce FRAND. Such change is closely connected to the growing understanding and clarity of FRAND terms and reflection of the required competition harm by AML.

Before the Guangdong High Court Guidelines, there were actually some attempts by the NDRC to differentiate AML violations from FRAND, but the relevant terms are too vague to actually result in a difference. The NDRC published its DRAFT *Antitrust Guidelines on Abuse of Intellectual Property Rights* ("**NDRC Guidelines**") in 2015.[93] This yet to be enacted draft asks judicial and administrative competition agencies not to presume market dominance, but to consider factors of market value and application of relevant standards, availability of substitutable standards, industry reliance, and the possibility of changing to another standard.[94] Despite the vagueness, the terms at least suggest that SEP owners may shake off AML liabilities based upon the lack of market dominance even though the offers presented to potential licensees are found un-FRAND.

、苹果电子产品商贸（北京）有限公司等发明专利实施许可合同纠纷), BEIJING INTELLECTUAL PROP. CT. (Dec. 19, 2016) (China), http://www.sohu.com/a/190210116_99927285.

[90] *See Huawei v. Samsung*, SHENZHEN INTERM. PEOPLE'S CT. Jan. 4, 2018.

[91] Guangdong Court Guidelines, *supra* note 6, art. 27-31.

[92] IWNCOMM v. Sony, BEIJING HIGH PEOPLE'S CT. Mar. 28, 2018 (Both Beijing Intellectual Property Court and Beijing High Court ruled in contrary to the Patent Infringement Guidelines of Beijing High Court with respect to exhaustion of practicing method patent.).

[93] NDRC PRICE BUREAU, 关于滥用知识产权的反垄断指南(征求意见稿) [DRAFT *Antitrust Guidelines on Abuse of Intellectual Property Rights*] (proposed for public comments on Dec. 31, 2015) [hereinafter NDRC Guidelines].

[94] *Id.* §3(1).

B. EU

The EU antitrust laws are very similar to Chinese AML, but when it comes to governing FRAND issues, EU courts are one step ahead of China and have differentiated mere FRAND breach from violations of antitrust laws.

European antitrust laws rest on two central rules under the *Treaty on the Functioning of the European Union* ("**TFEU**"): Article 101 and Article 102. Article 101 prohibits horizontal and vertical agreements between two or more independent market operators which restrict competition, just as chapter 2 of Chinese AML.[95] Article 102 prohibits abuse of market dominance by dominant undertakings in the relevant markets, including; 1) imposing unfair price and trading conditions, 2) limiting production, markets or technical development, 3) applying discriminatory trading conditions, 4) tie-in arrangements.[96] Article 102 violations are basically the same as Chapter 3 violations under Chinese AML. Both the European Court of Justice ("**ECJ**") and EU Commission can enforce the antitrust laws.

Different from China where the parties frequently engage FRAND and AML actions to resolve differences in SEP licenses, EU mainly resolves such differences in SEP infringement actions where the parties can play FRAND defense and counter-antirust claims against injunctions and Supra-FRAND terms.[97] Because EU patents are governed by the national law of each of the contracting states for which it has been granted,[98] national courts have more opportunity to address FRAND rate calculation and the intersection of FRAND and antitrust laws. When the disputes involve interpretation of EU antitrust laws, national courts can refer specific issues to the ECJ.[99]

So far, two major rulings are most relevant and represent the changing practice of EU with respect to FRAND and AML intersections.

The first decision is the preliminary ruling of ECJ in *Huawei v. ZTE*, dated July 16, 2015, concerning the interpretation of article 102. The dispute arose from alleged infringement of an SEP by Huawei against ZTE seeking an injunction and a damage award.[100] During the proceeding, the Germany court (Landgericht Dusseldorf) referred to ECJ to decide under what circumstances injunctions by SEP owners may be found to abuse market dominance.[101] In its ruling, the ECJ created a negotiation protocol extending to both SEP owners and implementers for courts to assess when article 102 violations were present. To avoid antitrust implications, the protocol requires 1) the SEP owner to provide notice of infringement and specific offers on FRAND terms, and 2) the SEP implementers to respond promptly and provide counter-offers recognized by industry practice.[102] Post-*Huawei v. ZTE*, rulings in lower courts in Germany and other EU countries have assumed that in order to avoid

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[95] Consolidated Version of the Treaty on the Functioning of the European Union art. 101, 2008 O.J. C 115/47, at 88-89 [hereinafter TFEU].

[96] TFEU, *supra* note 95, art. 102, at 89.

[97] *See e.g.*, *Huawei v. ZTE*, 2014 E.C.R. 2391; *UP v. Huawei*, [2017] EWHC (Pat) (Eng.).

[98] *Huawei v. ZTE*, 2014 E.C.R. 2391, ¶ 4.

[99] *Id.* ¶¶ 1-2.

[100] *Id.* ¶ 27.

[101] *Id.* ¶ 28 (note the existence of dominant position is not in dispute.).

[102] *Id.* ¶ 77.

a finding of abuse of dominance, an SEP holder must make an initial FRAND offer to a potential licensee.[103]

Accordingly, the ECJ ruling has kept FRAND complying behaviors outside the reach of Article 102. But it did not resolve whether and when FRAND breaches may directly result in Article 102 violations. Later on Apr. 5, 2017, the UK High Court of Justice ("**UK High Court**") issued its 166 pages of judgment in *Unwired Planet v. Huawei* which comprehensively discussed the unresolved issues in *Huawei v. ZTE*.

Firstly, the UK High Court addressed the dominant position issue which was not argued in *Huawei v. ZTE*. Same as the Chinese court, the UK High Court accepted that the relevant market is a distinct market for licensing each SEP individually.[104] Subsequently, Huawei was found to have market dominance with 100% market share without countervailing evidence drawing a negative conclusion.[105] It is important to note that the UK High Court admitted the theoretical and actual evidence of hold-out by Huawei, and that the FRAND terms have weakened the market position of SEP owners, but in this case it was not sufficient to overturn the presumption.[106] This is the first time that a court acknowledged the impact of FRAND to the market dominance of SEP owners. Secondly, despite the UK High Court found Unwired Planet's offers un-FRAND (actually three, five, or ten times higher than the decided FRAND rate), it rejected Huawei's allegation of unfair pricing, as well as seeking injunctions and bundling non-SEPs.[107] The judgment writes "The boundaries of FRAND and competition law are not the same. A rate may be above the FRAND rate but not contrary to competition law."[108] Thus, Supra FRAND terms are only a necessary, but not sufficient condition, of antitrust violations. This "necessary condition" standard is closely related to the UK High Court's conclusion that there is only a single FRAND royalty in a given transaction.[109] If any deviation from that court-determined rate is antitrust violations, the SEP owners would be overly burdened to make initial offers. Another interesting point is that the UK High Court seems to have conflated the non-discriminatory element of FRAND with the prohibition of discriminatory treatment by Article 102.[110] The UK High Court ruled the non-discrimination element is not a "hard edged" component which would justify a licensee asking for a below-FRAND rate even if that lower rate is given to a similarly situated licensee, unless the lower rate is given to distort competition between the two licensees.[111] This point associates FRAND (non-discriminatory) violations with the distortion of competition which should fall within the ambit of antitrust laws.

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[103] Jorge L. Contreras, *Unwired Planet v. Huawei: An English Perspective on FRAND Royalties*, PATENTLYO (Apr. 10, 2017), https://patentlyo.com/patent/2017/04/unwired-perspective-royalties.html.

[104] *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶ 631.

[105] *Id.* ¶ 670.

[106] *Id.* ("It is a market in which the SEP owner has 100% market share. The market is covered by the FRAND undertaking which does weaken the SEP owner's position. It is a market in which licensees can engage in holding out and there is some evidence that they do, particularly given the relative weakness of Unwired Planet.").

[107] *Id.* ¶ 807.

[108] *Id.* ¶ 806.

[109] *Id.*

[110] Contreras, *supra* note 103.

[111] *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶ 806.

The *Unwired Planet v. Huawei* judgment well illustrates the changing FRAND interpretation and enforcement, and how it affects intervention of antitrust over FRAND violations. Taking the FRAND royalty determination as an example, assuming the FRAND royalty were found to be a wide range rather than a single rate in a given transaction, the SEP owners would be offered an opportunity to design its terms within a competitive range. As a result, deviation from such a range would suggest clear intent of exploiting monopoly power and competition harm, in which antitrust intervention is warranted. It is also worth noting that the ECJ acknowledged the power of FRAND terms to impact the dominant position of SEP owners, which triggers a question of whether a forceful FRAND may take that dominance away.

C. U.S.

Compared to China and the EU, the U.S. antitrust laws are enforced very differently in the SEP setting. At least in private litigations, opportunistic breachs of FRAND terms, absent the finding of exclusionary conducts, have never been found to be Section 2 violations under the Sherman Act by U.S. courts. In contrast, the Federal Trade Commission ("**FTC**") through Section 5 of the FTC Act could reach opportunistic FRAND breaches in the form of demanding supra-FRAND royalties and seeking injunctions through administrative enforcement. There is no indication that U.S. courts and FTC would consider expanding Section 2 enforcement. Instead, the remarks of Mr. Makan Delrahim, with the Department of Justice ("**DOJ**"), suggest an anti-antitrust interventions movement.[112]

The U.S. antitrust laws comprise of three main federal legislations: the Sherman Act passed in 1890, the Clayton Act, and the Federal Trade Commission Act ("FTC Act") both passed in 1914. Section 1 of the Sherman Act outlaws monopoly agreements in restraints of trade,[113] and Section 2 outlaws monopolization, attempted monopolization, or conspiracy of monopolization.[114] The FTC Act bans "unfair methods of competition" and "unfair or deceptive acts or practices."[115] The FTC Act reached a broader scope of anti-competition behaviors than the Sherman Act.[116] Sherman Act violations give rise to private litigations and prosecutions by the department of Justice, but FTC Act violations can only be pursued by the FTC.[117]

The reason that U.S. courts never enforced Section 2 against mere breach of FRAND terms is that Section 2 is intended to prohibit exclusionary conducts, rather than abuse of market dominance through lawfully obtained monopoly position.[118]

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[112] USC Speech, *supra* note 1.

[113] 15 U.S.C. § 1 (2016).

[114] 15 U.S.C. § 2 (2016).

[115] 15 U.S.C. § 45 (2016).

[116] FED. TRADE COMM'N, STATEMENT OF ENFORCEMENT PRINCIPLES REGARDING "UNFAIR METHODS OF COMPETITION" UNDER SECTION 5 OF THE FTC ACT (Aug. 15, 2015).

[117] *The Antitrust Laws*, FED. TRADE COMM'N, https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/antitrust-laws (last visited Mar. 19, 2019).

[118] U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION, 1 (2007) ("[it] is well

The monopolization claim under Section 2 requires 1) possession of monopoly power, and 2) the willful acquisition or maintenance of that power without merit.[119] Comparatively, Chapter 3 of Chinese AML and Article 102 of TFEU prohibit abuse of obtained monopolization. Thus, behaviors giving rise to Chapter 3 and Article 102 violations may not violate Section 2. This explains why Sherman Act is far away from reaching FRAND violations.

In *Broadcom v. Qualcomm* decided on September 2007, the United States Court of Appeals for the Third Circuit ("**Third Circuit Court**") reviewed potential Section 2 violations in the SEP setting. The alleged exclusionary conduct is the intentional deception of SSOs by Qualcomm. The Third Circuit Court found Qualcomm, the SEP owner, possessed monopoly power because of its dominant market share, power to extract supra-competitive price and presence of entry barrier.[120] Then the Third Circuit Court established the "willful monopolization" element by finding that "Qualcomm' intentional false promise that Qualcomm would license its WCDMA technology on FRAND terms, on which promise the relevant SDOs relied in choosing the WCDMA technology for inclusion in the UMTS standard, followed by Qualcomm's insistence on non-FRAND licensing terms."[121] The "intentional false promise" of SEP owners resulted in the SSOs being unable to design around the patent, which is the exclusionary conduct required by Section 2 violations.[122]

Before B*roadcom v. Qualcomm*, the FTC has found in *In the Matter of Rambus, Inc.* deception of standard setting organizations constitute section 2 violations.[123] But the Court of Appeals for the D.C. Circuit ("**DC Circuit Court**") reversed the Rambus decision due to the FTC's failure to allege competition harm.[124] The DC Circuit Court clarified that "deceptive conduct—like any other kind—must have an anticompetitive effect in order to form the basis of a monopolization claim".[125] Thus, unless it is proven that the SSO would not have included the patented technology but for the deception of the SEP owner, the section 2 violation will not stand.[126] Despite the Circuit Court decision being somewhat contradictory to the third circuit judgment, it further established that the SEP owners' *ex post* royalty demand that exceeds the FRAND rate is not exclusionary conduct prohibited by Section 2 of Sherman Act.[127] After B*roadcom v. Qualcomm* and *In the Matter of Rambus, Inc.*, another relevant development was that the District Court of Delaware ("**Delaware Court**") allowed Microsoft's Section 2 allegations to survive InterDigital's motion to dismiss.[128] These allegations include InterDigital's false promise and subsequent refusal to honor FRAND terms.[129] But the disputes were later settled in May,

understood that exercise of monopoly power, including the charging of monopoly prices, through the exercise of a lawfully gained monopoly position will not run afoul of the antitrust laws.").

[119] United States v. Grinnell Corp., 384 U.S. 563, 570-571 (1966).

[120] *Broadcom*, 501 F.3d 297, 315.

[121] *Id.*

[122] *Id.* at 314.

[123] In re Rambus, Inc., 2007 WL 431522, at *68 (F.T.C. Feb. 2, 2007).

[124] *See* Rambus, Inc. v. F.T.C., 522 F.3d 456 (D.C. Cir. 2008).

[125] *Id.* at 464.

[126] *Id.* at 465.

[127] James F. Rill et al., *Antitrust and FRAND Bargaining: Rejecting the Invitation for Antitrust Overreach into Royalty Disputes*, 30 ANTITRUST 72, (Fall 2015).

[128] *See* Microsoft Mobile, Inc. et al. v. InterDigital, Inc. et al., 2016 WL 1464545 (Apr. 13, 2016).

[129] *Id.* at *1.

2017.[130] The survival of the motion to dismiss only indicates that the Delaware Court accepts the presence of deception as potential exclusionary conduct.

Comparatively, Section 5 of the FTC Act has a broader province than Section 2 of the Sherman Act. The FTC acknowledged that opportunistic FRAND breach after adoption of a standard reachable by Section 5, but not by the Sherman Act.[131] On November 26, 2012, the FTC and Robert Bosch GmbH entered into a Consent Agreement which required Bosch to agree to license on FRAND terms certain SPX patents.[132] This is the first case in which the FTC established that seeking an injunction against willing licensees in violation of FRAND commitment tends to impair competition and is thus an antitrust violation.[133]

Subsequently in *In re Motorola Mobility LLC and Google Inc.*, the FTC enjoined Google for threatening injunctions against willing licensees to demand supra-license terms.[134] The order requires Google to cease its injunctive claims against FRAND-encumbered SEPs and follow a protocol, including a request for court or arbitration determined FRAND terms, to reach agreements with potential licensees.[135] The FTC reiterated in its statement that patent ambush behaviors in the form of threatening injunction to exploit excessive value harms consumers and the incentives of developing standard-complying products.[136] The FTC also believes that Section 5 is more suitable because it allows the FTC to protect consumers and the standard setting process, which minimizes the often burdensome combination of class actions and treble damages associated with private antitrust enforcement.[137] However, the dissenting opinion of the FTC commissioner contested the majority offered ambiguous guidance to market participants without addressing what is FRAND and what circumstances may trigger an FTC lawsuit.[138] The dissenting opinion also suggests that the FTC decision runs against court practice.[139]

To summarize, the U.S. antitrust laws could still reach FRAND-violating behaviors, but opportunistic breach absent exclusionary conducts can only be enforced through the FTC Act. The parties have to rely on contract claims to address issues of hold ups and excessive royalties in private litigations. But even under the

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[130] *BRIEF-Interdigital Enters into Settlement Agreement and Release of Claims with Microsoft Corp.*, REUTERS (May 11, 2017), https://www.reuters.com/article/brief-interdigital-enters-into-settlemen/brief-interdigital-enters-into-settlement-agreement-and-release-of-claims-with-microsoft-corp-idUSFWN1ID0XO.

[131] ANALYSIS OF PROPOSED CONSENT ORDER TO AID PUBLIC COMMENT, IN THE MATTER OF MOTOROLA MOBILITY LLC AND GOOGLE INC., File No. 121-0120, at 4 (F.T.C. Feb. 2, 2007) ("However, under its stand-alone Section 5 authority, the Commission can reach opportunistic conduct that takes place after a standard is adopted that tends to harm consumers and undermine the standard-setting process").

[132] Matter of Robert Bosch GmbH, 155 F.T.C. 713, 2013 WL 8364914, *13 (Apr. 23, 2013).

[133] Gavin Bushell, *FTC Requires FRAND Commitments as Part of Merger Settlement with Broad Implications*, ANTITRUSTCONNECT BLOG (July 26, 2018), http://antitrustconnect.com/2012/12/16/ftc-requires-frand-commitments-as-part-of-merger-settlement-with-broad-implications/.

[134] Matter of Motorola Mobility LLC, and Google, Inc., 156 F.T.C. 147 2013 WL 12180882, *8-9 (July 23, 2013).

[135] *Id.*

[136] Matter of Motorola Mobility LLC, and Google, Inc., 2013 WL 124100, *2 (Jan. 3, 2013).

[137] Matter of Robert Bosch GmbH, 2012 WL 5944820, *2 (Nov. 26, 2012).

[138] Matter of Motorola Mobility LLC and Google, Inc., 2013 WL 124100, *2 (Jan. 3, 2013) (Ohlhausen, C., dissenting)

[139] *Id.*

broad scope of Section 5, the FTC noted during its enforcement that not every breach of FRAND will give rise to Section 5 concerns, but only those undermining the standard-setting process and risks harming American consumers.[140] Thus, the antitrust intervention into FRAND violations is not a warranted process even before the FTC. However, because the FTC enforcement of antitrust laws is detached from judicial practice, we could not observe a changing intersection of antitrust laws with evolving FRAND. Only the DOJ voiced its concerns with potential misuse of antitrust laws to interfere with FRAND breaches and the adequacy of remedies under contract laws,[141] which suggests the demand for less antirust intervention.

IV. RECONSIDERING THE INTERSECTION OF ANTITRUST LAWS WITH THE EVOLVING FRAND

The practice of three major jurisdictions suggests that the intersection of FRAND terms and antitrust laws is not a fixed process. Instead, it changes as the stipulations of FRAND evolve to have clarity and transparency. In particular, the practice suggests a general trend of less antitrust intervention into FRAND breaches when concrete competition harm is not present. One reason is that when FRAND has expanded into negotiation protocols, mere disobedience of FRAND procedurally without follow-up actions, such as filing injunctions or excessive demand, could not possibly give rise to antitrust concerns. The other reason is that the parallel enforcement of FRAND and antitrust laws is duplicative to some extent. Both FRAND and antitrust laws could be used to address the monopoly power and abusive conducts of SEPs owners resulting from the standardization process. Assuming FRAND has functioned effectively as expected, additional antirust intervention seems redundant and risks upset the balance already reached by FRAND obligation.

The first issue to be re-visited is whether FRAND-encumbered SEP owners still possess market dominance in light of a forceful FRAND. Market dominance is the first prong analysis of finding market abuse. Theoretically, the existence of FRAND should prevent the SEP owners form obtaining market dominance in the first place. Market dominance represents the power to control product price, quality or other trading terms, or the ability to prevent others from entering into the market.[142] Had there been no constraints of FRAND terms, the SEP owners would certainly be a dominant player with its 100% monopoly created by the standardization process. They are able to exclude others from implementing SEP, or charging supra-competitive royalties.[143] But the FRAND principle forced the SEP owner to divest its monopoly power in exchange for having its patent included into the standard.[144] Just

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[140] Matter of Robert Bosch GmbH, *supra* note 137, at *3 ("While not every breach of a FRAND licensing obligation will give rise to Section 5 concerns, when such a breach tends to undermine the standard-setting process and risks harming American consumers, the public interest demands action rather than inaction from the Commission.").

[141] USC Speech, *supra* note 1, at 3.

[142] *See*, *e.g.*, AML, *supra* note 74, art. 17.

[143] Joseph Kattan, *FRAND Wars and Section 2*, 27 ANTITRUST L.J. 30, 31 (Summer 2013).

[144] *Id.* at 33 ("The F/RAND commitment is a safeguard against monopoly power because it divests the SEP owner of the unearned monopoly power that it would otherwise acquire from the incorporation of its patents into a standard.").

like in a competitive market where undertakings are constrained by competing products, the SEP owners are constrained by FRAND commitment. Thus, if FRAND works effectively, it should be able to contain the market power to a non-dominant level.[145] The U.S. Court system has ruled that firms bound by contractual commitments that prevent the exercise of monopoly power may lack monopoly power even if no substitute exists for their products or technologies.[146]

This theoretical discussion has recently received support in *Unwired Planet v. Huawei* and Guangdong High Court Guidelines. When assessing whether the SEP owner is in a dominant position, the UK High Court found it necessary to consider the practical effect of the FRAND obligation.[147] Specifically, UK High Court noted the evidence of the difference in royalty rate reductions before and after 2013 as a result of enhanced FRAND perception and enforcement.[148] This suggests that FRAND terms have been operating as a practical constraint on SEP owners' market power.[149] The UK High Court also noted "how easy FRAND is to enforce in practice and its charity are relevant factors" of its practical constraint of market power.[150] The Guangdong High Court Guidelines also included the constraint of FRAND as a factor to assess the dominant position of the SEP owners.[151] Since FRAND may constrain the monopoly power of SEP owners, it follows that if the FRAND terms one day achieve clarity and enforcement, it can potentially remove SEP owners from a dominant position completely.

The unsettling issues with FRAND taking away the monopoly power of SEP owners is what would happen if the SEP owners breach the FRAND obligation? It was argued that through a breach of the FRAND commitment that the SEP owner may acquire, or dangerously threaten to acquire, monopoly power.[152] This would only result in a circular issue. It is practically meaningless if courts consider that FRAND could deprive the monopoly power of SEP owners, but then the minute SEP owners deviate from FRAND terms they re-gain that power. After all, the assessment of monopoly power only happens when SEP owners' non-FRAND behaviors are challenged. A clearer guide to the practice is probably when FRAND sufficiently operates to prevent SEP owners from deviating from the market value of concerned

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[145] Kattan, *supra* note 143 ("Because a firm that adheres to its F/RAND commitment is constrained from exercising monopoly power by the commitment, it is only through a breach of the commitment that the breaching party may acquire, or dangerously threaten to acquire, monopoly power.").

[146] *See* U.S. v. Gen. Dynamics Corp., 415 U.S. 486, 502-503 (1974).

[147] *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶ 654.

[148] *Id.* ¶ 656.

[149] *Id.*

[150] *Id.* ¶ 655 ("It is no use pretending the obligation is perfectly enforceable and rigidly adhered to if that is not correct. What matters here is how the SEP owners actually behave. I accept Prof Neven's point that one cannot assume the FRAND obligation works perfectly. How easy FRAND is to enforce in practice and its clarity are relevant factors.").

[151] Guangdong Court Guidelines, *supra* note 6, art 27 ("the market share is not the only factor determining if a SEP holder has market dominance in the relevant market. Depending on the circumstances of each case, it may be necessary to consider the competition status in the relevant markets, the binding effects of FRAND commitments, the restrictions on the asserted patents in the transaction conditions, the counterparty's reliance and bargaining power on the SEP operator, and other factors").

[152] Kattan*, supra* note 143, at 33.

portfolio, they are not subject to monopoly scrutiny. Thus, the redress SEP implementers seek to obtain is only through patent and/or contract laws.

Another issue that needs to be considered is the alleged hold-out issue of SEP implementers that is subject to potential antitrust scrutiny. If FRAND-encumbered SEP owners no longer possess market dominance, then SEP implementers subject to FRAND negotiation also have no opportunity of hold-out. Hold-outs arise when SEP implementers withhold to take a license until their royalty demands are met.[153] Theoretically, hold-out is possible as the implementation of the patented technology in the standards happens before the payment of license fees. Potential licensees have the strong incentive to delay the negotiation and payment. The UK High Court has acknowledged the evidence of hold-out in practice in *Unwired Planet v. Huawei.*[154] Nevertheless, for hold-out to rise above the monopolization level, the potential licensee has to possess market dominance in the end product market in the first place. One possible scenario is the potential licensee has a dominant share in the end product market of a specified geographic area. The other is the potential over-constraint of injunctive relief by a rigorous FRAND providing the implementers with too much power to hold-out, and thus de-value the SEPs. FRAND can address both scenarios by extending to the other side of the negotiation table. This is exactly what FRAND, as a process, entails today. The SEP implementers are also limited by FRAND in that they are not to engage in delay tactics,[155] and under an effective FRAND, they do not possess the monopoly power to be subject to antitrust scrutiny.

The question of taking SEP owners and implementers outside the ambit of antitrust law is whether FRAND can replace antitrust laws to effectively regulate the SEP license market. Since the SSOs envisaged FRAND principles to primarily address issues of hold-up (reversed hold-out), and royalty pricing reachable by antitrust laws, FRAND essentially assumed part of the roles of antitrust laws.[156] For a long time, FRAND was considered incompetent to handle the monopoly created by standardization which invites the necessity of AML intervention.[157] Apparently the SSOs made no effort to define FRAND when they introduced it to their IPR policies, leaving courts and interested parties spending years debating what FRAND entails. There had been voices that FRAND imposes no concrete or specific obligations on SEP licensors other than a good faith negotiation requirement.[158] But more voices opted for a strong FRAND that obligates the SEP owners to license under FRAND terms.[159] FRAND has indeed evolved into a strong FRAND, however, even as of

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[153] USC Speech, *supra* note 1, at 2.

[154] *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶669.

[155] *See*, *e.g.*, *Huawei v. ZTE*, 2014 E.C.R. 2391, ¶ 77.

[156] Benjamin C. Li, *The Global Convergence of FRAND Licensing Practices: Towards "Interoperable" Legal Standards*, 31 BERKELEY TECH. L.J. 429 (2016) ("A FRAND policy must solve three primary issues: hold-up, hold-out, and royalty pricing.").

[157] *See* Melamed & Shaprio, *supra* note 71.

[158] *See* Philippe Chappatte, *FRAND Commitments – the Case for Antitrust Intervention*, 2 EUR. COMPETITION J. 319, 328 (2009); *See also LTE/WiMax Patent Licensing Statement*, QUALCOMM (July 18, 2013), http://www.qualcomm.com/media/documents/ltewimax-patent-licensing-statement.

[159] *See* Chappatte, *supra* note 158; *See also* Joseph Farrell et al., *Standard Setting, Patents and Hold-Up*, 74 ANTITRUST L.J. 603, 638 (2007).

today, it is still far from perfection.[160] Such inadequacy drives the need for antitrust intervention to keep the SEP royalties to a competitive level.

From another perspective, if FRAND one day evolves to adequacy, then the additional antitrust intervention accompanied by administrative fines and treble damages against the same set of behaviors only becomes duplicative and unnecessary. Where SEP license practice is concerned, the issues eventually narrow down to an effective resolution of FRAND royalty. Hold-up in most circumstance is to leverage the maximum royalties exceeding the value of the licensed portfolio.[161] The SEP owners having invested tremendous amounts of money in innovation and standardization have no incentive to refuse the license unless its purpose is to exclude competitors from the market which would definitively trigger antitrust laws. From the licensee's perspective, withholding FRAND payment without sound reasons will subject it to injunctions. Thus, the only meaningful debate in the SEP license is FRAND royalty determination, regardless of the parallel infringement and antitrust actions filed simultaneously. Fortunately, the globally convergence of FRAND royalty determination has offered a great deal of predictability and certainty of FRAND royalty to industry players. It is very difficult to justify a royalty offer that apparently exceeds the concerned portfolio share under the new FRAND. FRAND also entails the obligation to engage in meaningful and speeding discussions by tying the right to injunctions with the performance in negotiation. Though yet to reach perfection, FRAND has started to micro-manage the SEP license practice from the start of negotiation to the end results. Conditioned that FRAND performs its roles well, additional antitrust intervention in the SEP license practice is just repetitive.

It should also be emphasized that antitrust enforcement requests the demonstration of market harm to competition rather than harm to the competitor. The micro-managing FRAND leaves very little room for SEP owners and implementers to engage in monopolistic breach that would result in competition harm. Opportunistic breach is against FRAND commitment, but not necessarily antitrust laws.[162] The Section 5 enforcement against opportunistic FRAND breaches is a unique scenario because the FTC Act had been broadly interpreted to cover conducts yet resulting in competition harm.[163] By contrast, enforcement of the Chinese AML Article 101 and 102 of TFEU and Sherman Act is premised upon the finding of market harm. In other words, the accused has to prove that the license terms restricted or excluded competition. Theoretically, the SEP implementers may allege that the excessive royalty demand impedes competition by taking a substantial share of royalty of other SEP owners. They may also allege that the tie-in license of non-SEPs precludes the implementers from adopting competitive technology in the non-SEP license market. Proving such an allegation is another thing. In *Unwired Planet v. Huawei*, the UK High Court found Unwired Planet's 3-10 times higher than the decided rate royalty demands is not distortive by its nature, but mere steps in the negotiation.[164] If the court is reluctant to find abuse of dominance now, then it is

[160] *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶665 ("It is no use pretending the obligation is perfectly enforceable and rigidly adhered to if that is not correct.").

[161] White Paper, *supra* note 71, at 11.

[162] *See* Rill et al., *supra* note 127.

[163] *Id*. at 73.

[164] *UP v. Huawei*, [2017] EWHC (Pat) (Eng.), ¶ 784.

even less likely in the future. The global convergence of FRAND has provided reasonable certainty and expectations to the parties and the Court with respect to what is a FRAND negotiation and royalty rate. The SEP owners are thus confined to make FRAND-complying offers and negotiate in good faith so as not to lose their only leverage of injunctions necessary to collect the value added by their patents. Demanding offers that not only exceed FRAND level, but also competition level would be easily picked up by courts and competition agencies. As a result, an adequate and clear FRAND substantially reduces the likelihood of antitrust violations in SEP license practice. Only when FRAND is weak and unpredictable will SEP owners have room and power to distort market price to a supra-competitive level and discriminate against undertakings with less-bargaining power.

Another reason that antitrust laws need to step down from addressing FRAND violations is the risk of impeding innovation and standardization processes. The antitrust laws protect competition which is a public interest. That is why the enforcement of antitrust laws entails administrative fines and punitive damages. Breaking antitrust laws in EU and China may lead to fines of up to 10% of last year's turnover of the undertaking.[165] Qualcomm was fined both by NDRC for 1 billion dollars in 2015, and then by EU commission for over 1 billion dollars again in 2018.[166] In the U.S., companies can be fined up to 100 million dollars or double gains/loss;[167] private litigations also offer treble damages.[168] Such tough penalties are imposed because the concerned antitrust violation hurts competition- an essential component of market economy and society progress. The U.S. courts are refrained from intervening in opportunistic FRAND breaches from lawfully obtained monopolization, because the evasion of a pricing constraint may hurt consumers but not the competitive process that warrants treble damages.[169] Thus, when FRAND terms have effectively managed the monopoly power of SEP owner to the extent that mere FRAND breaches could not result in competition harm, the forceful intrusion of antitrust laws would only deter SEP owners from pursuing injunctions and devalue the essential patents.[170] In the end, the antitrust liability may over burden the SEP owners to innovate or to promote standardization. [171]

Last, this article needs to re-emphasize that FRAND terms are still far from perfect, and thus, necessary antitrust intervention is still unavoidable. Several critical issues remain unsolved under the evolving FRAND that demands intervention of antitrust laws. One critical issue, for instance, is the debate over proper royalty base. At least in the WiFi industry, the court-calculated royalties were based upon chipset which is the smallest sellable unit essentially embodying

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[165] AML, *supra* note 74, art. 46; TFEU, *supra* note 95, art. 102.

[166] NDRC Decision, *supra* note 52; *Antitrust: Commission fines Qualcomm €997 Million for Abuse of Dominant Market Position*, BRUSSELS (Jan. 24, 2018), http://europa.eu/rapid/press-release_IP-18-421_en.htm.

[167] 15 U.S.C. § 2 (2016).

[168] 15 U.S.C. § 15(a) (2016).

[169] Douglas H. Ginsburg et al., *The Troubling Use of Antitrust to Regulate FRAND Licensing*, 10 CPI ANTITRUST CHRON. 1, 6-7 (2015) (citing NYNEX Corp. v. Discon, Inc., 525 U.S. 128, 135-137 (1998)).

[170] *Id*. at 7.

[171] *Id*. at 6 ("An antitrust sanction for breach of contract is unnecessary and is likely to reduce incentives to innovate and deter participation in standard setting.").

the relevant SEPs ("**SSPPU**").[172] The telecom industry has rejected SSPPU, and instead relied on the entire market value ("**EMV**") of end products to set royalties.[173] The EMV gave SEP owners more chance to collect excessive returns. As part of the NDRC sanction decision, Qualcomm was forced to discount its royalty base of EMV by 35% to lower its royalty burden to a reasonable level.[174] However, the debate between SSPPU and EMV is not merely an issue of which one may be more FRAND, but in which market and against which implementers the SEP owners should be allowed to charge royalties. It also concerns patent exhaustion that follows the first sale of chipsets to the market. The Korea FTC has ordered Qualcomm to give licenses to willing chipset manufacturers.[175] If the royalties could be charged from chipset manufacturers, then the SEP owners have less justification to use the end product as the royalty base.

Another point is that the industry practice needs time to catch up with the evolvement of FRAND, rendering the antitrust enforcement necessary at this stage and for a long time into the future. The idea that antitrust enforcement has devalued intellectual property and caused serious problems for innovation and economic growth is exaggerated.[176] Though FRAND has provided a reasonable converged approach of royalty calculation, the practice is still mainly composed of license agreements/policies not examined by such an approach. It is also not a surprise that the SEP owners will continue with the existing practice until found to not comply with FRAND or antitrust laws. Since last year, major SEP owners have begun disclosing their license policies for 5G SEPs. As the aggregate royalties are yet to be determined, it is hard to estimate what the FRAND royalty would be now.[177] However, the combined royalty cap of Qualcomm, Nokia and Ericsson is already 5.4%

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[172] In re Innovatio IP Ventures, LLC, 2013 U.S. Dist. LEXIS 144061, at *85 (N.D. Ill. Sep. 27, 2013).

[173] Jonathan D. Putnam & Tim A. William, *The Smallest Salable Patent-Practicing Unit (SSPPU): Theory and Evidence* (September 6, 2016), https://ssrn.com/abstract=2835617.

[174] *NDRC Requests Ratification from Qualcomm and Fines 6 Billion RMB*, NDRC, http://www.ndrc.gov.cn/xwzx/xwfb/201502/t20150210_663822.html (last visited Mar. 19, 2019).

[175] *See* In re Alleged Abuse of Market Dominance of Qualcomm Inc., Korean FTC Decision No. 2017-0-25 (Jan. 20, 2017) ("The Respondents shall negotiate licensing terms with the modem chipset manufacturer that is willing to enter into licensing in good faith by following industry practices and complying with the following procedures.") [hereinafter "KFTC Decision"].

[176] *See* Koren Wong-Ervin, *The Global Antitrust Attack on Intellectual Property Rights and What the U.S. Should Do About It*, FORBES (Sep. 1, 2017), https://www.forbes.com/sites/realspin/2017/09/01/the-global-antitrust-attack-on-intellectual-property-rights-and-what-the-u-s-should-do-about-it/#21d8b57f1058.

[177] *See, e.g.*, Bevin Fletcher, *Nokia Outlines Licensing Rates for 5G Smartphones,* ECN (Aug. 22, 2018), https://www.ecnmag.com/news/2018/08/nokia-outlines-licensing-rates-5g-smartphones ("Nokia expects to license its portfolio of 5G NR standard essential patents to vendors at a rate of up to €3 ($3.48 based on current exchange rates) per mobile phone… In comparison, when Qualcomm outlined its licensing terms last November, it indicated OEM branded 5G mobile handsets would have an effective royalty run rate of 2.275 percent of the selling price for single-mode devices, and 3.25 percent of the selling price for multi-mode handsets."); *See Press Release: Ericsson's FRAND Licensing Terms for 5G/NR in 3GPP Release 15*, ERICSSON (Mar. 3, 2017), https://www.ericsson.com/assets/local/tech-innovation/patents/doc/frand-licensing-terms-for-5g-nr-in-3gpp-release-15.pdf (The framework establishes a maximum royalty of $5 per 5G/NR multimode compliant handset which practices the technology covered by Ericsson's SEP portfolio. Ericsson is also offering rates as low as $2.5 per 5G/NR handset to license the SEPs for the sale of handsets in market segments which have low average sales prices for the handsets.).

for a 400 dollar phone compared to the 6-10% overall royalty burden for 4G SEPs.[178] It is only a matter of time before FRAND and/or follow up antitrust law enforcement are involved in the 5G SEP license practice.

The last note is that the antitrust laws always need to watch abusive behaviors outside the reach of FRAND. FRAND is confined to operate within the SEP license market, not the markets where chipset supply or non-SEPs licenses are involved. SEP owners with power in the chipset market and non-SEPs may extend their power in those two markets to the SEP license market through tie-in arrangements or non-SEP based injunctions. For example, Qualcomm was investigated globally for tying chipset supply to licenses.[179] Even if FRAND has evolved into perfection, there may still be behaviors that damage the SEP license market that can only be addressed by antitrust laws.

V. Conclusion

The antitrust intervention of FRAND violations is not a warranted process. Instead, the intersection is a dynamic one that changes with the evolvement of FRAND. The global convergence of FRAND royalty determination as well as extending FRAND to negotiation processes suggests that FRAND is steadily moving toward clarity, predictability and transparency. FRAND is also being forcefully enforced through contract laws and patent laws. One day, a perfect FRAND could provide adequate and effective redress to both sides of the SEP license, and leave little room for the SEP owners to manipulate or exploit the royalty terms. When FRAND is able to constrain the monopoly created by standardization just as a competitive market, antitrust laws should gradually step down from interfering with SEP license practice to avoid over-burdening the SEP owners and curtailing innovation.

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[178] *Id.*
[179] *See, e.g.*, NDRC Decision, *supra* note 52; KFTC Decision, *supra* note 175.