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JURISDICTIONAL COMPETITION ON
STANDARD-ESSENTIAL PATENTS

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This Article offers a systematic examination of jurisdictional competition on standard-essential patents (“SEPs”). SEPs are patents essential to technology standards developed by standard-setting organizations (“SSOs”). To reduce potential patent holdup, SSOs generally require SEP holders to commit to licensing SEPs on “fair, reasonable, and nondiscriminatory” (“FRAND”) terms. During the last decade, jurisdictions around the world have been engaged in fierce competition to set the ground rules on FRAND and other requirements for SEP licensing. This Article traces the legal landscape of this jurisdictional competition and examines how three major jurisdictions, the United States, Europe, and China, have developed divergent stances towards the most important legal issues affecting SEP licensing under patent law, contract law, and antitrust law.

This Article further challenges the prevailing scholarly assumption that jurisdictional competition on SEPs is socially undesirable. Drawing upon a historical analogy from maritime law in the post-industrial revolution era, this Article argues that jurisdictional competition on SEPs plays a positive role in facilitating compromises between innovator interests and implementer interests. Viewed in this light, jurisdictional competition on SEPs enhances social welfare by producing a “race to the middle” in which competing societal interests are calibrated and balanced.

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INTRODUCTION

Jurisdictions compete with one another to set legal rules aimed at achieving desired political, economic, and social outcomes.¹ They compete, among others, on

¹ For general discussions of jurisdictional competition, see Bruce G. Carruthers & Naomi R. Lamoreaux, *Regulatory Races: The Effects of Jurisdictional Competition on Regulatory Standards*, 54 J. ECON. LITERATURE 52, 52 (2016) (surveying the economic literature on jurisdictional competition).

corporate laws that regulate the governance structures of corporations,² securities laws that protect investors from securities frauds,³ environmental laws that guard against environmental pollution,⁴ labor laws that set workers' working conditions,⁵ and tax laws that determine how and where tax revenues are derived.⁶

Since about a decade ago, jurisdictions around the world have been locked in fierce competition for dominance in yet another hotly contested body of law: the laws governing standard-essential patents ("SEPs"), or patents that are essential to technology standards developed by standard setting organizations ("SSOs").⁷ In the modern world, standards are ubiquitous in industries that require the interoperability of devices, such as telecommunication equipment, mobile phones, computers, automotive, smart energy, payment terminals, and medical devices.⁸ When standards incorporate patent-protected technologies, however, the universal access prized by standards come into potential conflicts with the exclusive nature

² See, e.g., William Cary, *Federalism and Corporate Law: Reflections Upon Delaware*, 83 YALE L.J. 663, 664 (1974) (arguing that jurisdictional competition over corporate law fosters a race to the bottom); ROBERTA ROMANO, *THE GENIUS OF AMERICAN CORPORATE LAW* 1 (1993) (referring to jurisdictional competition as the "genius of American corporate law"); Lucian Bebchuk et al., *Does the Evidence Favor State Competition in Corporate Law?*, 90 CALIF. L. REV. 1777, 1777 (2002) (arguing that state competition over corporate charters provides undesirable incentives with respect to important corporate law issues).

³ See, e.g., Paul G. Mahoney, *The Origins of the Blue-Sky Laws: A Test of Competing Hypotheses*, 46 J. L. & ECON. 229, 229 (2003) (tracing the adoption of state securities laws to progressive lobbies as well as small banks facing competition from securities salesmen for depositors' funds).

⁴ See, e.g., Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210, 1210 (1992) ("Perhaps the most widely accepted justification for environmental regulation at the federal level is that it prevents states from competing for industry by offering pollution control standards that are too lax."); David M. Konisky, *Regulatory Competition and Environmental Enforcement: Is There a Race to the Bottom?*, 51 AM. J. POL. SCI. 853, 853 (2007) (presenting evidence that states enforcing federal environmental laws do not respond to competing states in the asymmetric manner suggested by the race to the bottom theory).

⁵ See, e.g., Ronald B. Davies & Krishna Chaitanya Vadlamannati, *A Race to the Bottom in Labor Standards? An Empirical Investigation*, 103 J. DEV. ECON. 1, 1 (2013) (finding that both developed and developing countries compete on labor standards, with competition strongest among developing countries with weak standards).

⁶ See, e.g., OECD, *HARMFUL TAX COMPETITION: AN EMERGING GLOBAL ISSUE* 14 (1998) (arguing that harmful tax competition can distort trade and investment patterns, erode national tax bases and shift part of the tax burden onto less mobile tax bases).

⁷ A patent is essential to a standard if the implementation of the standard requires the use of the patented invention. See *Apple, Inc. v. Motorola Mobility, Inc.*, 886 F. Supp. 2d 1061, 1067 (W.D. Wis. 2012).

⁸ TAMIAMA MADIEGA, EUROPEAN PARLIAMENTARY RSCH. SERV., *STANDARD ESSENTIAL PATENTS REGULATION* 2 (2023), [https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/754578/EPRS_BRI\(2023\)754578_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/754578/EPRS_BRI(2023)754578_EN.pdf) [<https://perma.cc/44QD-P2QL>].

of patent rights.⁹ To prevent SEP holders from extracting higher royalties than they otherwise could have obtained without the standards, SSOs generally require that SEP holders commit to licensing SEPs to third parties on “fair, reasonable, and nondiscriminatory” (“FRAND”) terms.¹⁰

SEPs and the concomitant FRAND requirement raise a whole range of legal issues under patent law, contract law, and antitrust law. The exact parameters of these laws have a tremendous impact on how SEP holders and implementers conduct their businesses.¹¹ Jurisdictions around the world compete to set these parameters, leading to what is often dubbed as “FRAND wars.”¹² The most emblematic of this jurisdictional competition are rounds after rounds of anti-suit injunctions, anti-anti-suit injunctions, and even anti-anti-anti-suit injunctions aimed at stymieing judicial proceedings in competing jurisdictions.¹³ But the global FRAND wars are being fought not just on the judicial front. In April 2023, the European Commission upped the ante in the global FRAND wars by proposing a new regulatory framework on SEPs that would have far-reaching implications for the setting of global FRAND royalty rates.¹⁴ Jurisdictional competition on SEPs has also generated warnings by former senior U.S. government officials,¹⁵ a Special 301 Report by the Office of the United States Trade Representative,¹⁶ a complaint

⁹ *Standards and Patents*, WIPO, <https://www.wipo.int/patent-law/en/developments/standards.html> [<https://perma.cc/WU3E-HW9N>] (last visited Sept. 15, 2024).

¹⁰ THOMAS F. COTTER, *PATENT WARS: HOW PATENTS IMPACT OUR DAILY LIVES* 230 (2018).

¹¹ See *infra* Part I.C.

¹² See, e.g., Joseph Kattan, *FRAND Wars and Section 2*, 27 *ANTITRUST* 30 (2013).

¹³ See Peter K. Yu, Jorge L. Contreras & Yu Yang, *Transplanting Anti-Suit Injunctions*, 71 *AM. UNIV. L. REV.* 1537, 1578–88 (2022), for discussions of the use of anti-suit injunctions, anti-anti-suit injunctions, and anti-anti-anti-suit injunctions in global SEP litigation. See also Jorge L. Contreras, *Anti-Suit Injunctions and Jurisdictional Competition in Global FRAND Litigation: The Case for Judicial Restraint*, 11 *N.Y.U. J. INTELL. PROP. & ENT. L.* 171, 174–81 (2021).

¹⁴ See *Proposal for a Regulation of the European Parliament and of the Council on Standard Essential Patents and Amending Regulation (EU)2017/1001*, COM (2023) 232 final (Apr. 27, 2023) [hereinafter *Proposed EC SEP Regulation*].

¹⁵ See Letter from Christine Varney, Former Assistant Att’y Gen., Antitrust Div., U.S. Dep’t of Just., et al., to Ursula von der Leyen, President, Eur. Comm’n, et al. (Apr. 20, 2023), <https://www.documentcloud.org/documents/23785175-2023-04-20-comments-on-european-commission-draft-sepregulation-by-former-us-officials> [<https://perma.cc/WV4K-S8VA>].

¹⁶ See OFF. OF THE U.S. TRADE REP., 2021 SPECIAL 301 REPORT 40 (2021) (identifying the use of anti-suit injunctions by Chinese courts as a worrying issue in international trade).

at the World Trade Organization (“WTO”),¹⁷ a bill in the United States Congress studded with outcries by political leaders,¹⁸ and criticisms by scholars.¹⁹

This Article offers the first systematic study of jurisdictional competition on SEPs. Delving under the surface of the global FRAND wars, the Article examines how legal rules in three major jurisdictions—the United States, Europe, and China—differ as to fundamental issues that affect, or even threaten, the basic business models of SEP licensing. The Article identifies three such issues: whether SEP holders are entitled to injunctions against SEP infringement,²⁰ the setting of FRAND royalty rates,²¹ and whether certain licensing practices of SEP holders abuse their dominant market positions.²² The Article reveals a pattern of jurisdictional competition where judicial stances towards SEPs coincide with the alignment of industry interests.²³

This Article further contributes to the scholarly debates on jurisdictional competition on SEPs by exploring its social welfare implications. Scholars have advanced many proposals to curtail jurisdictional competition on SEPs. One proposal suggests that SSOs include an exclusive forum selection clause in their policy documents to reduce forum shopping and jurisdictional competition.²⁴

¹⁷ See Request for Consultations by the European Union, *China—Enforcement of Intellectual Property Rights*, WTO Doc. WT/DS611/1 (Feb. 22, 2022) (alleging that China’s use of anti-suit injunctions SEP litigation restricts intellectual property rights protected under the WTO Agreement on Trade-Related Intellectual Property Rights).

¹⁸ See Defending American Courts Act, S. 3772, 117th Cong. (2022); Press Release, Thom Tillis, Senator, Senate, Tillis, Coons, Cotton, Hirono, and Scott Introduce Bipartisan Bill to Prevent the Chinese Communist Party from Stealing American Intellectual Property (Mar. 10, 2022), <https://www.tillis.senate.gov/2022/3/tillis-coons-cotton-hirono-and-scott-introduce-bipartisan-bill-to-prevent-the-chinese-communist-party-from-stealing-american-intellectual-property> [https://perma.cc/7X5V-HLUK] (in introducing the bill, Senator Thom Tillis characterized China’s use of anti-suit injunctions as “[t]he Chinese Communist Party’s attempt to make Chinese courts the world arbiter of intellectual property”); *Id.* (similarly, Senator Cotton stated that “[w]e should not allow the Chinese Communist Party to use its corrupt courts to excuse the theft of American intellectual property”).

¹⁹ See, e.g., Jonathan M. Barnett, *Antitrust Mercantilism: The Strategic Devaluation of Intellectual Property Rights in Wireless Markets*, 38 BERKELEY TECH. L.J. 259, 259 (2023) (criticizing China’s mercantilist use of antitrust laws in global SEP disputes).

²⁰ See *infra* Part II.A.

²¹ See *infra* Part II.B.

²² See *infra* Part II.C.

²³ See *infra* Part III.B.

²⁴ See King Fung Tsang & Jyh-An Lee, *The Ping-Pong Olympics of Antisuit Injunction in FRAND Litigation*, 28 MICH. TECH. L. REV. 305, 372 (2022).

Other proposals advocate for the setting of FRAND royalty rates not by national courts at all, but by arbitration²⁵ or a global FRAND rate-setting tribunal.²⁶ Yet other proposals argue that national courts should determine FRAND royalty rates only for patents issued in their own jurisdictions.²⁷

All of these proposals explicitly or implicitly assume that jurisdictional competition on SEPs is socially undesirable. This Article challenges this prevailing assumption. Drawing upon jurisdictional competition on carrier liability in maritime law in the late nineteenth century, when clashes between vessel-interests jurisdictions and cargo-interests jurisdictions led to compromises that laid the foundation for the international maritime order in the twentieth century, this Article argues that jurisdictional competition on SEPs plays a similarly positive role in facilitating compromises between innovator interests and implementer interests. Such compromises are imperative for intellectual property rights, which need to incentivize innovation and simultaneously protect public access to technology. Such compromises gain increased importance in the case of SEPs, whose value stems not just from the patents themselves, but also from standardization.²⁸ Jurisdictional competition on SEPs benefits society by producing neither a “race to the top” nor a “race to the bottom,” but a “race to the middle” in which competing societal interests are calibrated and balanced.

The Article proceeds as follows. Part I introduces the industry backgrounds for standards and SEPs and how SEP laws impact the global licensing of SEPs. Part II systematically examines the divergent judicial stances towards SEP injunctions, FRAND rate setting, and abusive licensing practices in three major jurisdictions: the United States, Europe, and China. Part III makes the case for jurisdictional competition on SEPs.

²⁵ See Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L.J. 1135, 1138 (2013) [hereinafter *A Simple Approach*].

²⁶ See Jorge L. Contreras, *Global Rate Setting: A Solution for Standards-Essential Patents?*, 94 WASH. L. REV. 701, 701 (2019) [hereinafter *Global Rate Setting*].

²⁷ See Contreras, *supra* note 13, at 171 (arguing that national courts should exercise judicial restraints to limit their assessments of FRAND royalty rates only to those applicable in their own jurisdictions); Eli Greenbaum, *No Forum to Rule Them All: Comity and Conflict in Transnational FRAND Disputes*, 94 WASH. L. REV. 1085, 1088 (2019) (arguing that FRAND commitments be modified such that national courts have jurisdiction for FRAND licensing determinations only for patents issued by that territory).

²⁸ See *infra* Part III.C.

I STANDARD-ESSENTIAL PATENTS, FRAND, AND GLOBAL LICENSING

Before delving into the legal treatment of SEPs, a brief introduction to the industry contexts is in order. As explained below, SEPs pose unique challenges for SSOs, courts, and government authorities. How the legal rules on SEPs are crafted has a tremendous impact on the business of SEP licensing.

A. *Standards and Standard-Essential Patents*

A standard is “any set of technical specifications that either provides or is intended to provide a common design for a product or process.”²⁹ Standardization confers enormous benefits on consumers by enabling interoperability and the “network effect.”³⁰ It also benefits the public by promoting competition among producers of standardized products.³¹ In the meantime, producers also benefit from standardization through increased sales volume and first-mover advantages from the adoption of their own technologies by a standard.³²

Standards are everywhere in the modern economy. According to an estimate by the American National Standards Institute, there are more than 10,000 recognized standards in the United States and more than 30,000 recognized standards worldwide.³³ One study found that a modern laptop alone uses 251 distinct technical standards.³⁴ These standards are developed by SSOs, which are “private groups that collaboratively select and adopt uniform technical standards for goods and services.”³⁵ Some of the most important SSOs include the European

²⁹ Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1896 (2002) [hereinafter *IPRs and SSOs*].

³⁰ See Patrick D. Curran, *Standard-Setting Organizations: Patents, Price Fixing, and Per Se Legality*, 70 U. CHI. L. REV. 983, 985–88 (2003). See also Richard H. Stern, *Who Should Own the Benefits of Standardization and the Value It Creates?*, 19 MINN. J.L. SCI. & TECH. 107, 115–16 (2018); Lemley, *IPRs and SSOs*, *supra* note 29, at 1896–97.

³¹ See *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024, 1030 (9th Cir. 2015) (“[Standardization] increases competition by lowering barriers to entry and adds value to manufacturers’ products by encouraging production by other manufacturers of devices compatible with them.”).

³² Stern, *supra* note 30, at 116.

³³ *ANSI Frequently Asked Questions—Standards Basics*, AM. NAT’L STANDARDS INST., <https://www.ansi.org/standards-faqs> [<https://perma.cc/DA66-TP8C>] (last visited Sept. 12, 2024).

³⁴ Brad Biddle et al., *How Many Standards in a Laptop? (and Other Empirical Questions)* (Sept. 10, 2010), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1619440 [<https://perma.cc/B5BT-MVB2>].

³⁵ Curran, *supra* note 30, at 983.

Telecommunications Standards Institute (“ETSI”),³⁶ the Institute of Electrical and Electronic Engineers (“IEEE”),³⁷ and the International Telecommunication Union (“ITU”).³⁸

SSOs generally proceed very cautiously when a standard involves technologies protected by patents. Mark Lemley studied thirty-six SSOs that had written intellectual property policies.³⁹ While most of the SSOs studied permitted members to own intellectual property rights in a standard, two SSOs explicitly prohibited ownership of intellectual property rights by a private party.⁴⁰ Of the thirty-six SSOs studied, twenty four imposed on their members an express or implied obligation to disclose intellectual property rights that they were aware of.⁴¹

When a patent disclosed by a holder is necessary to implement a standard, that is, when it is impossible to implement the standard through an alternative technology, the patent becomes “essential” to the standard—hence the term “standard-essential patents.” The number of declared SEPs worldwide was around 75,000 in 2021, a six-fold increase over the last decade.⁴² While these SEPs represent only two percent of the total number of patents currently in force, they play important roles in certain key industries.⁴³ Ninety percent of the declared SEPs are in telecommunications technology, 5% in computer technology, 2% in audio/visual technology, and the remaining 3% in machinery, measurement, semiconductors, optics or medical technology.⁴⁴

However, not all declared SEPs are truly essential. SSOs’ disclosure policies offer different and inconsistent rules on what patents are essential and thus need to be disclosed, to such an extent that SEPs declared under those policies may not be

³⁶ ETSI, <https://www.etsi.org/> [<https://perma.cc/FK6H-DSV9>] (last visited July 29, 2024).

³⁷ IEEE, <https://www.ieee.org/> [<https://perma.cc/L89V-8CU9>] (last visited July 29, 2024).

³⁸ ITU, <https://www.itu.int/en/Pages/default.aspx> [<https://perma.cc/WF39-ZCJV>] (last visited July 29, 2024).

³⁹ See Lemley, *IPRs and SSOs*, *supra* note 29, at 1904.

⁴⁰ See *id.* at 1905.

⁴¹ See *id.* at 1904.

⁴² *Impact Assessment Report Accompanying the Document Proposal for a Regulation of the European Parliament and of the Council on Standard Essential Patents and Amending Regulation (EU) 2017/1001, SWD (2023) 124 final*, at 8 [hereinafter *EC SEP Proposal Impact Assessment Report*].

⁴³ *Id.*

⁴⁴ *Id.*

essential in the sense that an implementer without a license from the SEP holder necessarily infringes the patent.⁴⁵ As a result, most SSOs' disclosure policies favor overdisclosure of SEPs.⁴⁶ In addition, government enforcement authorities and courts also threaten harsh penalties for non-disclosure of SEPs, adding incentives for patent holders to overdeclare.⁴⁷

Many studies have shown the extent of SEP overdeclaration. One study found that of the patents declared essential to the GSM wireless-communication standard, less than half were actually essential or probably essential.⁴⁸ Another study found that only between 25% and 40% of the patents listed in the ETSI IPR database are in fact essential to the final published standard.⁴⁹ The essentiality rate in the case of 5G is as low as 15%.⁵⁰ Yet another study found that when SEPs are challenged in courts, they fare poorly in terms of being found essential. Mark Lemley and Timothy Simcoe studied a sample of SEPs as compared to a control group of non-SEPs asserted in courts.⁵¹ They found that the infringement win rate of SEPs was 30.7%, not statistically different than the 29.5% infringement win rate of the non-SEP control group.⁵² This result, according to Lemley and Simcoe, indicates that “overdisclosure of SEPs is rampant.”⁵³

B. Patent Holdup and FRAND

When a patent holder asserts an SEP, it may “exploit the market power that may be conferred by the adoption of the standardized technology to demand high

⁴⁵ Cody M. Akins, *Overdeclaration of Standard-Essential Patents*, 98 TEX. L. REV. 579, 583–85. Some SSOs require disclosure of only “technically” essential patents, while some other SSOs also require disclosure of “commercially” essential patents. Some SSOs require disclosure of patents that are essential to optional features of a standard. And SSO policies are inconsistent on whether a patent essential to an underlying standard is considered essential to a standard that builds on the underlying standard. *See id.*

⁴⁶ RUDI BEKKERS & ANDREW UPDEGROVE, A STUDY OF IPR POLICIES AND PRACTICES OF A REPRESENTATIVE GROUP OF STANDARDS SETTING ORGANIZATIONS WORLDWIDE 55 (2012).

⁴⁷ *See Akins, supra* note 45, at 585–86.

⁴⁸ *See id.* at 582.

⁴⁹ *See* GROUP OF EXPERTS ON LICENSING AND VALUATION OF STANDARD ESSENTIAL PATENTS (“SEPs EXPERT GROUP”), CONTRIBUTION TO THE DEBATE ON SEPs 34–35 (2021), <https://ec.europa.eu/docsroom/documents/45217> [<https://perma.cc/C8EJ-ADMJ>].

⁵⁰ *See* Eur. Comm’n, *EC SEP Proposal Impact Assessment Report, supra* note 42, at 19 & n.92.

⁵¹ *See* Mark A. Lemley & Timothy Simcoe, *How Essential Are Standard-Essential Patents?*, 104 CORNELL L. REV. 607, 617 (2019).

⁵² *Id.* at 627.

⁵³ *Id.* at 628.

royalties, based on the threat of enjoining the implementer from using the relevant standard in its products if such royalties are not paid.”⁵⁴ This is often referred to in the legal and economic literatures as “holdup.”⁵⁵ As evidence of patent holdup, a U.S. Federal Trade Commission (“FTC”) commissioner cited two court cases awarding only 1/150 and 1/500 of the royalties sought.⁵⁶

As a response to the perceived holdup problem, many SSOs impose conditions on the use of SEPs. The most common conditions are that SEPs be licensed royalty free or on FRAND terms.⁵⁷ Of the thirty-six SSOs studied by Mark

⁵⁴ SEPS EXPERT GROUP, *supra* note 49, at 28.

⁵⁵ See, e.g., Thomas F. Cotter et al., *Demystifying Patent Holdup*, 76 WASH. & LE L. REV. 1501, 1505 (2019) (presenting a model for evaluating the risks of holdup); Carl Shapiro, *Injunctions, Hold-Up, and Patent Royalties*, 12 AM. L. & ECON. REV. 280, 280 (2010) (presenting a model of royalty negotiations where the hold-up component of the negotiated royalties is greatest for weak patents covering a minor feature of a product with a high margin between price and marginal cost); Joseph Farrell et al., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST L.J. 603, 604 (2007) (discussing the risk of holdup in standard setting and techniques for avoiding holdup); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 1991 (2007) (arguing that the threat to obtain a permanent injunction enhances the patent holder’s negotiating power, leading to royalty overcharges and holdup).

⁵⁶ Terrell McSweeney, *Holding the Line on Patent Holdup: Why Antitrust Enforcement Matters* 4 (Mar. 21, 2018), https://www.ftc.gov/system/files/documents/public_statements/1350033/mcsweeney_-_the_reality_of_patent_hold-up_3-21-18.pdf [<https://perma.cc/8ZDN-GKMR>] (citing *Microsoft Corp. v. Motorola, Inc.*, 2013 U.S. Dist. LEXIS 60233, at *303 (W.D. Wash. Apr. 25, 2013), and *Realtek Semiconductor Corp. v. LSI Corp.*, 2014 U.S. Dist. LEXIS 81673, at *23 (N.D. Cal. June 16, 2014)). But scholars have questioned the empirical basis of patent holdup. See, e.g., Alexander Galetovic et al., *An Empirical Examination of Patent Holdup*, 11 J. COMP. L. & ECON. 549, 554 (2015) (finding no empirical support for patent holdup).

⁵⁷ For example, the Intellectual Property Rights Policy of ETSI states:

6. Availability of Licenses

6.1 When an ESSENTIAL IPR relating to a particular STANDARD or TECHNICAL SPECIFICATION is brought to the attention of ETSI, the Director-General of ETSI shall immediately request the owner to give within three months an irrevocable undertaking in writing that it is prepared to grant irrevocable licences on fair, reasonable and non-discriminatory (“FRAND”) terms and conditions under such IPR to at least the following extent:

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

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

Lemley, four of them required members to license their SEPs to other members on a royalty-free basis.⁵⁸ Twenty-nine of the thirty-six SSOs required members to license their SEPs on FRAND terms.⁵⁹ SEPs used in certain key standards, such as cellular communication, Wi-Fi, and video/audio compression, are customarily subject to royalty payments and are governed by FRAND.⁶⁰

The number of declared SEPs was estimated to have increased sixfold in the last decade, reaching 75,000 patent families in 2021.⁶¹ These SEPs are owned by approximately 260 companies, with one third of all SEPs being owned by Chinese companies.⁶² The top five SEP holders for the cellular 5G standard, for example, are Huawei, Qualcomm, Samsung, Ericsson, and Nokia.⁶³ The shares of the United States and the European Union in SEPs decreased from 26% to 19% and from 22% to 15% respectively.⁶⁴

On the implementation side, in 2022, there were about 47,500 manufacturing firms worldwide that may implement standards that were subject to a FRAND commitment.⁶⁵ The largest market for FRAND licensing is in mobile phones, which are dominated by Samsung, Apple, and eight Chinese phone makers.⁶⁶

C. *The Impact of SEP Laws on Global Licensing*

The exact parameters of SEP laws have a tremendous impact on the global licensing of SEPs. As detailed below, certain key aspects—and even the basic business models—of SEP licensing depend on what SEP holders and implementers can or cannot do under the legal rules pertaining to SEPs. This Section below highlights three main issues that are crucial to SEP licensing: the ability of SEP holders to seek injunctions, the determination of FRAND royalty rates, and the antitrust liabilities of SEP holders for abusive licensing practices.

⁵⁸ Lemley, *IPRs and SSOs*, *supra* note 29, at 1905.

⁵⁹ *Id.* at 1906.

⁶⁰ Eur. Comm'n, *EC SEP Proposal Impact Assessment Report*, *supra* note 42, at 8–9.

⁶¹ *Id.* at 8.

⁶² *Id.*

⁶³ *5G Patent Ownership Booms: Who is Leading the Pack?*, LEXISNEXIS (Oct. 10, 2023), <https://www.lexisnexisip.com/resources/5g-patent-ownership-booms-who-is-leading-the-pack/> [<https://perma.cc/BY4V-64LE>].

⁶⁴ Eur. Comm'n, *EC SEP Proposal Impact Assessment Report*, *supra* note 42, at 8.

⁶⁵ *Id.* at 11.

⁶⁶ *Id.* at 10.

1. *Injunctions*

One fundamental remedy against the infringement of patent rights is for the patent holder to seek a permanent injunction requiring the infringing party to cease the infringing activities, including the sales of the infringing product.⁶⁷ With an injunction, a patent holder who validates its patents in court acquires the ability to completely shut down the business of the infringing party. This will give patent holders powerful leverage in their licensing negotiations with implementers and will enable them to extract higher royalties than they otherwise could.⁶⁸

Prior to 2006, the general rule in the United States was that “courts will issue permanent injunctions against patent infringement absent exceptional circumstances.”⁶⁹ In *eBay Inc. v. MercExchange, LLC* in 2006, a unanimous U.S. Supreme Court heightened the bar for the issuance of permanent injunctions in patent infringement cases, holding that “[t]he traditional four-factor test applied by courts of equity when considering whether to award permanent injunctive relief to a prevailing plaintiff applies to disputes arising under the Patent Act.”⁷⁰ This rule change was intended to address the situation where the patented invention is only a small component of the infringing product, in which case “legal damages may well be sufficient to compensate for the infringement and an injunction may not serve the public interest.”⁷¹ But even with this rule change, patent holders retain the ability to receive permanent injunctions once they establish irreparable injury, inadequacy of monetary damages, hardship, and public interest.⁷²

However, when patents are essential to a standard, there might be additional obstacles to the issuance of injunctions against patent infringement. SEP holders’ FRAND commitment may constitute a binding contractual obligation to forego

⁶⁷ Carl Shapiro, *Injunctions, Hold-Up, and Patent Royalties*, 12 AM. L. & ECON. REV. 280, 281 (2010).

⁶⁸ *Id.* Shapiro recounts the patent infringement dispute between NTP, Inc. and Research in Motion (“RIM”) as an example of this leverage. After NTP sought an injunction following the jury’s finding of infringement of its patents by RIM, RIM paid \$612.5 million to settle the case. *Id.* This settlement, according to Shapiro, “reflected the strong bargaining position NTP enjoyed by virtue of its threat to shut down Blackberry, not the underlying value of NTP’s patented technology.” *Id.*

⁶⁹ *eBay Inc. v. MercExchange, LLC*, 547 U.S. 388, 391 (2006).

⁷⁰ *Id.* at 388.

⁷¹ *Id.* at 396.

⁷² These are the traditional four factors that courts weigh in deciding whether to grant permanent injunctions. *Id.* at 391.

the remedy of injunctions and to seek FRAND royalties instead.⁷³ Additionally, seeking injunctions may allow SEP holders to reduce the number of competitors implementing the SEP and therefore monopolize the market for the product embodying the SEP.⁷⁴ The extent to which the law limits the right to seek injunctions for SEP holders will have an enormous impact on the negotiations of FRAND licenses.

2. *Royalty Rates*

FRAND requires royalty rates for SEPs to be fair, reasonable, and nondiscriminatory—but how to determine the appropriate levels of royalty rates that are FRAND? Despite demanding a FRAND commitment from SEP holders, SSOs have refrained from specifying the methodologies for determining FRAND royalty rates.⁷⁵ Many SSOs expressly disclaim any role in setting and adjudicating FRAND royalty rates.⁷⁶ In 2015, the IEEE offered broad guidelines on the calculations of FRAND royalty rates in its amended intellectual property policy.⁷⁷ These guidelines, however, received wide criticisms from the United States government and SEP holders for being hostile towards patent rights and innovation.⁷⁸ In 2022, the IEEE issued another update to its intellectual property policy that effectively revoked its 2015 guidelines.⁷⁹

⁷³ See, e.g., Jay P. Kesan & Carol M. Hayes, *FRAND's Forever: Standards, Patent Transfers, and Licensing Commitments*, 89 IND. L.J. 231, 312–13 (2014) (arguing that injunctions should not be available to SEP holders because by making FRAND commitments, SEP holders acknowledge that royalties would provide adequate compensation for the loss of exclusivity).

⁷⁴ See, e.g., Paul H. Saint-Antoine, *IP, Antitrust, and the Limits of First Amendment Immunity: Shouting “Injunction” in a Crowded Courthouse*, 27 ANTITRUST 41, 47 (2013) (arguing that seeking injunctions for SEPs may violate Section 5 of the Federal Trade Commission Act). *But see* Douglas H. Ginsburg et al., *Enjoining Injunctions: The Case Against Antitrust Liability for Standard Essential Patent Holders Who Seek Injunctions*, 14 ANTITRUST SOURCE 1, 1 (2014) (arguing that antitrust law should not impose liabilities on SEP holders’ right to seek injunctions).

⁷⁵ Contreras, *Global Rate Setting*, *supra* note 26, at 705.

⁷⁶ *Id.*

⁷⁷ Benjamin C. Li, *The Global Convergence of FRAND Licensing Practices: Towards “Interoperable” Legal Standards*, 31 BERKELEY TECH. L.J. 429, 462–63 (2016).

⁷⁸ See Manveen Singh, *The 2022 IEEE IPR Policy Changes: Legal and Policy Implications*, 38 BERKELEY TECH. L.J. 445, 451–58 (2023).

⁷⁹ Under the IEEE’s 2022 policy, the smallest saleable patent practicing unit is no longer the preferred base for determining FRAND royalties. The new policy now allows other royalty bases, such as the value of the end-device, in determining FRAND royalties. *Id.* at 459.

Because of the vague meanings of FRAND and the lack of guidance from SSOs, disputes about what royalty rates are FRAND routinely arise between SEP holders and implementers in their licensing negotiations. SEP holders and implementers have frequently resorted to litigation before national courts to determine the appropriate FRAND royalty rates.⁸⁰ Judicial determinations of FRAND royalty rates, however, face many practical difficulties. Most notably, SEP holders are generally not willing to disclose the comparable licensing agreements they enter into with other implementers, making it difficult to determine if the FRAND royalty rates at issue are consistent with FRAND.⁸¹ Not to mention that courts from different jurisdictions differ as to both the methodologies for determining FRAND royalty rates and the FRAND royalty rates thus determined.⁸² The royalty rates that are determined under FRAND have a direct impact on how much SEP holders can charge—and how much implementers have to pay—for SEPs.

3. *Licensing Practices*

Not only do SEP laws affect the rates at which SEPs are licensed, but they have a direct impact on SEP holders' licensing practices. To maximize licensing revenues, SEP holders often make certain strategic choices as to how they structure their licensing transactions. One of these strategic choices concerns the question of whom SEP holders want to license their SEPs to and collect royalties from in the supply chain of manufacturing standard-compliant products.

Technically, all participants in the supply chain of manufacturing standard-compliant products, from upstream component makers to downstream end-device makers, implement SEPs. However, once SEP holders give a license to manufacturers at a particular level of the supply chain, they will no longer be able to extract licenses and collect royalties from downstream manufacturers because of the patent exhaustion doctrine.⁸³ Under the patent exhaustion doctrine, once a patentee has obtained the economic benefit of a patent by selling or

⁸⁰ See *infra* Part II.B for detailed discussions of these competing court cases.

⁸¹ See Contreras, *Global Rate Setting*, *supra* note 26, at 706–07.

⁸² See *infra* Part II.B.

⁸³ See Jorge L. Contreras & Anne Layne-Farrar, *Non-Discrimination and FRAND Commitments*, in 1 THE CAMBRIDGE HANDBOOK OF TECHNICAL STANDARDIZATION LAW: COMPETITION, ANTITRUST AND PATENTS 186, 201 (Jorge Contreras ed., 2018) (“Once a license is granted to any link in the supply chain, the patent holder could be prevented . . . from suing or extracting any royalties from any subsequent downstream purchaser.”).

authorizing the sale of a patented article of merchandise, the patentee's right to control the subsequent use or resale of the patented article is exhausted.⁸⁴ In *Impression Products Inc. v. Lexmark Int'l, Inc.*, the United States Supreme Court reaffirmed the patent exhaustion doctrine as a per se rule that exhausts all patent rights to enforce post-sale restrictions, regardless of whether such restrictions are socially beneficial.⁸⁵ This principle has been recognized across different areas of intellectual property law and across national legal systems.⁸⁶

Because SEP holders can collect royalties from only one level of the supply chain, and because end-devices are more expensive than components, some SEP holders in certain industries have made a strategic choice of granting licenses only to end-device makers. The mobile phone industry is a typical example. Qualcomm, a U.S. company with one of the strongest SEP portfolios in cellular communications technology, had traditionally licensed its SEPs to rival cellular chipset suppliers at a 3% royalty rate since 1999.⁸⁷ But beginning from a certain time, Qualcomm started refusing to license to rival chip suppliers and instead licensed its SEPs to mobile phone manufacturers at a 5% royalty rate of the cell phone price.⁸⁸ Other SEP holders such as Nokia and Ericsson followed Qualcomm's lead and started licensing only end-device manufacturers.⁸⁹ This business model has also been adopted by the automobile industry, where Avanci, a patent pool of 4G, 3G, and 2G SEPs from 51 major SEP holders, had concluded

⁸⁴ See Huang-Chih Sung, *A Critical Review of Current Trends in Licensing Standard Essential Patents from the Perspectives of Patent Law and Supply Chain Management*, 103 J. PAT. & TRADEMARK OFF. SOC'Y 431, 442 (2023).

⁸⁵ See Herbert J. Hovenkamp, *Reasonable Patent Exhaustion*, 35 YALE J. REGUL. 513, 515 (2018). Scholars have argued against this mandatory rule of patent exhaustion. See, e.g., *id.* at 548 (criticizing mandatory patent exhaustion for "fail[ing] to distinguish harmful uses of post-sale restraints from the large number that are beneficial"); Wentong Zheng, *Exhausting Patents*, 63 UCLA L. REV. 122, 122 (2016) (advocating for patent exhaustion as a default-plus rule).

⁸⁶ See Shubha Ghosh, *The Implementation of Exhaustion Policies: Lessons from National Experiences* 4 (Univ. of Wis. Legal Stud. Rsch. Paper Series, Paper No. 1248), <https://ssrn.com/abstract=2390232> [<https://perma.cc/RC3Y-RTBM>].

⁸⁷ See Sung, *supra* note 84, at 445.

⁸⁸ *Id.* Qualcomm refused to license to Intel in 2004 and 2009, MediaTek in 2008, HiSilicon in 2009, NTT DoCoMo in 2011, Samsung in 2011, and VIA in 2012. It also refused to renew licenses for Texas Instruments in 2012, Broadcom in 2014, LGE in 2015, and Samsung in 2009 and 2018. *Id.*

⁸⁹ See Fed. Trade Comm'n v. Qualcomm, 969 F.3d 974, 984 (9th Cir. 2020).

licensing agreements with carmakers that account for 80-85% of cars with 2G technology or higher by September 2022.⁹⁰

SEP holders' refusal to license certain manufacturers based on their position in the supply chain raises serious legal issues. First and foremost, is such refusal a violation of SEP holder's contractual obligation under FRAND to grant a license to any licensee who is willing to enter into a FRAND license? In other words, by choosing to only license end-device manufacturers, do SEP holders violate the nondiscrimination requirement of FRAND?⁹¹ Second, is such refusal a violation of antitrust law that prohibits an SEP holder from acquiring and maintaining its dominant market position through anticompetitive conduct?⁹²

When granting licenses only to end-device manufacturers, SEP holders still need to allow upstream component manufacturers to access their patents, even though that access is not granted through a formal license. Qualcomm accomplishes this task through agreements with chipset manufacturers under which Qualcomm promises not to assert its patents against them but stops

⁹⁰ See Victoria Waldersee & Supantha Mukherjee, *Automakers Tackle Patent Hurdle in Quest for In-Car Tech*, REUTERS (Sept. 21, 2022), <https://www.reuters.com/business/autos-transportation/automakers-tackle-patent-hurdle-quest-in-car-tech-2022-09-21/> [<https://perma.cc/8ASX-6YXV>].

⁹¹ Commentators are split on this question. See Anne Layne-Farrar & Richard J. Stark, *License to All or Access to All? A Law and Economics Assessment of Standard Development Organizations' Licensing Rules*, 88 GEO. WASH. L. REV. 1307, 1335–38 (2020) (arguing that SDO policies do not impose a general obligation on SEP holders to license component manufacturers). *But see* Jorge L. Contreras, *Sometimes FRAND Does Mean License-to-All*, INTELL. ASSET MGMT. (Oct. 10, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3889813 [<https://perma.cc/86JE-AHLT>] (arguing that the intellectual property policies of many SDOs do impose a License-to-All requirement); Eli Greenbaum, *A Million Unlicensed Pieces: Nondiscrimination Commitments in the Supply Chain*, 2020 UNIV. ILL. L. REV. ONLINE 275, 275 (2020) (arguing that the nondiscrimination prong of FRAND provides no easy framework for analyzing selective licensing of the supply chain).

⁹² The FTC has taken this position in its lawsuit against Qualcomm. See Brief for Appellee at 69, Fed. Trade Comm'n v. Qualcomm, 969 F.3d 974 (9th Cir. 2020) (No. 19-16122) (arguing that an SEP holder may commit an antitrust violation when it “commits to license its rivals on FRAND terms, and then implements a blanket policy of refusing to license those rivals on any terms, with the effect of substantially contributing to the acquisition or maintenance of monopoly power in the relevant market.”). Commentators are split on whether antitrust law requires SEP holders to license manufacturers at all levels of the supply chain. See Sheng Tong, *The “No License, No Chips” Policy: When a Refusal to Deal Becomes Reasonable*, 20 DEPAUL BUS. & COMM. L.J. 29, 32 (2021) (arguing that SEP holders should be subject to an antitrust duty to license component manufacturers without a right to demand royalties from downstream manufacturers). *But see* Layne-Farrar & Stark, *supra* note 91, at 1309 (arguing that antitrust law does not impose an obligation on SEP holders to grant a license to component manufacturers).

short of granting them formal licenses.⁹³ These agreements essentially function as patent-infringement indemnifications and allow chipset manufacturers to practice Qualcomm’s SEPs royalty free.⁹⁴ This licensing model, which grants manufacturers at all levels of the supply chain access to SEPs, but not licenses, is often referred to as “Access to All.”⁹⁵ By contrast, the business model under which all manufacturers in the supply chain are entitled to a license is often referred to as “License to All.”⁹⁶

SEP holders also adopt certain licensing practices aimed at reinforcing their strategy of only licensing end-device manufacturers. Again, Qualcomm is the best example. To ensure that mobile phone manufacturers pay royalties, Qualcomm adopts an innovative “No License, No Chips” policy, “under which Qualcomm refuses to sell modem chips to [end-device manufacturers] that do not take licenses to practice Qualcomm’s SEPs.”⁹⁷ Whether this policy runs afoul of antitrust law is a question that determines the viability of Qualcomm’s Access-to-All licensing model.

II

JURISDICTIONAL COMPETITION ON SEPS

This Part examines the divergent treatment of the most important legal issues pertaining to SEPs in the three most commercially important jurisdictions for SEPs: the United States, Europe, and China. These legal issues include injunctions against SEP infringement, the determinations of FRAND royalty rates, and abusive licensing practices by SEP holders. As detailed below, analysis of these legal issues requires a synthesis of patent law, contract law, and antitrust law.

⁹³ See *Qualcomm*, 969 F.3d at 984.

⁹⁴ *Id.* at 985.

⁹⁵ See, e.g., Layne-Farrar & Stark, *supra* note 91, at 1309.

⁹⁶ *Id.* at 1308. See also Juan Martinez, *FRAND as Access to All Versus License to All*, 14 J. INTELL. PROP. L. & PRAC. 642, 644 (2019).

⁹⁷ *Qualcomm*, 969 F.3d at 985. In addition, in its agreements with chipset suppliers, Qualcomm agrees to not assert its SEPs against them in exchange for them promising not to sell their chips to unlicensed mobile phone manufacturers. *Id.* at 984.

A. Injunctions

Patents confer upon the patent holders the right to exclude others from making, using, or selling the patented invention.⁹⁸ But when patent holders commit to licensing their patents, as is the case under SEP holders' FRAND commitment, do they voluntarily forego this right of exclusion? Jurisdictions around the world have provided different answers to this threshold question.

1. United States

Under U.S. law, courts are generally supportive of patentees' right to seek injunctions against patent infringement.⁹⁹ But U.S. courts have exhibited "hostility" towards injunctions in the FRAND context.¹⁰⁰ As a result, U.S. courts rarely award injunctions to SEP holders.¹⁰¹

In *Apple Inc. v. Motorola, Inc.*, Motorola sought an injunction against Apple for the latter's alleged infringement of its SEPs.¹⁰² The Federal Circuit found that the district court below erred in announcing "a per se rule that injunctions are unavailable for SEPs."¹⁰³ According to the Federal Circuit, injunctions for SEPs should be analyzed using the same framework the Supreme Court laid out in *eBay*.¹⁰⁴ The Federal Circuit acknowledged that "an injunction may be justified where an infringer unilaterally refuses a FRAND royalty or unreasonably delays negotiations to the same effect."¹⁰⁵ Nonetheless, the Federal Circuit held that Motorola was not entitled to an injunction against Apple. Motorola's FRAND

⁹⁸ See, e.g., 35 U.S.C. § 271(a) ("[W]hoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States, or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.").

⁹⁹ See *eBay Inc. v. MercExchange, LLC*, 547 U.S. 388, 391 (2006) ("[C]ourts will issue permanent injunctions against patent infringement absent exceptional circumstances.").

¹⁰⁰ Richard A. Epstein & Kayvan B. Noroozi, *Why Incentives for "Patent Holdout" Threaten to Dismantle FRAND, and Why It Matters*, 32 BERKELEY TECH. L.J. 1381, 1414 (2017).

¹⁰¹ See Thomas F. Cotter & John M. Golden, *Empirical Studies Relating to Patents—Remedies*, in 2 RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW 390, 398–403 (Peter Menell et al. eds., 2019). Cf. Colleen V. Chien & Mark Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 2–4 (2012) (showing that the United States International Trade Commission ("ITC"), with its jurisdiction limited to imported products, still routinely awards injunctions, even after *eBay*).

¹⁰² See *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1331 (Fed. Cir. 2014).

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 1332.

commitments, says the Federal Circuit, “strongly suggest that money damages are adequate to fully compensate Motorola for any infringement.”¹⁰⁶ In addition, “Motorola has not demonstrated that Apple’s infringement has caused it irreparable harm” given the large number of industry participants that are already using Motorola’s SEPs.¹⁰⁷ Notably, the Federal Circuit ruled this way despite a dissenting judge’s assertion that there was sufficient evidence that Apple may have been a “hold out,” that is, “an unwilling licensee of an SEP seeking to avoid a license based on the value that the technological advance contributed to the prior art.”¹⁰⁸

U.S. courts’ hostility towards injunctions for SEPs is even more obvious in *Microsoft Corp. v. Motorola, Inc.*¹⁰⁹ Motorola sought an injunction against Microsoft after the two parties could not agree on the FRAND royalty rates for Motorola’s SEPs.¹¹⁰ As in *Apple*, the Ninth Circuit held that Motorola lacked a legitimate fear of irreparable harm because “payment of the [F]RAND rate would eliminate any such harm.”¹¹¹ But the Ninth Circuit went on to declare that “[i]n the absence of a fear of irreparable harm as a motive for seeking an injunction, the jury could have inferred that the real motivation was to induce Microsoft to agree to a license at a higher-than-[F]RAND rate.”¹¹² The Ninth Circuit concluded that there was significant evidence upon which the jury could infer that “the injunctive actions violated Motorola’s good faith and fair dealing obligations.”¹¹³

In addition, through government enforcement actions, U.S. law has imposed additional liabilities on SEP holders that seek injunctions. In 2013, the FTC issued a consent order against Google, finding that Google violated Section 5 of the FTC Act for seeking injunctive reliefs as the holder of SEPs it acquired as part of its

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.* at 1333 (Rader, J., dissenting in part). *See, e.g.,* Colleen V. Chien, *Holding Up and Holding Out*, 21 MICH. TELECOMM. & TECH. L. REV. 1, 1 (2014) (arguing that patent hold-out may constitute a more serious problem than patent hold-up).

¹⁰⁹ *See* *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir. 2015).

¹¹⁰ *Id.* at 1030.

¹¹¹ *Id.* at 1046.

¹¹² *Id.*

¹¹³ *Id.* The Ninth Circuit avoided discussing whether Motorola’s pursuit of injunctive relief violated its FRAND commitment to the SSO, obviating the need to discuss whether such commitment is enforceable as a contract. *See* King Fung Tsang & Jyh-An Lee, *Unfriendly Choice of Law in FRAND*, 59 VA. J. INT’L L. 220, 230–32 (2019), for discussions of the enforceability of the FRAND commitment.

acquisition of Motorola Mobility.¹¹⁴ The FTC reasoned that by renegeing on their promise to license SEPs to willing licensees, Google and Motorola “threaten[ed] to undermine the integrity and efficiency of the standard-setting process.”¹¹⁵ This behavior constitutes both an unfair method of competition and an unfair act or practice under Section 5 of the FTC Act.¹¹⁶

2. *Europe*

In European jurisdictions, injunctions are awarded to SEP holders with much more ease than in the United States. The discussions below focus on how injunctions are dealt with in three jurisdictions in Europe: Germany, the United Kingdom, and the European Union.

Germany. Germany is perhaps the polar opposite of the United States when it comes to judicial stance towards injunctions against patent infringement. Germany’s patent adjudication system has traditionally featured a “nearly automatic” issuance of permanent injunctions after a finding of patent infringement and before any determination of patent validity.¹¹⁷ This makes Germany an ideal venue for SEP holders to seek injunctive reliefs. According to one estimate, Germany accounts for the vast majority of court actions filed in the European Union against SEP implementers.¹¹⁸

German courts have issued some of the highest-profile injunctions against SEP infringement. For example, in *Microsoft Corp. v. Motorola, Inc.*, Microsoft argued in the U.S. District Court for the Western District of Washington that Motorola violated its FRAND commitment by making offers above the FRAND rates in their licensing negotiations.¹¹⁹ Motorola subsequently sued Microsoft

¹¹⁴ See *Motorola Mobility LLC and Google Inc.*, Docket No. C-4410, Decision and Order (F.T.C. July 24, 2013), <https://www.ftc.gov/sites/default/files/documents/cases/2013/07/130724googlemotorolado.pdf> [<https://perma.cc/FNU4-DFFW>].

¹¹⁵ *Motorola Mobility LLC and Google Inc.: Analysis of Proposed Consent Order to Aid Public Comment*, 78 Fed. Reg. 2398, 2400–01 (F.T.C. Jan. 11, 2013).

¹¹⁶ *Id.*

¹¹⁷ See, e.g., THOMAS F. COTTER, *COMPARATIVE PATENT REMEDIES: A LEGAL AND ECONOMIC ANALYSIS* 245–46 (2013).

¹¹⁸ According to the estimate, there are around 44 court cases against SEP implementers filed in Germany per year, around 2 cases in France, and around 1 case in the Netherlands. See Eur. Comm’n, *EC SEP Proposal Impact Assessment Report*, *supra* note 42, at 16.

¹¹⁹ *Microsoft Corp. v. Motorola, Inc.*, 871 F. Supp. 2d 1089, 1094–95 (W.D. Wash. 2012), *aff’d*, 696 F.3d 872 (9th Cir. 2012).

in Germany for infringing its SEPs.¹²⁰ The German court hearing the dispute promptly found infringement and issued an injunction against Microsoft.¹²¹ Other high-profile examples of German SEP injunctions include the ones Nokia obtained in the Mannheim Regional Court against Chinese mobile phone makers Vivo and Oppo, which were forced to exit the German market altogether because of the injunctions.¹²²

In recent years, Germany's automatic injunction regime underwent a quiet shift. In August 2021, the German Parliament approved an amendment to the German Patent Act that precludes injunctive relief if the claim would "lead to disproportionate, unjustified hardship for the infringer or third parties."¹²³ This statutory amendment was intended to codify a 2016 ruling by the German Federal Court of Justice ("BGH") in an infringement case brought by an SEP holder against a car manufacturer.¹²⁴ In that case, the BGH stated that when granting an injunction, courts must take into account proportionality and the interest of both parties.¹²⁵ However, the exception created by the statutory amendment is very narrow in scope¹²⁶ and is paired with increased potential for SEP holders to obtain damages.¹²⁷ Therefore, despite the heightened threshold for injunctions under the amended Patent Act, the German automatic injunction regime is "still alive."¹²⁸

¹²⁰ *Id.* at 1096.

¹²¹ *Id.* at 1103 n.14.

¹²² Florian Mueller, *Smartphone Maker Vivo Exits German Market After Nokia Starts Enforcement of Standard-Essential Patent Injunction*, FOSS PATENTS (June 6, 2023), <http://www.fosspatents.com/2023/06/smartphone-maker-vivo-exits-german.html> [<https://perma.cc/S985-VFJ8>].

¹²³ Patentgesetz [PatG] [Patent Act], Dec. 16, 1980, BGBL I at 1, as amended by Gesetzes vom 30 August 2021 [Act of 30 August 2021], Aug. 30, 2021, BGBL I at 4074, § 139(1) (Ger.), https://www.gesetze-im-internet.de/englisch_patg/englisch_patg.html [<https://perma.cc/G6JD-BYAP>].

¹²⁴ See BGH, May 10, 2016, X ZR 114/13, juris (Ger.), <http://juris.bundesgerichtshof.de/cgi-bin/rechtsprechung/document.py?Gericht=bgh&Art=en&nr=75714&pos=0&anz=1> [<https://perma.cc/2XKX-86AR>].

¹²⁵ See *id.* at 20.

¹²⁶ See Christian Paul et al., *Still Alive: The German "Automatic Injunction" in Patent Infringement Cases Under the New Patent Act*, JONES DAY (May 6, 2022), <https://www.jonesday.com/en/insights/2022/05/still-alive-the-german-automatic-injunction-in-patent-infringement-cases-under-the-new-patent-act> [<https://perma.cc/KB3G-DK7M>].

¹²⁷ See Jonathan M. Barnett & David J. Kappos, *Restoring Deterrence: The Case for Enhanced Damages in a No-Injunction Patent System*, in 5G AND BEYOND: INTELLECTUAL PROPERTY AND COMPETITION POLICY IN THE INTERNET OF THINGS 129, 150 (Jonathan M. Barnett & Sean M. O'Connor eds., 2024).

¹²⁸ See Paul et al., *supra* note 126.

United Kingdom. Similar to German law, UK law is also friendly to SEP holders when it comes to issuing injunctions against SEP infringement. Under English law, “once a patent owner has established that patent is valid and has been infringed, it is prima facie entitled to prevent further infringement of its property rights by injunction.”¹²⁹ Although patent validity needs to be established before an injunction can be granted—a more stringent requirement than under German law—UK law still provides ample avenues for patent holders to obtain injunctive reliefs.

UK courts have curtailed the ability of patent holders to obtain injunctions in the FRAND context, but only nominally. In the 2020 case of *Unwired Planet Int’l Ltd. v. Huawei Techs. Co.*, the UK Supreme Court affirmed a decision by the UK High Court of Justice (Patents) that awarded SEP holder Unwired Planet an injunction against Huawei unless Huawei enters into a global license at the rates determined by the court.¹³⁰ The UK Supreme Court views an SEP holder’s FRAND commitment as “a contractual derogation from a[n] SEP owner’s right under general law to obtain an injunction to prevent infringement of its patent.”¹³¹ Under this approach, when the FRAND rates determined by a court are too high, or higher than a licensee is willing to accept, the ability of the licensee to avoid the injunction by paying FRAND licensing rates provides only an illusory escape from the dictatorial power of injunctions.¹³²

European Union. The Court of Justice of the European Union (“CJEU”) has also been accommodative of SEP holders’ needs to seek and obtain injunctions. In the landmark case of *Huawei Techs. Co. v. ZTE Corp.*, the CJEU sets out the conditions under which an SEP holder can seek an injunction against a licensee without violating Article 102 of the Treaty on the Functioning of the European Union (“TFEU”), which prohibits a dominant firm from abusing its dominant market position.¹³³ The CJEU first emphasized that the right to bring an action for infringement of intellectual property rights “cannot in itself constitute an abuse

¹²⁹ *Unwired Planet Int’l Ltd. v. Huawei Techs. Co.* [2020] UKSC 37, [3].

¹³⁰ *Id.*

¹³¹ *Id.* [14].

¹³² For discussions of the FRAND rates set by the *Unwired Planet* court, see *infra* notes 166–68 and accompanying text.

¹³³ Case C-170/13, *Huawei Techs. Co. v. ZTE Corp.*, ECLI:EU:C:2015:477, ¶¶ 44–71 (July 16, 2015).

of a dominant position.”¹³⁴ However, the CJEU makes it clear that SEPs are “exceptional circumstances” where seeking an injunction may constitute abusive conduct for purposes of Article 102 of the TFEU.¹³⁵

The CJEU goes on to provide a roadmap that SEP holders can follow to avoid violating Article 102 of the TFEU. According to the CJEU, an SEP holder does not abuse its dominant market position within the meaning of Article 102 of the TFEU by bringing an action for infringement and seeking an injunction, as long as:

Prior to such proceedings, it is thus for the proprietor of the SEP in question, first, to alert the alleged infringer of the infringement complained about by designating that SEP and specifying the way in which it has been infringed.¹³⁶

....

Secondly, after the alleged infringer has expressed its willingness to conclude a licensing agreement on FRAND terms, it is for the proprietor of the SEP to present to that alleged infringer a specific, written offer for a licence on FRAND terms, in accordance with the undertaking given to the standardisation body, specifying, in particular, the amount of the royalty and the way in which that royalty is to be calculated.¹³⁷

....

Should the alleged infringer not accept the offer made to it, it may rely on the abusive nature of an action for a prohibitory injunction or for the recall of products only if it has submitted to the proprietor of the SEP in question, promptly and in writing, a specific counter-offer that corresponds to FRAND terms.¹³⁸

Under these conditions, an SEP holder could obtain an injunction only after it has made a FRAND offer to a licensee. If the licensee rejects the FRAND offer without making a FRAND counteroffer, or if the licensee makes a counteroffer that is not consistent with FRAND, then the SEP holder could proceed to institute an infringement action and seek an injunction without violating Article 102 of the

¹³⁴ *Id.* ¶¶ 46, 51–53.

¹³⁵ *Id.* ¶¶ 47–50.

¹³⁶ *Id.* ¶ 61.

¹³⁷ *Id.* ¶ 63.

¹³⁸ *Id.* ¶ 66.

TFEU. But a licensee could forestall the SEP holder's attempt at an injunction by making a FRAND counteroffer.

Practically speaking, however, any constraints imposed by these conditions on the SEP holder's ability to obtain injunctions will depend on what courts believe a FRAND royalty rate should be. If courts have a tendency of determining very high royalty rates to be FRAND—which is generally the case in European jurisdictions¹³⁹—any relief that a licensee may potentially receive under *Huawei v. ZTE* will only be theoretical. After all, it is precisely the high royalty rates demanded by SEP holders that lead to the failure of licensing negotiations between SEP holders and licensees.

3. *China*

China is among the most hostile jurisdictions to the issuance of injunctions in SEP infringement actions. In one judicial interpretation¹⁴⁰ issued in 2016, China's Supreme People's Court laid out a general rule against such injunctions.¹⁴¹ Article 24 of the judicial interpretation provides that Chinese courts generally do not grant injunction requests from SEP holders when they “deliberately violate” their FRAND commitments in licensing negotiations with SEP implementers, or when SEP implementers do not commit “obvious wrongdoings.”¹⁴² However, when adjudicating courts have a tendency of determining very low royalty rates to be FRAND—which is generally the case in China¹⁴³—it is not too difficult for SEP holders to be considered to “deliberately violate” their FRAND commitments.¹⁴⁴

¹³⁹ See *infra* notes 166–77 and accompanying text.

¹⁴⁰ Judicial interpretations issued by the Supreme People's Court are official sources of law in Chinese law. See Li Wei, *Judicial Interpretation in China*, 5 WILLIAMETTE J. INT'L L. & DISP. RESOL. 1, 1 (1997).

¹⁴¹ See *Zuigao Renmin Fayuan Guanyu Shenli Qinfan Zhuanliquan Jiufen Anjian Yingyong Falu Ruogan Wenti de Jieshi, Fashi* [2016] Yi Hao (最高人民法院关于审理侵犯专利权纠纷案件应用法律若干问题的解释 (二), 法释【2016】1号) [Interpretation on Issues Relating to Application of Law in Adjudicating Patent Infringement Disputes (Part II), Judicial Interpretation No. 1 [2016] (promulgated by the Judicial Comm. Sup. People's Ct., Jan. 25, 2016, effective Apr. 1, 2016, amended Dec. 23, 2020) Sup. People's Ct. Gaz., Mar. 21, 201 (China), <https://www.wipo.int/wipolex/zh/text/588304> [<https://perma.cc/S5YK-SJHN>].

¹⁴² *Id.* art. 24.

¹⁴³ See *infra* note 190 and accompanying text.

¹⁴⁴ There are exceptions to this general pattern. In January 2018, the Shenzhen Intermediate People's Court granted an injunction against Samsung in its SEP disputes with Huawei, finding that Samsung maliciously delayed negotiations and was “at fault” during the negotiations. See Jacob Schindler, *Full Judgment in Huawei v. Samsung Details Why Shenzhen Court Hit Korean Company with SEP Injunction*, IAM (Apr. 3, 2018), <https://www.iam-media.com/article/>

In addition, China's antitrust regulator, the State Administration for Market Regulation ("SAMR"), has proposed to impose potential antitrust liability on SEP holders seeking injunctive relief. In a draft guideline released in June 2023 for public comment, SAMR stated that "SEP holders generally have the legal right to request injunctive relief from courts or relevant government authorities."¹⁴⁵ However, SAMR also noted that "SEP holders might abuse injunctive relief to force standards implementers to accept their, thereby excluding or restricting competition."¹⁴⁶ Therefore, the potential exposure to antitrust liability serves as an additional disincentive for SEP holders to seek injunctions in China.

B. FRAND Royalty Rates

Besides the issuance of injunctions, jurisdictions around the world also differ as to the setting of royalty rates that are considered FRAND. While the concept of FRAND is straightforward in principle, there are significant uncertainties as to what exactly are "fair and reasonable"¹⁴⁷ and "nondiscriminatory."¹⁴⁸ The

full-judgment-in-huawei-v-samsung-details-why-shenzhen-court-hit-korean-company-sep-injunction [https://perma.cc/AU2P-5KGT]. In March 2018, the Beijing High People's Court upheld an injunction granted by a lower court in *Iwncomm v. Sony*. See Slaughter and May, *Beijing High Court Upholds China's First SEP Injunction*, LEXOLOGY (Apr. 11, 2018), <https://www.lexology.com/library/detail.aspx?g=a198e40e-b759-4c6c-aae5-37d46de7e350> [https://perma.cc/MZJ4-PYB9]. But in the SEP litigation that was filed in China since 2018, the plaintiffs were merely asking Chinese courts to determine the FRAND royalty rates for Chinese or global SEPs. See Peter K. Yu, Jorge L. Contreras & Yu Yang, *Transplanting Anti-Suit Injunctions*, 71 AM. UNIV. L. REV. 1537, 1578–87 (2022).

¹⁴⁵ See Guanyu Biaozhun Biyao Zhuanli Lingyu de Fanlongduan Zhinan (Zhengqiu Yijian Gao) (关于标准必要专利领域的反垄断指南（征求意见稿）) [Guidelines on Antimonopoly Enforcement in the Area of Standard-Essential Patents (Draft for Comment)], STATE ADMIN. FOR MKT. REGUL. (Jun. 30, 2023), <https://www.ccpit.org/a/20230703/20230703g7hm.html> [https://perma.cc/TC2U-XNXD] [hereinafter SAMR Draft SEP Antimonopoly Guidelines].

¹⁴⁶ *Id.*

¹⁴⁷ See, e.g., Dennis W. Carlton & Allan L. Shampine, *An Economic Interpretation of FRAND*, 9 J. COMPETITION L. & ECON. 531, 545 (2013) (arguing that a reasonable royalty under FRAND is the royalty that would have been negotiated *ex ante*); Rebecca Haw Allensworth, *Casting a FRAND Shadow: The Importance of Legally Defining "Fair and Reasonable" and How Microsoft v. Motorola Missed the Mark*, 22 TEX. INTELL. PROP. L.J. 235, 247–50 (2014) (arguing that a patent's pre-standard incremental value over alternatives should be its *ex-post* "fair and reasonable" rate under FRAND); Damien Geradin, *The Meaning of "Fair and Reasonable" in the Context of Third-Party Determination of FRAND Terms*, 21 GEO. MASON L. REV. 919, 925 (2014) (arguing that binding SEP holders' licensee fees to *ex ante* incremental value would create a risk of reverse holdup where by SEP holders would be under-compensated).

¹⁴⁸ See, e.g., Daniel G. Swanson & William J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1, 26–27 (2005) (arguing that the only justification for the nondiscriminatory requirement under FRAND is to prevent foreclosure by

determination of FRAND royalty rates is important for its own sake, as it directly impacts the financial bottom lines of SEP holders and implementers.¹⁴⁹ The FRAND rate determination is also important for purposes of ascertaining whether SEP holders breach their FRAND commitment or violate antitrust laws.¹⁵⁰

Over the years, courts in major jurisdictions have gravitated towards two methods of establishing the FRAND royalty rates: the comparable agreements method and the top-down method.¹⁵¹ The comparable agreements method derives FRAND royalty rates based on the royalty rates of comparable licensing agreements.¹⁵² In practice, however, few licensing agreements are truly comparable as “companies rarely operate in identical conditions.”¹⁵³ In addition, the comparable agreements method assesses royalties for individual SEPs without regard for other SEPs that cover the standard, leading to “royalty stacking” whereby cumulative assessment of royalties results in excessive prices.¹⁵⁴ By contrast, the top-down method avoids royalty-stacking by first assessing the aggregate royalty burden for the entire standard and then apportioning the aggregate royalty burden to a specific SEP holder’s portfolio.¹⁵⁵

a vertically integrated monopolist); Mario Mariniello, *Fair, Reasonable and Non-Discriminatory (FRAND) Terms: A Challenge for Competition Authorities*, 7 J. COMPETITION L. & ECON. 523, 524–25 (2011) (arguing that the nondiscrimination requirement under FRAND only requires the SEP holder to license to all willing licensees but otherwise allows royalty rates to vary); Carlton & Shampine, *supra* note 147, at 533 (advocating for a broader application of the nondiscrimination principle to address patent holdup).

¹⁴⁹ In April 2021, Ericsson’s quarterly income dropped more than 60% due to its prolonged licensing disputes with Samsung. After reaching a settlement with Samsung, Ericsson reported strong growth in licensing revenues in the following quarter. See Wentong Zheng, *Weaponizing Anti-Suit Injunctions in Global FRAND Litigation*, 30 GEO. MASON L. REV. 413, 423 & nn.73–75 (2023).

¹⁵⁰ For example, under *Huawei v. ZTE*, whether an SEP holder violates Article 102 of the TFEU depends in part on whether the licensing offer it makes to the implementer is considered to be FRAND. See Case C-170/13, *Huawei Techs. Co. v. ZTE Corp.*, ECLI:EU:C:2015:477, ¶¶ 61, 63, 66 (describing the obligations the SEP holder and alleged infringer must meet to avoid violating Article 102).

¹⁵¹ See Haris Tsilikas, *Comparable Agreements and the “Top-Down” Approach to FRAND Royalties Determination*, COMPETITION POL’Y INT’L (July 21, 2020), <https://www.pymnts.com/cpi-posts/comparable-agreements-and-the-top-down-approach-to-frand-royalties-determination/> [perma.cc/R8Z8-Z545].

¹⁵² *Id.*

¹⁵³ *Id.* at 4.

¹⁵⁴ Eur. Comm’n, *EC SEP Proposal Impact Assessment Report*, *supra* note 42, at 44.

¹⁵⁵ *Id.* (quoting Jorge L. Contreras, *Aggregated Royalties for Top-Down FRAND Determinations: Revisiting “Joint Negotiation,”* 62 ANTITRUST BULL. 690, 690 (2017)).

Yet major jurisdictions around the world agree on the methods for determining FRAND rates only in broad strokes. They differ on many issues that are crucial to the determination of FRAND rates. As a result, the FRAND royalty rates determined in different jurisdictions are noticeably different from one another. The following analysis outlines the different approaches to FRAND royalty rate setting—as well as the different results—in the United States, Europe, and China.

1. *United States*

U.S. courts have maintained a relatively balanced approach to FRAND rate setting. In *Microsoft Corp. v. Motorola, Inc.*, Judge Robart of the U.S. District Court for the Western District of Washington made an attempt at calculating the FRAND royalty rates in an SEP licensing dispute.¹⁵⁶ Judge Robart took factors used in determining reasonable royalty rates in non-SEP settings and modified them to replicate what an SEP licensor and licensee would have agreed to in a hypothetical negotiation.¹⁵⁷ Included in these modified factors were considerations of how important the SEPs were to the standard and how important the SEPs and standard were to the product.¹⁵⁸ Using these modified factors, along with royalty rates from comparable licensing agreements entered into by both parties, Judge Robart arrived at a FRAND rate and range for each of the disputed SEPs.¹⁵⁹

In another case, *TCL Commc'n. Tech. Holdings, Ltd. v. Telefonaktiebolaget LM Ericsson*, Judge Selna of the U.S. District Court for the Central District of California determined the FRAND royalty rates for Ericsson's cellular 2G, 3G, and 4G SEPs.¹⁶⁰ Following a modified version of the top-down method, Judge Selna determined the aggregate royalties for a given standard and then apportioned the aggregate royalties to Ericsson's portfolios.¹⁶¹ Judge Selna ultimately determined a FRAND rate that was substantially lower than that proposed by Ericsson but

¹⁵⁶ *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 2111217, at *1 (W.D. Wash. Apr. 25, 2013).

¹⁵⁷ *Id.* at *3, *16. These factors are referred to as *Georgia-Pacific* factors as they were first developed in *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970).

¹⁵⁸ *Id.* at *3.

¹⁵⁹ *Id.* at *3–4.

¹⁶⁰ *TCL Commc'n. Tech. Holdings, Ltd. v. Telefonaktiebolaget LM Ericsson*, No. CV 15-2370 JVS(DFMx), 2017 WL 6611635 (C.D. Cal. Dec. 21, 2017), at *1, *amended and superseded*, 2018 WL 4488286 (C.D. Cal. Sept. 14, 2018), *reversed in part, vacated in part*, 943 F.3d 1360 (Fed. Cir. 2019).

¹⁶¹ *Id.* at *9.

higher than that proposed by TCL.¹⁶² Finally, Judge Selna analyzed royalty rates under comparable licensing agreements and concluded that Ericsson did not violate the nondiscrimination obligation under FRAND.¹⁶³ Judge Selna acknowledged that “[n]o American cases have definitively addressed the non-discrimination requirement.”¹⁶⁴ But he rejected the “hard-edged” approach to nondiscrimination, concluding that “there is no single rate that is necessarily FRAND, and different rates offered to different licensees may well be FRAND given the economics of the specific license.”¹⁶⁵

2. *Europe*

In comparison to the United States, judicial determinations of FRAND royalty rates in Europe are generally tilted in favor of SEP holders. The most notable case law from Europe is the 2017 case of *Unwired Planet v. Huawei*, where Justice Birss of the UK High Court of Justice (Patents) determined the FRAND royalty rates of the wireless 2G, 3G, and 4G SEP portfolio of Unwired Planet, most of which was acquired from Ericsson.¹⁶⁶ Justice Birss used comparable licensing agreements entered into by Ericsson as the starting point and adjusted for differences between Ericsson’s and Unwired Planet’s portfolios.¹⁶⁷ As a cross-check, Justice Birss also conducted a top-down analysis and calculated the FRAND rates for Unwired Planet’s SEP portfolios by multiplying the aggregate royalty burden of a given standard with Unwired Planet’s share of SEPs in the standard.¹⁶⁸

While the UK court in *Unwired Planet* used similar methodologies to those used by the U.S. court in *TCL*, the two courts managed to derive substantially different FRAND rates for Ericsson’s wireless SEP portfolios.¹⁶⁹ For example, the court in *Unwired Planet* calculated a FRAND rate of 0.8% for Ericsson’s 4G SEP

¹⁶² CLEARY GOTTlieb, *TCL v. ERICSSON: LANDMARK JUDGMENT ON FRAND LICENSING* 6 (2018), <https://www.clearygottlieb.com/-/media/files/alert-memos-2018/20180109-tcl-v-ericsson--landmark-judgment-on-frand-licensing.pdf> [<https://perma.cc/YZS8-NPY6>].

¹⁶³ *TCL*, 2017 WL 6611635, at *2, *55.

¹⁶⁴ *Id.* at *55.

¹⁶⁵ *Id.*

¹⁶⁶ See *Unwired Planet Int’l Ltd. v. Huawei Techs. Co.* [2017] EWHC (Pat) 711, [1], *aff’d*, [2020] UKSC 37 (Eng.).

¹⁶⁷ *Id.* [475].

¹⁶⁸ *Id.* [806].

¹⁶⁹ Most of Unwired Planet’s SEP portfolios at issue were acquired from Ericsson. See *id.* [1].

portfolio for a major market,¹⁷⁰ while the court in *TCL* calculated a FRAND rate of 0.45% for Ericsson’s 4G SEP portfolio in the United States.¹⁷¹ The difference between the two rates is almost twofold in the SEP holder’s favor in *Unwired Planet*.

Also notable is the fact that Justice Birss in *Unwired Planet* determined the FRAND rates of Unwired Planet’s *global* SEP portfolios, not just its SEP portfolios in the UK, despite objections from Huawei.¹⁷² Justice Birss observed that both companies operate globally, and concluded that “a licensor and licensee acting reasonably and on a willing basis would agree on a worldwide licence.”¹⁷³ Huawei’s insistence on a UK-only license, therefore, “is not FRAND.”¹⁷⁴ Justice Birss went on to determine the FRAND rates of a global license as the condition of avoiding a UK injunction. Upon appeal, the UK Supreme Court affirmed that UK courts have the power to require an implementer to enter into a global license in order to avoid an injunction for infringement of a UK patent.¹⁷⁵

Finally, Justice Birss also addressed the question of whether the nondiscrimination prong of FRAND imposes a “hard-edged” obligation on SEP holders. Justice Birss first rejected the notion that the FRAND rate varies based on the size or other characteristics of the licensee.¹⁷⁶ However, Justice Birss went on to reject a “hard-edged” approach to nondiscrimination as well. He equated the nondiscrimination requirement under FRAND with the competition law prohibition against discriminatory pricing. According to Birss, different royalty rates charged to different licensees are prohibited only if they “are sufficiently dissimilar to distort competition.”¹⁷⁷

¹⁷⁰ *Id.* [464].

¹⁷¹ *TCL Commc’n. Tech. Holdings, Ltd. v. Telefonaktiebolaget LM Ericsson*, No. CV 15-2370 JVS(DFMx), 2017 WL 6611635, at *51 (C.D. Cal. Dec. 21, 2017), *amended and superseded*, 2018 WL 4488286 (C.D. Cal. Sept. 14, 2018), *reversed in part, vacated in part*, 943 F.3d 1360 (Fed. Cir. 2019).

¹⁷² *Unwired Planet* argued that it had the right to insist on a global license, but Huawei was willing to take a license only for Unwired Planet’s UK SEPs. See *Unwired Planet Int’l Ltd. v. Huawei Techs. Co.* [2017] EWHC (Pat) 711, [524], *aff’d*, [2020] UKSC 37 (Eng.).

¹⁷³ *Id.* [543].

¹⁷⁴ *Id.* [572].

¹⁷⁵ *Unwired Planet Int’l Ltd. v. Huawei Techs. Co.*, [2020] UKSC 37, [50], [84] (Eng.).

¹⁷⁶ *Unwired Planet*, [2017] EWHC (Pat) 711, [175] (Eng.) (“It would be unfair (and discriminatory) to assess what is and is not FRAND by reference to [the size] and other characteristics of specific licensees.”).

¹⁷⁷ *Id.* [501].

In recent years, however, U.K. courts have somewhat shifted their judicial stances on FRAND rate determinations in the direction of being more friendlier to implementers. In March 2023, the U.K. High Court of Justice issued a ruling in *InterDigital v. Levono*, in which the court set a FRAND rate of \$0.175 per unit for InterDigital's 5G SEP portfolio.¹⁷⁸ This rate was much closer to Lenovo's proposal of \$0.16 per unit, and far away from InterDigital's proposed rate of \$0.53 per unit.¹⁷⁹ In December 2023, Tesla filed a lawsuit in the U.K. High Court of Justice against InterDigital and Avanci, claiming that they violated their FRAND obligations and asking the court to make a FRAND rate determination for their SEP portfolios.¹⁸⁰ The fact that Tesla is challenging SEP holders in a U.K. court indicates that U.K. courts are being viewed favorably by implementers as litigation venues. It remains to be seen whether these developments are merely outliers or will form a trend.

On the regulatory front, Europe has also seen significant developments on SEPs and FRAND rate setting. On April 27, 2023, the European Commission published a proposed regulatory framework for SEPs.¹⁸¹ The proposed framework was released after the publication of the EU's intellectual property action plan, which noted "increases in SEP licensing disputes in the automotive sector and the potential for other IoT sectors to become subject of such disputes as they begin using connectivity and other standards."¹⁸² Among other things, the proposed SEP framework would establish a Competence Center within the EU Intellectual Property Office to register SEPs and provide an electronic SEP database, to perform additional checks for the essentiality of SEPs, and to determine the aggregate royalties of standards as well as the FRAND rates for SEPs.¹⁸³ The proposed

¹⁷⁸ See Amy Sandys, *Lenovo "Overall Winner" of UK FRAND Trial as InterDigital Confirms Appeal*, JUVE PATENT (June 29, 2023), <https://www.juve-patent.com/cases/lenovo-overall-winner-of-uk-frand-trial-as-interdigital-confirms-appeal/> [<https://perma.cc/JYJ8-NTPZ>].

¹⁷⁹ *Id.*

¹⁸⁰ *Tesla Tells UK Court It Has Avanci 4G License But Wants Preferential 5G Rate, Estimates Avanci's Coverage at 80%*, IP FRAY (Jan. 3, 2024), <https://ipfray.com/tesla-tells-uk-court-it-has-avanci-4g-license-but-wants-preferential-5g-rate-estimates-avancis-coverage-at-80/> [<https://perma.cc/P9CZ-ASLL>].

¹⁸¹ See Eur. Comm'n, *Proposed EC SEP Regulation*, *supra* note 14.

¹⁸² See *id.* at 2.

¹⁸³ See *id.* at 17–18.

framework represents the first attempt by a regulatory authority to intervene in the SEP licensing process.

The EU's proposed SEP framework is widely perceived to be friendly to SEP implementers at the expense of the interests of SEP holders.¹⁸⁴ Among the parties who submitted comments on the proposal, SEP holders voiced opposition or concerns, while implementers showed strong support.¹⁸⁵ For instance, Nokia, one of the largest wireless communications SEP holders, argued that “there is no empirical evidence to justify the need for regulatory intervention.”¹⁸⁶ By contrary, Apple, one of the largest implementers of wireless communications SEPs, contended that “[m]any criticisms of the Regulation are not grounded in reality.”¹⁸⁷ All of the major automobile manufacturers from around the world, which have recently begun becoming SEP implementers due to the adoption of wireless communications technology in smart automobiles, submitted comments that strongly supported the proposal.¹⁸⁸

¹⁸⁴ Qualcomm, Feedback on Proposal for a Regulation on Standards Essential Patents 2 (Aug. 10, 2023), https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13109-Intellectual-property-new-framework-for-standard-essential-patents/F3434463_en [https://perma.cc/C3CP-ZJWG] (“Because it is so unbalanced, the Proposal is being perceived—regardless of the Commission’s intentions—as the Commission favoring implementers over innovators.”).

¹⁸⁵ See *Feedback and Statistics: Proposal for a Regulation*, EUR. COMM’N (Aug. 10, 2023), https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13109-Intellectual-property-new-framework-for-standard-essential-patents/feedback_en?p_id=32054345 [https://perma.cc/D36D-X9ZM].

¹⁸⁶ Nokia, Nokia Response to “Have Your Say”; Intellectual Property – New Framework for Standard-Essential Patents 8 (Aug. 10, 2023), https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13109-Intellectual-property-new-framework-for-standard-essential-patents/F3434468_en [https://perma.cc/BBZ2-RR97].

¹⁸⁷ Apple Inc., Submission in Response to the European Commission’s Consultation Regarding Its Proposed Regulation on Standard Essential Patents 5 (Aug. 10, 2023), https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13109-Intellectual-property-new-framework-for-standard-essential-patents/F3434446_en [https://perma.cc/W2M5-WGMG].

¹⁸⁸ See, e.g., Alliance for Automotive Innovation, Alliance Automotive Innovation (“Auto Innovators”) Comments on the European Commission’s Proposal for a Regulation of the European Parliament and of the Council on Standard Essential Patents and Amending Regulation (EU) 2017/1001 1–2 (Aug. 10, 2023), https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13109-Intellectual-property-new-framework-for-standard-essential-patents/F3434455_en [https://perma.cc/7ANV-JFXG]; Japan Automobile Manufacturers Association, Inc., Comments and Observations in Respect of the Proposal for a Regulation of the European Parliament and of the Council on Standard Essential Patents and Amending Regulation (EU)2017/1001, 2023/0133(COD)

3. *China*

Compared to courts in Europe, courts in China have taken FRAND rate setting in the other direction. Indeed, “Chinese courts have earned a reputation for setting FRAND royalty rates that are substantially lower than rates determined by courts in other jurisdictions.”¹⁸⁹

In 2013, the Shenzhen Intermediate People’s Court determined a maximum 0.019% FRAND rate for InterDigital’s Chinese 2G/3G/4G SEP portfolio in *Huawei v. InterDigital*.¹⁹⁰ In an article published in an academic journal, the three presiding judges of the InterDigital case explained how this FRAND rate was arrived at.¹⁹¹ According to the article, the Shenzhen court adopted a modified version of the comparable agreements method in calculating the FRAND rate for InterDigital’s SEP portfolio based on, among other factors, the licensing rates InterDigital demanded from Apple and Samsung.¹⁹² The 0.019% FRAND rate determined by the Shenzhen court is “orders of magnitude lower than the single-digit percentage

by the European Commission 2–3 (Aug. 10, 2023), https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13109-Intellectual-property-new-framework-for-standard-essential-patents/F3434416_en [<https://perma.cc/ET9J-2JDZ>]; European Automobile Manufacturers’ Association, ACEA Comments on the European Commission’s Proposal for a Regulation on Standard Essential Patents 3–4 (July 14, 2023), https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13109-Intellectual-property-new-framework-for-standard-essential-patents/F3430593_en [<https://perma.cc/86BK-VDNK>].

¹⁸⁹ Yu et al., *supra* note 13, at 1585.

¹⁹⁰ See InterDigital, Inc., Annual Report (Form 10-K) 30 (Feb. 19, 2015). The Shenzhen court’s judgment in *Huawei v. InterDigital* was not published because the proceeding was subject to a confidentiality order. Mark Cohen, *Huawei/InterDigital Appeal Affirms Shenzhen Lower Court on Standards Essential Patents*, CHINA IPR (Oct. 29, 2013), <https://chinaipr.com/2013/10/29/huaweiinterdigital-appeal-affirms-shenzhen-lower-court-on-standards-essential-patent/> [<https://perma.cc/EVH7-CFNX>].

¹⁹¹ See Ye Ruosi (叶若思), Zhu Jianjun (祝建军) & Chen Wenqun (陈文全), Biaozhun Biyao Zhuanli Shiyong Fei Jiufen Zhong FRAND Guize de Sifa Shiyong—Ping Huawei Gongsi Su Meiguo IDC Gongsi Biaozhun Biyao Zhuanli Shiyong Fei Jiufen (标准必要专利使用费纠纷中FRAND规则的司法适用—评华为公司诉美国IDC公司标准必要专利使用费纠纷) [Judicial Application of FRAND Rules in Disputes Involving Royalties for Standard Essential Patents—Commentary on *Huawei v. IDC Essential Patent Royalty Dispute*], Dianzi Zhishi Chanquan (电子知识产权) [Elecs. Intell. Prop.], no. 4, 2013, at 54–61 [hereinafter *Judicial Application of FRAND Rules*].

¹⁹² *Id.* at 61.

demands that have been common for holders of large portfolio of patents declared essential to telecommunications standards.”¹⁹³

On appeal, the Guangdong High People’s Court affirmed the Shenzhen court’s FRAND determination.¹⁹⁴ The Guangdong High People’s Court stated that “under basically-same transaction conditions, if an SEP holder charges a lower royalty to a certain licensee while charging a higher royalty to another licensee, the latter will have reasons to believe that it is subject to discriminatory treatment by way of comparison and the SEP holder would violate the commitment to non-discriminatory licenses.”¹⁹⁵ This appears to be an endorsement of a “hard-edged” approach to the nondiscrimination requirement under FRAND, in stark contrast to the UK court’s stance in *Unwired Planet*.¹⁹⁶

In another case, *Huawei Techs. Co. v. Conversant Wireless Ltd.*, the Nanjing Intermediate People’s Court determined the FRAND royalty rates for Conversant’s 2G/3G/4G Chinese SEP portfolios using the top-down method.¹⁹⁷ The Nanjing court first estimated the aggregate royalties for the 2G/3G/4G standards and then apportioned them to Conversant’s Chinese 2G/3G/4G portfolios, after adjusting for the essentiality of Conversant’s SEPs.¹⁹⁸ The Nanjing court determined a zero rate for Conversant’s 2G and 3G SEPs and a 0.00225% rate for Conversant’s 4G SEPs.¹⁹⁹ The royalty rates that Conversant demanded from Huawei, which were

¹⁹³ Leon B. Greenfield, Hartmut Schneider & Joseph J. Mueller, *SEP Enforcement Disputes Beyond the Water’s Edge: A Survey of Recent Non-U.S. Decisions*, 27 ANTITRUST 50, 53 (2013).

¹⁹⁴ See *Huawei Techs. Co. v. InterDigital Commc’n, Inc.*, CLI.C.2449578(EN) (High People’s Ct. of Guangdong Province Oct. 16, 2013) (PKU Law).

¹⁹⁵ *Id.*

¹⁹⁶ In *Unwired Planet*, the UK court shied away from a hard-edged approach to nondiscrimination. See *Unwired Planet Int’l Ltd. v. Huawei Techs. Co.* [2017] EWHC (Pat) 711, [175] (Eng.) (“It would be unfair (and discriminatory) to assess what is and is not FRAND by reference to [the size] and other characteristics of specific licensees.”).

¹⁹⁷ See *Huawei Jishu Youxian Gongsi Deng Su Kanwensen Wuxian Xuke Youxian Gongsi Queren Buqinhai Zhuanliquan ji Biaozhun Biyao Zhaunli Shiyongfei Jiufen An* (华为技术有限公司等诉康文森无线许可有限公司确认不侵害专利权及标准必要专利使用费纠纷案) [*Huawei Techs. Co. v. Conversant Wireless Ltd., A Dispute over Confirmation of Non-Infringement and Standard Essential Patent Royalty Fees*], CLI.C.106538808 (Nanjing Interm. People’s Ct. Sept. 16, 2019) (PKU Law).

¹⁹⁸ *Id.*

¹⁹⁹ *Id.*

determined by a German court to be on FRAND terms,²⁰⁰ were approximately 18.3 times the FRAND rate determined by the Nanjing court.²⁰¹

C. *Abusive Licensing*

Because of the exclusivity and essentiality of SEPs, SEP licensing also implicates antitrust laws, which prohibit dominant firms from abusing their dominant market positions. As discussed below, antitrust laws around the world have adopted different approaches to the treatment of certain controversial licensing practices, such as selective licensing.

1. *United States*

Thanks to the influence of the Chicago school of economics, antitrust laws in the United States have been fairly tolerant of dominant firms' conduct.²⁰² As detailed below, this has certainly been reflected in U.S. courts' stance towards SEP holders' licensing conduct.

In 2019, the District Court for the Northern District of California handed down its decision in the landmark lawsuit filed by the FTC against Qualcomm.²⁰³ The FTC alleged that Qualcomm abused its monopoly power in markets for modem chips through a variety of anticompetitive conducts.²⁰⁴ The court agreed. The court criticized Qualcomm's "No License, No Chips" policy, under which Qualcomm refused to sell modem chips to Original Equipment Manufacturers ("OEMs") unless they signed separate patent license agreements, as anticompetitive.²⁰⁵ By

²⁰⁰ See Landgericht Düsseldorf [LG] [District Court of Düsseldorf] Aug. 27, 2020, 4b O 30/18, ¶¶ 393, 423–24 (Ger.).

²⁰¹ See Huawei Jishu Youxian Gongsi Deng Yu Kangwensen Wuxian Xuke Youxian Gongsi Queren Bu Qin Hai Zhuanli Quan Ji Biaozhun Bi Yao Zhuanli Xuke Jiufen An (华为技术有限公司等与康文森无线许可有限公司确认不侵害专利权及标准必要专利许可纠纷案) [Huawei Techs. Co., Ltd. et al. v. Conversant Wireless Licensing Co., Ltd., A Dispute over Patent Non-infringement and Standard Essential Patent Licensing], 2022 Sup. People's Ct. Gaz. 1 (Sup. People's Ct. 2020) (China), *translated in* Patently-O, <https://patentlyo.com/media/2020/10/Huawei-V.-Conversant-judgment-translated-10-17-2020.pdf> [<https://perma.cc/TCY9-4QBC>].

²⁰² See Robert Pitofsky, *Chicago School and Dominant Firm Behavior*, in *HOW THE CHICAGO SCHOOL OVERSHOT THE MARK: THE EFFECT OF CONSERVATIVE ECONOMIC ANALYSIS ON U.S. ANTITRUST* 107 (2008) ("One of the most remarkable developments in recent years is hostility to section 2 enforcement by conservative scholars and in language in judicial decisions.").

²⁰³ See *Fed. Trade Comm'n v. Qualcomm, Inc.*, 411 F. Supp. 3d 658 (N.D. Cal. 2019).

²⁰⁴ *Id.* at 669.

²⁰⁵ *Id.* at 658.

sustaining “unreasonably high royalty rates,” this policy imposed “an artificial and anticompetitive surcharge on the price of rivals’ modem chips.”²⁰⁶ The court also held that Qualcomm’s refusal to license its SEPs to rival modem chip suppliers “promoted rivals’ exit from the market, prevented rivals’ entry, and delayed or hampered the entry and success of other rivals.”²⁰⁷ According to the court, both Qualcomm’s FRAND commitment and antitrust law required Qualcomm to license its SEPs to rival modem chip suppliers.²⁰⁸

However, the FTC’s victory over Qualcomm was short lived. In 2020, the Ninth Circuit overturned the district court’s decision.²⁰⁹ The Ninth Circuit held that Qualcomm’s refusal to license its SEPs to rival modem chip suppliers did not constitute an illegal “refusal to deal” in accordance with the standard set forth in *Aspen Skiing*, as none of the *Aspen Skiing* factors were present in this case.²¹⁰ But more importantly, Qualcomm’s refusal to license rival chip suppliers did not violate antitrust laws because there was “no evidence that Qualcomm singles out any specific chip supplier for anticompetitive treatment in its SEP-licensing.”²¹¹ The Ninth Circuit further held that even if the district court was correct that Qualcomm’s refusal to license rival chip suppliers violated its FRAND commitment, the FTC had not demonstrated how the alleged breach of the FRAND commitment “impairs the opportunities of rivals.”²¹² Qualcomm’s royalties were “chip-supplier neutral,” the Ninth Circuit emphasized, because “Qualcomm collects them from *all* OEMs that license its patents, not just ‘rivals’ customers.”²¹³ As to Qualcomm’s “No License, No Chips” policy, the Ninth Circuit held that the district court “failed to identify how the policy directly impacted Qualcomm’s competitors or distorted ‘the area of

²⁰⁶ *Id.* at 698.

²⁰⁷ *Id.* at 744.

²⁰⁸ *Id.* at 751–59.

²⁰⁹ *See* Fed. Trade Comm’n v. Qualcomm, 969 F.3d 974, 974 (9th Cir. 2020).

²¹⁰ *See id.* at 993–95 (citing *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985)). The Ninth Circuit found that Qualcomm switched from licensing to rival modem chip suppliers to licensing to OEMs in response to the Supreme Court’s ruling in *Quanta Comput., Inc. v. LG Elecs., Inc.*, 553 U.S. 617 (2008). Accordingly, Qualcomm’s rationale for changing its licensing practice was not “to sacrifice short-term benefits in order to obtain higher profits in the long run from the exclusion of competition.” *Id.* at 994.

²¹¹ *Id.* at 995.

²¹² *Id.*

²¹³ *Id.* at 996.

effective competition.”²¹⁴ The Ninth Circuit reasoned that because the license requirement applies regardless of whether OEMs choose Qualcomm or a rival chip supplier, the license requirement “by definition does not distort the ‘area of effective competition’ or impact competitors.”²¹⁵ The Ninth Circuit acknowledged that Qualcomm’s “No License, No Chips” policy was designed to maximize Qualcomm’s profits.²¹⁶ But the opportunity to charge monopoly price “is an important element of the free market system and is what attracts business acumen in the first place.”²¹⁷

SEP holders’ selective licensing was contested in another lawsuit in the United States, filed by the U.S. subsidiary of the German automotive electrical and navigation systems supplier Continental against Avanci, a patent pool formed by major SEP holders to license wireless communications SEPs in vertical markets, including the automotive industry.²¹⁸ Continental argued that Avanci refused to license its SEPs to it, but instead only provided non-FRAND licenses to OEMs, which may in turn seek indemnification from Continental.²¹⁹ Continental argued that this refusal to license breached the defendant’s FRAND commitment and constituted an abuse of dominance in violation of Section 2 of the Sherman Act.²²⁰

The U.S. District Court for the Northern District of Texas disagreed. The court held that any injury Continental suffers from not being able to obtain FRAND licenses from Avanci “does not harm its competitive position or its position as a consumer of products used in its devices.”²²¹ Continental suffers an antitrust injury only if OEMs pass on the costs of the non-FRAND licenses to it.²²² Even if Continental has antitrust standing, the court continued, Avanci’s refusal to license its SEPs to Continental does not constitute unlawful monopolization under Section 2 of the Sherman Act.²²³ The court noted that “[a] lawful monopolist’s ‘charging of monopoly prices, is not only not unlawful; it is an important element of the

²¹⁴ *Id.* at 1001 (quoting *Ohio v. Am. Express Co.*, 585 U.S. 529, 543 (2018)).

²¹⁵ *Id.* at 1002.

²¹⁶ *Id.* at 1003.

²¹⁷ *Id.* (quoting *Verizon Commc’ns, Inc. v. L. Offs. of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004)).

²¹⁸ *See Cont’l Auto. Sys., Inc. v. Avanci, LLC*, 485 F. Supp. 3d 712, 722–23 (N.D. Tex. 2020).

²¹⁹ *Id.* at 726.

²²⁰ *See id.* at 732–33.

²²¹ *Id.* at 729.

²²² *Id.* at 729–30.

²²³ *See id.* at 735.

free-market system.”²²⁴ Even if Avanci’s members deliberately deceived SSOs regarding their FRAND intention, “[t]he use of deception simply to obtain higher prices normally has no particular tendency to exclude rivals and thus to diminish competition.”²²⁵ The court thus granted Avanci’s motion to dismiss Continental’s claims under Section 2 of the Sherman Act.²²⁶ On appeal, the Fifth Circuit upheld the district court’s holdings.²²⁷

2. *Europe*

Similarly, laws in Europe have been fairly accommodative of SEP holders’ licensing conducts. For instance, in *Huawei v. ZTE*, the CJEU provided a roadmap for SEP holders to follow to avoid antitrust liability when seeking injunctions against SEP infringement.²²⁸ In *Unwired Planet*, Justice Birss of the UK High Court of Justice (Patents) set a higher threshold for violations of antitrust law when an SEP holder seeks high licensing fees. According to Justice Birss, Article 102 of the TFEU only condemns excessive pricing.²²⁹ For a royalty rate to be excessive, “it would have to be substantially more than FRAND.”²³⁰ Therefore, “a royalty rate can be at least somewhat higher than the true FRAND rate and still not contrary to competition law.”²³¹

German courts also weighed in on the question of whether certain licensing practices by SEP holders, such as selective licensing, constitute an abuse of dominance. In a series of lawsuits filed by Nokia against German automaker Daimler in German courts in 2019, Nokia alleged that Daimler and its suppliers

²²⁴ *Cont’l Auto. Sys.*, 485 F. Supp. 3d at 734 (quoting *Verizon Commc’ns, Inc. v. L. Offs. of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004)).

²²⁵ *Id.* at 735 (quoting *Rambus Inc. v. Fed. Trade Comm’n*, 522 F.3d 456, 464 (D.C. Cir. 2008)). The court further stated that “[e]ven if such deception had also excluded Defendants’ competitors from being included in the standard, such harms to competitors, rather than to the competitive process itself, are not anticompetitive.” *Id.*

²²⁶ *Id.* The court also granted Avanci’s motion to dismiss Continental’s claims under Section 1 of the Sherman Act. *See id.* at 732.

²²⁷ *See Cont’l Auto. Sys., Inc. v. Avanci LLC*, No. 20-11032, 2022 WL 2205469 (5th Cir. June 21, 2022).

²²⁸ *See supra* text accompanying notes 136–38.

²²⁹ *See Unwired Planet Int’l Ltd. v. Huawei Techs. Co.* [2017] EWHC (Pat) 711, [153] (Eng.).

²³⁰ *Id.*

²³¹ *Id.*

had infringed its wireless 3G/4G SEPs.²³² The Regional Court of Mannheim held that even if an SEP holder has a dominant market position, it has the freedom to select the stage of the supply chain to license its SEPs.²³³ The court found no evidence that using Daimler's end-products as the royalty base in calculating FRAND royalty rates would harm competition.²³⁴ In another decision on the same matter, the Regional Court of Dusseldorf voiced concern that granting Nokia a permanent injunction against Daimler would allow Nokia to abuse its dominant market position.²³⁵ The Dusseldorf court referred the case to the CJEU on the question of whether an SEP holder has the freedom to choose any implementer in the supply chain to grant a FRAND license.²³⁶ However, Nokia and Daimler settled their disputes before the CJEU had an opportunity to opine on the matter.²³⁷

3. *China*

Unlike the United States and Europe, China has been very aggressive in using its antitrust laws to pursue allegedly abusive licensing practices by SEP holders. In 2013, the Shenzhen Intermediate People's Court issued a ruling in an antitrust case filed by China's Huawei against U.S.-based patent assertion entity InterDigital.²³⁸ The Shenzhen court held that:

InterDigital had violated the Chinese Anti-Monopoly Law by (i) making proposals for royalties from Huawei that the court believed were excessive, (ii) tying the licensing of essential patents to the licensing of non-essential patents, (iii) requesting as part of its licensing proposals that Huawei provide a grant-back of certain patent rights to InterDigital and (iv) commencing a USITC action against Huawei while still in discussions with Huawei for a license. Based on these findings, the court

²³² See Mathieu Klos, *Daimler Faces Next Connected Cars Dispute*, JUVE PATENT (Apr. 11, 2019), <https://www.juve-patent.com/news-and-stories/cases/daimler-faces-next-connected-cars-dispute/> [<https://perma.cc/K86E-3DTW>].

²³³ Landgericht Mannheim [LG] [Regional Court of Mannheim] Aug. 18, 2020, 2 O 34/19, ¶ 202 (Ger.).

²³⁴ *Id.* ¶ 205.

²³⁵ Landgericht Düsseldorf [LG] [Regional Court of Dusseldorf] Nov. 26, 2020, 4c O 17/19, ¶ 29 (Ger.), <https://www.wipo.int/wipolex/en/text/591426> [<https://perma.cc/U44Z-69C6>].

²³⁶ Mathieu Klos, *Regional Court Düsseldorf Refers Nokia vs. Daimler Questions to CJEU*, JUVE PATENT (Nov. 26, 2020), <https://www.juve-patent.com/cases/regional-court-dusseldorf-refers-nokia-vs-daimler-questions-to-cjeu/> [<https://perma.cc/BL2P-L452>].

²³⁷ Sung, *supra* note 84, at 453.

²³⁸ See InterDigital, Inc., Annual Report (Form 10-K) 23 (Feb. 24, 2014).

ordered InterDigital to cease the alleged excessive pricing and alleged improper bundling of InterDigital's Chinese essential and non-essential patents, and to pay Huawei approximately 3.2 million USD in damages related to attorneys fees and other charges²³⁹

Following the Shenzhen court's *InterDigital* decision, China's antitrust regulators stepped up their efforts to rein in alleged abusive licensing practices by SEP holders. In 2015, China's National Development and Reform Commission ("NDRC") completed its abuse-of-dominance investigation into Qualcomm's licensing practices.²⁴⁰ NDRC concluded that Qualcomm abused its dominant position in the market for the licensing of wireless SEPs and the market for baseband processors by engaging in anticompetitive conducts, including charging unreasonably high royalty rates, tying licenses of SEPs to licenses of non-SEPs, and conditioning the sale of chips upon purchasers agreeing not to challenge the validity of Qualcomm's patents.²⁴¹ NDRC imposed a fine of CNY 6 billion yuan, equivalent to 8% of Qualcomm's sales in China in 2013, and ordered Qualcomm to cease the violations.²⁴²

Both *Huawei v. InterDigital* and NDRC's enforcement action against Qualcomm make it very clear that under China's Antimonopoly Law, charging "unreasonably high" royalty rates is a separate antitrust offense. Given Chinese courts' tendency to determine very low FRAND rates, SEP holders face elevated risks of being held liable under Chinese antitrust laws for demanding high royalty rates. However, both *Huawei v. InterDigital* and the NDRC's enforcement action against Qualcomm sidestep the core practices by SEP holders—namely, refusing to license component manufacturers and withholding chip supplies unless the customer signs a patent license agreement. Therefore, SEP holders are able to

²³⁹ *Id.*

²⁴⁰ *Guojia Fazhan Gaigewei Dui Gaotong Gongsi Longduan Xingwei Zeling Zhenggai Bing Fakuan 60 Yi Yuan* (国家发展改革委对高通公司垄断行为责令整改并罚款60亿元) [*NDRC Fines Qualcomm 6 Billion Yuan and Order It to Correct Its Monopolistic Conduct*], NAT'L DEV. AND REFORM COMM'N (国家发展和改革委员会) (Feb. 10, 2015), https://www.ndrc.gov.cn/xwdt/xwfb/201502/t20150210_955999.html [<https://perma.cc/XC29-PM7G>].

²⁴¹ *Id.*

²⁴² *Id.*

preserve their core business model in China, although they have to cut royalty rates to comply with China's FRAND requirement.²⁴³

III THE CASE FOR JURISDICTIONAL COMPETITION ON SEPs

What emerges from the foregoing discussions on jurisdictional competition on SEPs is a pattern of different jurisdictions adopting different stances towards SEP licensing and FRAND. Among the major jurisdictions, Europe has been the most friendly to SEP holders. Courts in Europe are more likely to grant injunctions to SEP owners as a matter of rights, less likely to embrace a hard-edged nondiscrimination requirement that mandates similar royalty rates for similarly situated licensees, more likely to determine relatively high royalty rates as FRAND rates, and less likely to impose antitrust liability on SEP owners for demanding high royalty rates or engaging in other allegedly abusive licensing practices. China, by contrast, has been the most hostile to SEP holders. Courts in China do not generally grant injunctions against SEP infringement, have embraced the hard-edged approach to the nondiscrimination requirement under FRAND, and have earned a reputation for setting much lower FRAND royalty rates than in other jurisdictions. Courts and government authorities in China are also more aggressive in using antitrust laws to suppress royalty rates and to police other licensing conducts. The United States sits somewhere in the middle, maintaining a somewhat balanced approach to SEPs. On one hand, U.S. courts have made it very difficult for SEP holders to obtain injunctions against SEP infringement. But on the other hand, U.S. courts have also been wary of efforts to hold SEP holders accountable under antitrust laws for abusive licensing practices.

But is this pattern of jurisdictional competition just random, or is there any logic to it? And does this pattern promote or diminish social welfare? To explore these questions, this Part starts with an analogy from law in another era in world economic history when major jurisdictions were divided in legal battles between

²⁴³ In the case of Qualcomm, NDRC ordered Qualcomm to offer SEP-only licenses for its Chinese patents at specified rates. Under its modified license agreements with Chinese customers, "Qualcomm charges a 5% running royalty rate on sales of handsets that support multiple cellular standards and a 3.5% running royalty rate on sales of LTE-only handsets, although the [Chinese patent license agreement] charges those rates against 65% of the handset price and the rates apply only to handsets made and sold for use in China." Fed. Trade Comm'n v. Qualcomm, Inc., 411 F. Supp. 3d 658, 673 (N.D. Cal. 2019). "Qualcomm was able to avoid more aggressive rate cuts by making a \$150 million contribution to the Chinese government." *Id.*

two industry groups with diametrically opposed interests: maritime law in the post-industrial revolution era. After discussing how the division between vessel-interests jurisdictions and cargo-interests jurisdictions back then coincided with the makeup of industry interests in those jurisdictions, this Part examines how the different judicial stances in the current FRAND wars also coincide with the makeup of industry interests in the global value chain today. Finally, this Part argues that jurisdictional competition on SEPs results in a “race to the middle,” facilitating compromises between protecting innovation and protecting access to technology.

A. *A Historical Analogy from Post-Industrial Revolution Era Maritime Law*

Maritime law in the late nineteenth century provides an example of jurisdictional competition producing a socially desirable outcome.²⁴⁴ In the late nineteenth century, ocean carriers and cargo owners were engaged in fierce legal battles over the allocation of the risk of cargo loss or damage.²⁴⁵ Under general maritime law principles in the early nineteenth century, a carrier, with very limited exceptions, was subject to strict liability and essentially was an “insurer” of goods in its custody.²⁴⁶ By the 1860s, however, shipowners began to use “negligence clauses” in shipping contracts with cargo owners to disown liability, even for their own negligence.²⁴⁷ To what extent these exculpatory clauses were enforceable became an important point of contention among major jurisdictions at the time.

By the late nineteenth century, the United States had emerged as an industrial power, with the expansion of old industries and the emergence of new ones such as petroleum refining, steel manufacturing, and electrical power.²⁴⁸ The United States

²⁴⁴ This is not to suggest that jurisdictional competition in maritime law is always socially beneficial. There are instances in which jurisdictional competition resulted in a “race to the bottom” in maritime law. *See, e.g.,* Jorge L. Contreras, *The New Extraterritoriality: FRAND Royalties, Anti-Suit Injunctions, and the Global Race to the Bottom in Disputes Over Standard-Essential Patents*, 25 B.U. J. SCI. & TECH. L. 251, 280 & n.225 (2019) (noting that countries such as Liberia and Panama created lax legal framework for the registration of vessels, resulting in a “race to the bottom”).

²⁴⁵ *See* Michael F. Sturley, *The History of COGSA and the Hague Rules*, 22 J. MARITIME L. & COM. 1, 4–6 (1991).

²⁴⁶ Under early nineteenth century maritime law, a carrier was strictly liable for cargo loss unless (1) the loss was caused by act of God, act of public enemies, shipper’s fault, or inherent vice of goods, and (2) the carrier’s negligence had not contributed to the loss. *See id.* at 4.

²⁴⁷ *Id.* at 5 n.23.

²⁴⁸ *See U.S. History Primary Source Timeline: Rise of Industrial America, 1876 to 1900*, LIBR. OF CONGRESS, <https://www.loc.gov/classroom-materials/united-states-history-primary-source-timeline/>

could be referred to as a “cargo-interests” jurisdiction because of the dominance of the interests of cargo owners there. But “[t]he establishment and growth of the international economy during the nineteenth century had primarily been a European endeavour.”²⁴⁹ Europe, particularly the United Kingdom, “determined the scale, the scope and the speed of the world maritime industries.”²⁵⁰ By 1900, British owners controlled about half of the ships in the world and almost 55% of the new steamships delivered that year.²⁵¹ The UK, therefore, could be referred to as a “vessel-interests” jurisdiction because of the dominance of the interests of vessel owners there.

It turned out that judicial stances towards exculpatory clauses in shipping contracts closely matched the makeup of industry interests across the Atlantic. In the late nineteenth century, British courts upheld exculpatory clauses, even those that excused carriers’ liability for their own negligence, in the name of freedom of contracts.²⁵² Most European and Commonwealth countries eventually followed suit.²⁵³ By contrast, U.S. courts allowed carriers to limit their liability in many circumstances, but not when they were trying to escape from the consequences of their own negligence or from their failure to provide a seaworthy ship.²⁵⁴ Another cargo-interests jurisdiction, Japan, applied the same rule as in the United States.²⁵⁵

Given the divergence in the substantive-law rules on exculpatory clauses, conflict-of-law rules under which substantive-law rules were chosen to adjudicate carrier liability disputes became crucial to the outcomes of such disputes. Not surprisingly, British and U.S. courts waged fierce jurisdictional battles on carrier liability by manipulating conflict-of-law rules in favor of their constituents. In one extreme case, *Re Missouri Steamship Company*, a British court adopted the

rise-of-industrial-america-1876-1900/overview/ [https://perma.cc/HFB8-D8YQ] (last visited Oct. 4, 2024).

²⁴⁹ Stig Tenold, *The Declining Role of Western Europe in Shipping and Shipbuilding, 1900-2000*, in SHIPPING AND GLOBALIZATION IN THE POST-WAR ERA 9, 11 (Niels P. Petersson et al. eds., 2019).

²⁵⁰ *Id.* at 11.

²⁵¹ *Id.* at 13.

²⁵² Sturley, *supra* note 245, at 5.

²⁵³ *Id.*

²⁵⁴ *Id.* at 5–6.

²⁵⁵ The Japanese Commercial Code invalidated shipping contracts exonerating shipowners “from liability for damages caused by the shipowner himself, or by the willful act or gross negligence of the crew or any other employee, or by the fact that the ship is unseaworthy.” *Id.* at 6 & n.28.

following conflict-of-law rule: “This clause may be invalid under American law and valid under English law. The shipowner must have intended it to be valid; therefore the contract is governed by English law.”²⁵⁶

The “annoyance” caused by this blatantly biased conflict-of-law rule outside of the UK was in part what led the United States to adopt a compromise rule in the Harter Act of 1893.²⁵⁷ Under the compromise rule, a carrier was not allowed to contract out of liability for its own negligence with respect to seaworthiness and cargo care, and in return for that, it was not responsible for negligence in navigation and management of the ship.²⁵⁸ This compromise was later preserved in the Hague Rules and then the Hague-Visby Rules, two international treaties that laid the foundation for international maritime law in the twentieth century.²⁵⁹

B. Interest Alignment in Jurisdictional Competition on SEPs

Fast forward one hundred and twenty years, a very similar interest alignment could be observed in today’s jurisdictional competition on SEPs: The judicial tug-of-war on SEPs is being fought primarily between “innovator-interests” jurisdictions and “implementer-interests” jurisdictions.

By many measures, Europe is an “innovator-interests” jurisdiction, or a jurisdiction where the interests of innovators dominate. Europe is a research and development powerhouse for cellular communications standards, which figure prominently among all technology standards involved in SEP disputes.²⁶⁰ Ericsson and Nokia, based in Sweden and Finland respectively, are among the top five SEP holders for cellular 5G technology.²⁶¹ By contrast, implementer interests are much thinner in Europe. Of the estimated 47,500 manufacturing firms that implement standards subject to FRAND commitments, only 3,800 or eight percent are located in Europe.²⁶²

²⁵⁶ See Francis Reynolds, *The Hague Rules, the Hague-Visby Rules, and the Hamburg Rules*, 7 *MLAANZ J.* 16, 17 (1990).

²⁵⁷ *Id.*

²⁵⁸ *Id.*

²⁵⁹ *Id.* at 17–18.

²⁶⁰ See Kirti Gupta & Chris Borges, *Standard Essential Patents and European Security*, *CTR. FOR STRATEGIC & INT’L STUD.* (Jan. 26, 2024), <https://www.csis.org/analysis/standard-essential-patents-and-european-economic-security> [<https://perma.cc/33PR-38GE>].

²⁶¹ See *supra* note 63.

²⁶² Eur. Comm’n, *EC SEP Proposal Impact Assessment Report*, *supra* note 42, at 11.

However, as SEP disputes are spreading to the automotive industry because of the arrival of connected automobiles, the makeup of industry interest in Europe is undergoing a significant change: A large class of powerful automakers are becoming new SEP implementers.²⁶³ It is at this juncture that the European Commission is proposing a new regulatory framework that would cap SEP royalties by an administratively-determined aggregate royalty amount for a given standard.²⁶⁴ It is also at this juncture that Germany is starting to move away from a regime where injunctions against infringement could be obtained as a matter of rights prior to validity determinations.²⁶⁵ It is worth noting that the 2021 statutory amendment to the German Patent Act, which eliminated automatic injunctive relief if it would cause disproportionate hardship for the infringer or third parties, was prompted by an infringement lawsuit against none other than a car manufacturer.²⁶⁶

Moving to the east, China presents a completely different picture in terms of industry interests. China boasts the largest manufacturing sector in the world, accounting for 31.6% of the global manufacturing output in 2024.²⁶⁷ China's manufacturing sector, however, "is still at the midstream and downstream levels of the global value chain."²⁶⁸ Despite the fact that China's leading companies such as Huawei are becoming innovation powerhouses,²⁶⁹ China by and large is still an implementer-interests jurisdiction. In 2023, implementers of intellectual property

²⁶³ See Tim Pohlmann, *The Role of Standard-Essential Patents for the Auto Industry*, IPWATCHDOG (Sept. 27, 2021), <https://ipwatchdog.com/2021/09/27/role-standard-essential-patents-auto-industry/id=138080/> [<https://perma.cc/GR7A-QY58>].

²⁶⁴ See *supra* notes 181–83 and accompanying text.

²⁶⁵ See Patentgesetz [PatG] [Patent Act], Dec. 16, 1980, BGBL I at 1, as amended by Gesetzes vom 30 August 2021 [Act of 30 August 2021], Aug. 30, 2021, BGBL I at 4074, § 139(1) (Ger.), https://www.gesetze-im-internet.de/englisch_patg/englisch_patg.html [<https://perma.cc/G6JD-BYAP>].

²⁶⁶ See BGH, May 10, 2016, X ZR 114/13, juris (Ger.), <http://juris.bundesgerichtshof.de/cgi-bin/rechtsprechung/document.py?Gericht=bgh&Art=en&nr=75714&pos=0&anz=1> [<https://perma.cc/2XKX-86AR>].

²⁶⁷ See *Top 10 Manufacturing Countries in 2024*, SAFEGUARD GLOB. (Aug. 28, 2024), <https://www.safeguardglobal.com/resources/top-10-manufacturing-countries-in-the-world/> [<https://perma.cc/9GPF-XBM4>].

²⁶⁸ Leilei Cui et al., *Macro Research on the Development of Chinese Strategic Emerging Industries in the New Era*, CSIS INTERPRET. CHINA (Mar. 27, 2020), <https://interpret.csis.org/translations/macro-research-on-the-development-of-chinese-strategic-emerging-industries-in-the-new-era/> [<https://perma.cc/6S4S-QE9R>].

²⁶⁹ Huawei is now the top SEP holder for the cellular 5G standard. See Eur. Comm'n, *EC SEP Proposal Impact Assessment Report*, *supra* note 42, at 9.

rights in China paid \$42.7 billion in royalty and licensing fees to foreign intellectual property owners,²⁷⁰ while intellectual property owners in China received only \$10.9 billion from foreign implementers.²⁷¹ China's more restrictive judicial stances towards SEP holders are entirely consistent with this pattern of industry interests.

By contrast, the United States represents a jurisdiction balanced more or less equally between innovator interests and implementer interests. On one hand, the United States is home to major innovators such as Qualcomm, Apple, Microsoft, IBM, and Google.²⁷² But on the other hand, Apple is also one of the largest implementers of cellular SEPs in the world, accounting for about 15.8% of global smartphone shipments in the first quarter of 2024.²⁷³ Apple also submitted a comment on the European Commission's proposed regulatory framework for SEPs and strongly supported the Commission's efforts.²⁷⁴ This indicates that Apple sees its interests aligned more with those of implementers than with those of innovators. Again, this pattern of industry interests is consistent with U.S. courts adopting a more or less balanced approach to SEP licensing.

It is important to note, however, that the correlation between industry interests and judicial stances does not necessarily indicate a causal relationship. It may not necessarily be the case that in rendering their decisions, courts are consciously bending the law to protect the dominant industry interests in their jurisdictions. Indeed, the causal relationship between the two might point in the opposite direction: It might be because of the pro-innovator (or pro-implementer) judicial stances in a jurisdiction that innovators (or implementers) flourished in that jurisdiction in the first place.²⁷⁵

²⁷⁰ See *Charges for the Use of Intellectual Property, Payments (BoP, Current US\$)*, WBG DATA BANK (2023), <https://data.worldbank.org/indicator/BM.GSR.ROYL.CD> [<https://perma.cc/W2SQ-7TLX>].

²⁷¹ See *Charges for the Use of Intellectual Property, Receipts (BoP, Current US\$)*, WBG DATA BANK (2023), <https://data.worldbank.org/indicator/BX.GSR.ROYL.CD> [<https://perma.cc/XR75-KCWA>].

²⁷² See DIETER ERNST, CTR. FOR INT'L GOVERNANCE INNOVATION, CHINA'S STANDARD-ESSENTIAL PATENTS CHALLENGE: FROM LATECOME TO (ALMOST) EQUAL PLAYER? 9–10 (2017), <https://www.cigionline.org/static/documents/documents/China's%20Patents%20ChallengeWEB.pdf> [<https://perma.cc/S4J3-YRQD>].

²⁷³ Federica Laricchia, *Market Share of Apple iPhone Smartphone Sales Worldwide 2007-2024*, STATISTICA (Aug. 5, 2024), <https://www.statista.com/statistics/216459/global-market-share-of-apple-iphone/> [<https://perma.cc/UF99-SQTL>].

²⁷⁴ See Apple Inc., *supra* note 187, at 1.

²⁷⁵ Although the empirical evidence on the impact of intellectual property protection on innovation is not uniform, intellectual property rights have been found to have an overall positive effect on innovation. See

It is also important to note that the alignment of industry interests in a particular jurisdiction is constantly in flux and subject to change. The interest alignment could change because of the adoption of patented technologies in a new industry, as in the case of the adoption of wireless connectivity technologies in the automotive industry.²⁷⁶ It is this change that has set in motion a process of transforming Europe from a traditionally innovator-interests jurisdiction to a jurisdiction where implementer-interests are beginning to influence judicial and legislative outcomes. The alignment of industry interests could also change because of changes in the ownership of SEPs. Changes in the ownership of SEPs, in turn, could result from SEP implementers acquiring SEPs through research and development.²⁷⁷ They could also result from SEPs being bought and sold. One important reason why SEP licensing became hotly contested in the last decade was because Patent-Assertion-Entities (“PAEs”) acquired many key SEPs and asserted them against SEP implementers.²⁷⁸

C. Race to the Top, Race to the Bottom—Or Race to the Middle?

The scholarly debates on jurisdictional competition have focused on its social desirability, that is, whether it produces a “race to the top” or a “race to the bottom.”²⁷⁹ As for jurisdictional competition on SEPs, the prevailing assumption is that it is socially undesirable. For example, Jorge Contreras commented that courts competing with one another to set global FRAND royalty rates “may not be in the best interests of the parties or the market.”²⁸⁰ This negative view of the social welfare of jurisdictional competition on SEPs appears to be behind the many proposals to curtail such competition.²⁸¹

Pedro Cunha Neves et al., *The Link Between Intellectual Property Rights, Innovation, and Growth: A Meta-Analysis*, 97 *ECON. MODELLING* 196, 196 (2021).

²⁷⁶ See Eur. Comm’n, *EC SEP Proposal Impact Assessment Report*, *supra* note 42, at 9.

²⁷⁷ For example, for 4G LTE and LTE Advanced standards, Chinese implementers Huawei and ZTE are now the second and third top SEP holders respectively, ahead of Nokia, LG and Samsung. See ERNST, *supra* note 272, at 10.

²⁷⁸ For case studies of PAEs acquiring key SEPs and then asserting them in SEP infringement litigation, see Jorge L. Contreras, *Assertion of Standard Essential Patents by Non-Practicing Entities*, in *PATENT ASSERTION ENTITIES AND COMPETITION POLICY* 50, 51–52 (D. Daniel Sokol ed., 2017).

²⁷⁹ See *supra* notes 1–5 and accompanying text.

²⁸⁰ See Contreras, *supra* note 13, at 182.

²⁸¹ See *supra* notes 24–27 and accompanying text for scholarly proposals on reducing jurisdictional competition on SEPs.

To assess the social welfare of jurisdictional competition on SEPs, it is important to first define the standard under which the assessment is to be made. From whose perspective is judicial competition considered to produce a “race to the top” or a “race to the bottom”? For innovators and implementers, the two groups engaged in SEP licensing battles, a “race to the top” for one group will be a “race to the bottom” for the other. For instance, an ultra-high FRAND royalty rate will be hailed as a “race to the top” by innovators but will be condemned as a “race to the bottom” by implementers, and vice versa. Jonathan Barnett observes that the use of law in China, an implementer-interests jurisdiction, is “mercantilist”— “[T]he legal treatment of SEP licensing and enforcement by regulators and courts in the People’s Republic of China reflects a strategic effort to deploy competition and patent law to reduce input costs for domestic device producers that rely on wireless communications technology held by foreign chip suppliers.”²⁸² But by the same token, the legal treatment of SEP licensing in innovator-interests jurisdictions could also be perceived as a “mercantilist” effort to drive up rewards for SEP holders who rely on licensing revenues from implementers.

The assessment of the social welfare of jurisdictional competition on SEPs, therefore, has to be made from a societal perspective, with the interests of all stakeholders, including those of innovators, implementers, and the public, being weighed against one another. As a general matter, the protection of intellectual property rights needs to balance societal interests in incentivizing innovation and promoting access.²⁸³ On one hand, effective protection of intellectual property rights is instrumental in stimulating innovation and economic growth.²⁸⁴ But on the other hand, overprotection of intellectual property rights hampers public access to technology.²⁸⁵ Such access is important for sustained innovation, which tends to build upon prior advances.²⁸⁶ Public access to technology is also important in its

²⁸² Barnett, *supra* note 19, at 259.

²⁸³ See Matthew J. Higgins & Stuart J.H. Graham, *Balancing Innovation and Access: Patent Challenges Tip the Scales*, 326 SCI. 370, 370 (2009).

²⁸⁴ See Kristina M.L. Aciri, née Lybecker, *Economic Growth and Prosperity Stem from Effective Intellectual Property Rights*, 24 GEO. MASON L. REV. 865, 865 (2017).

²⁸⁵ See Andrew Beckman-Rodau, *The Problem with Intellectual Property Rights: Subject Matter Expansion*, 13 YALE J.L. & TECH. 35, 38 (2010).

²⁸⁶ See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989) (“From their inception, the federal patent laws have embodied a careful balance between the need to promote innovation and the

own right, especially in areas concerning basic human rights such as medicine.²⁸⁷ With broadband internet access—enabled by the most prominent SEPs in cellular and wireless communications technology—becoming a basic necessity in modern society, the public’s interest in access becomes increasingly compelling.²⁸⁸

In addition, given that a significant portion of the value of SEPs comes from standardization, not the patents themselves,²⁸⁹ SEPs give rise to special considerations when it comes to social welfare evaluations. Aside from SEP holders, both implementers and the public are entitled to sharing the value created by standardization.²⁹⁰ This dynamics further points to the need for compromise and moderation in SEP policies.

Viewed in this light, the socially optimal SEP policies have to lie between those demanded by SEP holders and those demanded by implementers. Jurisdictional competition enhances social welfare by producing a “race to the middle,” not in the sense of producing legal rules with mediocre outcomes,²⁹¹

recognition that imitation and refinement through imitation are both necessary to invention itself and the very lifeblood of a competitive economy.”).

²⁸⁷ The most notable example of compromises between the protection of intellectual property rights and the protection of public access to technology is the treatment of pharmaceutical patents under the Trade-Related Agreements on Intellectual Property Rights (“TRIPs”) of the WTO. TRIPs strengthened patent protection for pharmaceuticals in developing countries, but it also led to substantial economic welfare losses and losses in human lives in the AIDs pandemic because of elevated drug prices. *See* Arvind Subramanian, *Medicines, Patents, and TRIPs: Has the Intellectual Property Pact Opened a Pandora’s Box for the Pharmaceuticals Industry?*, in *HEALTH AND DEVELOPMENT: WHY INVESTING IN HEALTH IS CRITICAL FOR ACHIEVING ECONOMIC DEVELOPMENT GOALS* 22, 23 (Jeremy Clift ed., 2004). Eventually, in the Doha Declaration, members of the WTO agreed on “flexibilities” that governments in developing countries could use to address public health needs. *See* World Trade Organization, Ministerial Declaration of 14 November 2001, WTO Doc. WT/MIN(01)/DEC/1, 41 ILM 746 (2002) [hereinafter Doha Declaration].

²⁸⁸ In March 2023, the United Nations High Commissioner for Human Rights told the U.N. Human Rights Council that “it may be time to reinforce universal access to the internet as a human right, not just a privilege.” *It May be Time to Reinforce Universal Access to the Internet as a Human Right, Not Just a Privilege, High Commissioner Tells Human Rights Council*, OFF. OF THE U.N. HIGH COMM’R FOR HUM. RTS. (Mar. 10, 2023), <https://www.ohchr.org/en/news/2023/03/it-may-be-time-reinforce-universal-access-internet-human-right-not-just-privilege-high> [<https://perma.cc/6KEX-EGFT>].

²⁸⁹ *See* Richard H. Stern, *Who Should Own the Benefits of Standardization and the Value It Creates?*, 19 MINN. J.L. SCI. & TECH. 107, 119–21 (2018).

²⁹⁰ *Id.* at 205–42.

²⁹¹ William Magnuson argues that federalism leads to a “race to the middle,” where states “adopt regulations that are similar, or even identical, to the regulations adopted by large numbers of other states.” William Magnuson, *The Race to the Middle*, 95 NOTRE DAME L. REV. 1183, 1183 (2020).

but in the sense of producing a balanced compromise between competing societal interests. Jurisdictional competition achieves this goal by facilitating negotiated solutions to SEP disputes. In terms of FRAND rate setting, for example, court-determined FRAND rates serve as reference points for licensing negotiations between SEP holders and implementers.²⁹² In addition, inconsistent FRAND rates determined by courts in different jurisdictions force SEP holders and implementers to return to the negotiating table, knowing that neither of them would win by litigating in their preferred jurisdiction. Granted, the reasoning of the judicial opinions rendered in jurisdictional battles is often strained, but it often takes outrageous judicial rulings to finally prod parties to settle. In the late nineteenth century, it was the outrageous *Re Missouri Steamship Company* case that led to the compromise between the United States and the United Kingdom on carrier liability.²⁹³ The same dynamic is present today with SEP licensing disputes, whereby SEP holders and implementers are more likely to settle after they both secure favorable judicial rulings in their preferred jurisdictions. The latest example of jurisdictional competition facilitating settlements is the SEP cross-license agreement signed between Nokia and Oppo in January 2024, after the two companies sued each other in Germany, France, the Netherlands, India, China, the UK, and five other countries.²⁹⁴

Finally, litigation in competing jurisdictions is a natural and inevitable component of the complex business relationships between SEP holders and implementers. In essence, FRAND commitments are incomplete contracts.²⁹⁵ Yet incomplete contracts are “a predictable and efficient result given the costs associated with identifying all contingencies that might arise during the life of

²⁹² See *InterDigital Commc'ns, Inc. v. ZTE Corp.*, No. 13-CV-00009-RGA, 2014 WL 2206218, at *3 (D. Del. May 28, 2014) (“All the Court’s determination of a FRAND rate would accomplish would be to give a data point from which the parties could continue negotiations.”).

²⁹³ See *supra* notes 256–58 and accompanying text.

²⁹⁴ See Mathieu Klos, *Settlement Season Continues as Nokia and Oppo End Global Patent Battle*, JUVE PATENT (Jan. 24, 2024), <https://www.juve-patent.com/cases/settlement-season-continues-as-nokia-and-oppo-end-global-patent-battle/> [https://perma.cc/7Q75-KMXA].

²⁹⁵ See Joshua D. Wright, Comm’r, Fed. Trade Comm’n, Remarks at the Center for the Protection of Intellectual Property Inaugural Academic Conference: The Commercial Function of Patents in Today’s Innovation Economy 3 (Sept. 12, 2013), https://www.ftc.gov/sites/default/files/documents/public_statements/ssos-frand-and-antitrust-lessons-economics-incomplete-contracts/130912cpip.pdf [https://perma.cc/FMM4-BF85].

the contractual relationship.”²⁹⁶ As Claire Hill observes, sophisticated parties in complex business transactions have a social norm of resorting to bargaining, not precipitous litigation, to resolve their disputes under incomplete contracts.²⁹⁷ They bargain, however, “in the shadow of the lawsuit.”²⁹⁸ When contract terms are particularly murky, as is the case in FRAND commitments, parties do not suffer reputational costs for pursuing litigation.²⁹⁹ Once a party is no longer in a relationship-preservation mode, “relevant norms will permit a largely commensurate counterattack” by the other party.³⁰⁰ Therefore, litigation in competing jurisdictions becomes the modus operandi of SEP licensing. Granted, such litigation is costly. But from a social point of view, this cost is worthwhile as it results in the widest possible public access to technology at prices acceptable to both SEP holders and implementers. Efforts to reduce jurisdictional competition can only disrupt this socially beneficial price-discovery mechanism.

CONCLUSION

How do jurisdictions compete to set the ground rules for the global licensing of SEPs? This Article offers a systematic study as well as a normative evaluation of such competition. Similar to jurisdictional competition in post-industrial revolution maritime law, jurisdictional competition on SEPs is carried out in manners consistent with the alignment of industry interests in competing jurisdictions. Yet this pattern of jurisdictional competition is not a cause for despair. Instead, jurisdictional competition on SEPs plays a positive role in producing a “race to the middle” that bridges the divides between innovator interests and implementer interests.

²⁹⁶ *Id.*

²⁹⁷ See Claire A. Hill, *Bargaining in the Shadow of the Lawsuit: A Social Norms Theory of Incomplete Contracts*, 34 DEL. J. CORP. L. 191, 197 (2009).

²⁹⁸ *Id.* at 192.

²⁹⁹ *Id.* at 213.

³⁰⁰ *Id.*