

**Intel Corporation's Response to the
European Commission's Public Consultation on Patents and Standards**

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Unit A4 – Industrial Competitiveness Policy for Growth
Avenue d'Auderghem 45, 1040 Brussels, Belgium
ENTR-SEP@ec.europa.eu

Submitted by:

Intel Corporation
95 Rue Froissart
1040 Brussels
Belgium
Registry ID: 7459401905-60
Contact: Rebekka Porath (rebekka.porath@intel.com)

TABLE OF CONTENTS

Introduction.....	1
I. Response to Question 1.....	7
A. The prevalence and effect of standardisation involving patents	8
1. Fields of standardisation involving patents (Q.1.1.1).....	8
2. Trends in standardisation and the prevalence of standards (Q.1.1.2, Q.1.1.3).....	9
3. Standardisation in support of innovation (Q.1.1.4)	10
B. The decision to include patented technologies into a standard	14
1. Over-inclusion of patents in standards (Q.1.2.1).....	14
2. Criteria and process for inclusion decision (Q.1.2.2, Q.1.2.3)	15
II. Response to Question 2.....	16
A. Promising initiatives (Q.2.2.2)	16
B. Patent quality.....	17
III. Response to Question 3.....	23
A. The relevance of patent transparency (Q.3.1)	24
1. Patent transparency during standardisation (Q.3.1.2).....	24
2. Patent transparency for licensing (Q.3.1.3)	27
B. The costs of detailed patent disclosure (Q.3.2)	30
C. The quality of patent declarations (Q.3.3).....	31
IV. Response to Question 4.....	33
A. Prevalence, causes, and consequences of transfers (Q.4.1.1-4.1.3)	34
1. Acquisition of SEPs for defensive use	34
2. Acquisition of SEPs for offensive use.....	34
3. The impact of NPEs in Europe	35
4. SEP transfers leading to patent hold-up	37
5. SEP transfers leading to royalty stacking.....	37
B. Effectiveness of current rules (Q.4.2.1-4.2.3)	38
V. Response to Question 5.....	41
A. Benefits and costs of patent pools.....	42
1. Situations in which a patent pool may be useful (Q.5.1.1).....	42
2. Potential benefits of patent pools (Q.5.1.2).....	42
3. Safeguards for patent pools (Q.5.1.2).....	44
4. Main difficulties of pool creation (Q.5.1.4).....	45

5.	Alternatives to patent pools when ownership of essential patents is widely dispersed (Q.5.1.3).....	46
VI.	Response to Question 6.....	47
A.	Non-discrimination requires being prepared to license anyone who implements the standard, including component suppliers (Q.6.6.1, Q.6.6.2)	49
B.	Fair and reasonable royalties must reflect the value of the SEPs (Q.6.1.1).....	52
1.	A FRAND royalty must be assessed on relevant aspect of the Component that implements the SEPs, not the full price of the end device into which the Component is incorporated (Q.6.5.2).....	52
2.	FRAND royalties must reflect only the <i>ex ante</i> or incremental value of the SEPs before the standard is set, not any hold-up value conferred by standardisation (Q.6.1.1)....	59
3.	FRAND royalties must consider potential aggregate royalty demands for other SEPs (Q.6.4.1, Q.6.4.2)	62
C.	In appropriate circumstances, a portfolio license may be an efficient means of licensing but it should not be required of licensees (Q.6.3.1-6.3.3).....	65
VII.	Response to Question 7.....	67
A.	Prevalence and impacts of SEP disputes (Q.7.1.1-7.1.4).....	68
1.	Contributing factors to increased prevalence of SEP disputes.....	68
2.	Outcomes and impacts of SEP disputes	69
3.	Courts and regulators have protected the right to challenge the patent merits.....	71
B.	Benefits and costs of dispute resolution mechanisms (Q.7.2.1-7.2.5)	76
C.	Appropriate framework for dispute resolution mechanisms (Q.7.4.1-7.4.6)	76
VIII.	Response to Question 8.....	78
A.	The extent to which SEP holders and implementers are protected under the patent and competition laws (Q.8.1, Q.8.2).....	79
1.	SEP holders are adequately protected by patent laws	79
2.	The need to ensure that implementers are not exploited	80
3.	What is a “willing” licensee? Need to ensure that licensee’s rights of defence are not curtailed.....	81
4.	Whether an injunction should be awarded should not only depend on a licensee’s “willingness”.....	83
B.	Prevalence of injunctions (Q.8.3).....	85

Introduction

Intel Corporation thanks the European Commission for the opportunity to submit a response to its Public Consultation on Patents and Standards. The subjects addressed in the Consultation are of tremendous importance to promoting economic growth in Europe and to Intel's ability to contribute to that growth.

Intel is a world leader in computing innovation. We develop, manufacture, and sell integrated digital technology products, primarily integrated circuits. Our products include computing and communications components for server and personal computers, such as microprocessors, chipsets, motherboards, wireless and wired connectivity products, platforms incorporating these components, and software products, among many other offerings. Intel's mission is to utilize the power of Moore's Law¹ to bring smart, connected devices to every person on earth.² In each of 2012 and 2013, Intel invested more than \$10 billion (approximately €8.6 billion) in research and development, equivalent to 20% of global revenue.³

Intel holds, globally, nearly 60,000 global patents and patent applications today, including a significant number that are essential to the operation of standards. Intel has more than 10,700 European patent applications listed on the European Patent Office's online register.⁴ Intel participates in approximately 370 standard-setting organizations (SSOs) across a range of technologies, comprising approximately 700 working groups where the standards are actually developed. In addition to working group participation, Intel employees are also very active in the administration of many of these bodies, sitting on boards of directors, chairing various committees, and forming new standards bodies for the next generations of technology. Indirectly and directly, hundreds if not thousands of Intel employees around the world are involved in developing standards and implementing them into our products.

Intel invests heavily in doing business in Europe. Intel began its European operations in 1972, only a few years after the company's founding in 1968. Last year marked the 25th anniversary of Intel's advanced manufacturing plant in Ireland that employs more than 4,000 people.⁵ Intel's overall capital investment in the Irish campus over the past 25 years is \$12.5 billion (approximately €10.5 billion). According to the Irish Development Agency, this investment has resulted in €880 million contributed to the Irish economy, 7,068 jobs supported each year, and

¹ Moore's Law refers to the prediction of Intel co-founder Gordon Moore, which has held true, that the number of transistors incorporated in a chip will approximately double every 24 months.

² Intel, *Intel Facts*, <http://www.intel.com/content/www/us/en/company-overview/company-facts.html> (last visited Jan. 23, 2015).

³ INTEL 2013 ANNUAL REPORT (FORM 10-K) 27 (2014), available at http://files.shareholder.com/downloads/INTC/3810708791x0x739706/398559f6-7a91-4079-b7f7-956c8821cd8c/Intel_ARand10K_13.pdf.

⁴ *European Patent Register*, <http://www.epo.org/searching/free/register.html> (last updated Nov. 27, 2014).

⁵ Intel, *Manufacturing and Operations*, <http://www.intel.eu/content/www/eu/en/silicon-innovations/manufacturing-and-operations.html> (last visited Jan. 23, 2015).

756 Irish suppliers supported in Ireland by Intel since 2007.⁶ Intel Ireland will also become a high volume site for Intel's latest silicon process technology, maintaining Europe at the leading edge of the manufacturing of micro and nanoelectronics, directly supporting the European Commission's Electronics Strategy.⁷ Intel Labs Europe has more than 40 research and development locations across Europe, including in Austria, Belgium, Denmark, Finland, France, Germany, Ireland, the Netherlands, Poland, Romania, Spain, Sweden, and the United Kingdom.⁸ The European Union is central to Intel's relentless drive for innovation with labs in computing technology, visual computing, cloud, Internet of Things (IoT), security, automotive, mobile communications, and high performance computing (HPC). For example, Intel's European HPC research, carried out in R&D centres in France, Germany, and Belgium, focuses on building supercomputers with a thousand times the performance of today's fastest supercomputers. This directly supports EU efforts towards exascale architectures and global leadership in HPC. Intel Labs Europe advances Intel's research, development, and innovation and also partners with European stakeholders, including through FP/Horizon 2020, to help improve European competitiveness and Intel's ability to service the European market. Wireless and mobile communications is another important focus area of Intel's engagement in Europe. This includes substantial research and development activities across a number of EU countries. Intel Mobile Communications GmbH, for example, employs around 1,700 staff in Germany to develop and market innovative semiconductor products and solutions for mobile communications—most notably in the rapid-growth market segments of smart phones, tablets, and ultra-low-cost mobile phones.⁹ Altogether, Intel employs approximately 10,000 people in Europe.

As an innovator and a manufacturer of high-tech products for Europe and the global market, and as an owner as well as a licensee of numerous patents declared essential to standards, Intel has a strong interest in the proper functioning of the standard-setting system.

Discussions about licensing standard essential patents (SEPs) on fair, reasonable, and non-discriminatory (FRAND) terms and other issues relating to standard setting are often unhelpfully framed as pitting the views of “implementers” against those of so-called “innovators,” implying that implementers do not innovate, and further that the distinction between the two is based on their respective commitments to research and development. This characterization has been used to attempt to dismiss Intel's (and others') views on these subjects as merely being those of an “implementer.”

This is false. Intel not only holds thousands of patents and patent applications, including a significant SEP portfolio, but Intel has also been in the top 20 for annual research and

⁶ *Intel: 25 Years in Ireland*, IDA IRELAND, <http://www.idaireland.com/en/how-we-help/resources/infographics/intel-25-years-in-ireland/> (last visited Jan. 23, 2015).

⁷ *Electronics Strategy for Europe*, EUROPEAN COMMISSION, <http://ec.europa.eu/digital-agenda/en/electronics-strategy-europe> (last visited Jan. 23, 2015).

⁸ Intel, *Intel Labs Europe*, <http://www.intel.eu/content/www/eu/en/research/intel-labs-europe.html> (last visited Jan. 23, 2015).

⁹ Intel, *Intel Mobile Communications Profile*, <http://www.intel.com/content/www/us/en/wireless-products/mobile-communications/company-overview.html> (last visited Jan. 28, 2015).

development expenditures globally for each of the last eight years, ranking third overall in 2014 and fourth overall in 2013.¹⁰ As further demonstrated by the table below of 2103 research and development expenditures by companies that have been active in standard setting and/or licensing SEPs, Intel's commitment to and investment in innovation should be beyond question:

Company	2013 R&D Expenditure¹¹
Samsung Electronics	€11.9 billion ¹²
Intel Corporation	€9.4 billion ¹³
Microsoft Corporation	€9.2 billion ¹⁴
Cisco Systems, Inc.	€5.2 billion ¹⁵
Qualcomm Inc.	€4.4 billion ¹⁶
Apple Inc.	€4.0 billion ¹⁷
Ericsson	€3.4 billion ¹⁸
Hewlett-Packard	€2.7 billion ¹⁹
Nokia Corporation	€2.6 billion ²⁰

¹⁰ strategy&, *The Global Innovation 1000: Top 20 R&D Spenders 2005-2014*, <http://www.strategyand.pwc.com/global/home/what-we-think/global-innovation-1000/top-20-rd-spenders-2014> (last visited Feb. 9, 2015).

¹¹ Figures are shown converted to Euros with the original currency (if not provided in Euros) listed parenthetically in the footnote providing the source of the information.

¹² SAMSUNG ELECTRONICS 2013 ANNUAL REPORT 90 (2014), *available at* http://www.samsung.com/us/aboutsamsung/investor_relations/financial_information/downloads/2013/2013-samsung-electronic-report.pdf (14.8 billion Korean won).

¹³ INTEL 2013 ANNUAL REPORT (FORM 10-K), *supra* note 3, at 11 (USD \$10.6 billion).

¹⁴ MICROSOFT CORP. 2013 ANNUAL REPORT (FORM 10-K) 10 (2014), *available at* <http://apps.shareholder.com/sec/viewerContent.aspx?companyid=MSFT&docid=10123079> (USD \$10.4 billion).

¹⁵ CISCO SYSTEMS, INC. 2014 ANNUAL REPORT (FORM 10-K) 12 (2014), *available at* <http://d1lge852tjjqow.cloudfront.net/CIK-0000858877/0e0d082c-36e2-47c1-8a7f-06a60d97f286.pdf?noexit=true> (USD \$5.9 billion).

¹⁶ QUALCOMM INC. 2013 ANNUAL REPORT (FORM 10-K) 9 (2013), *available at* <http://investor.qualcomm.com/secfiling.cfm?filingID=1234452-13-483> (USD \$5.0 billion).

¹⁷ APPLE INC. 2013 ANNUAL REPORT (FORM 10-K) 7 (2014), *available at* <http://investor.apple.com/secfiling.cfm?filingID=1193125-14-383437&CIK=320193> (USD \$4.5 billion).

¹⁸ ERICSSON INC. 2013 ANNUAL REPORT 32 (2014), *available at* http://www.ericsson.com/thecompany/investors/financial_reports/2013/annual13/sites/default/files/download/pdf/EN_-_Ericsson_AR2013.pdf (3.2 billion Swedish krona).

¹⁹ HEWLETT PACKARD 2014 ANNUAL REPORT (2014) 11, *available at* <http://h30261.www3.hp.com/~media/Files/H/HP-IR/documents/reports/2015/hpq-annual-report-2014.pdf> (USD \$3.1 billion).

Company	2013 R&D Expenditure ¹¹
Alcatel-Lucent	€2.4 billion ²¹
Orange/France Telecom	€780 million ²²
InterDigital, Inc.	€55.9 million ²³

Indeed, it is because of its commitment to innovation that Intel believes so strongly in safeguards against SEP abuse that threatens the inventive work of Intel and other companies—and risks harms to industries and consumers.

We are pleased, therefore, to offer our insights, perspectives, and experiences on the eight key issues raised in the Questionnaire provided for the Consultation. In subsequent sections of our response, we provide answers to the lead questions for each of the key issues, as well as many of the detailed issues per key topic.

Intel Summary Position

In this introduction, we would like to stress the issue of overriding importance to Intel when it comes to the context of standards and patents: the need for strict and consistent enforcement of commitments to license SEPs on fair, reasonable, and non-discriminatory FRAND terms. Intel has publicly confirmed its compliance with FRAND principles in licensing its own SEPs.²⁴ Other companies have as well, but unfortunately, abuses exist—and are increasing.

Abuses of FRAND commitments pose a significant risk to standards adoption, competition, innovation, and consumer welfare. Cooperative standard setting has played a vital role in promoting innovation and growth in the information and communications technologies (ICT) industry. Standard setting is now extending well beyond ICT and throughout all sectors of European industry. For standard setting to continue to support innovation, companies that make standard-compliant products must be able rely on patent holders' commitments to license their SEPs on FRAND terms. The continued success of standard setting is threatened by some companies that have decided to ignore their FRAND commitments by exploiting the need of standard implementers to practice their SEPs. That threat can lead directly to consumer harm through increased costs of goods

²⁰ NOKIA 2013 ANNUAL REPORT (FORM 10-K) 20 (2014), *available at* http://company.nokia.com/sites/default/files/download/investors/nokia_in_2013.pdf.

²¹ ALCATEL-LUCENT 2013 ANNUAL REPORT (FORM 20-F) 58 (2014), *available at* <http://www.alcatel-lucent.com/investors/annual-reports>.

²² ORANGE, EXCERPTS OF 2013 REGISTRATION DOCUMENT (2013) § 3.3.1, *available at* https://www.sec.gov/Archives/edgar/data/1038143/000130817914000208/exhibit_15.1.htm#1383800312601974:6188227.

²³ INTERDIGITAL, INC. 2013 ANNUAL REPORT (FORM 10-K) 73 (2014), *available at* <http://files.shareholder.com/downloads/IDCC/3946289307x0xS1405495-14-10/1405495/filing.pdf> (USD \$63.3 million).

²⁴ Intel, *Intel patent licensing practices for industry standards*, <http://www.intel.com/content/www/us/en/standards/standards-patent-licensing-practices.html> (last visited Feb. 9, 2015).

and less competition and innovation. As just one example, there have only been a few suppliers of smartphones actually profiting.²⁵ One explanation for this fact may be overly high patent royalties.²⁶ Any steps that entrench abusive licensing practices will gradually diminish competition, with longstanding impacts on consumers.

Intel believes that FRAND abuse is the fundamental problem in the context of patents and standards. When the participants in an SSO choose among different technologies that are available, and that compete for inclusion within standards, they rely on the voluntary commitments of the patent owners to license their SEPs on FRAND terms. SSOs developed FRAND commitments to ensure that standard setting would be procompetitive, resulting in standards that can be readily and widely adopted by implementers without the risk that licenses for essential/necessary patents would not be made available on competitive terms. The FRAND commitment is thus crucial to ensuring access to the standard on a competitive basis and preventing standard setting from harming competition.

When SEP holders renege on their FRAND commitments, they abuse their dominant position notwithstanding their voluntary FRAND commitments. Such abuse of dominance injures consumers through higher prices; reduces incentives to invest in the development, manufacture, and technological improvement of standard-compliant products; and, as a result, harms European innovation and production by companies of all sizes.

The solution is strict and consistent enforcement of FRAND commitments—using procedures that respect traditional burdens of proof and ensure a proper focus on the patent merits. The procedures and burdens of proof of the existing patent litigation systems provide important protections for potential licensees against abusive SEP licensing. As highlighted by the Questionnaire, the appropriate procedures for resolving FRAND licensing disputes are taking on increasing prominence, including whether SEP holders can force licensees to agree to license an entire portfolio of claimed SEPs. Intel supports measures that will allow parties to resolve disputes through compromise, including arbitration or mediation where the parties voluntarily agree to those procedures. But it is critical that any dispute resolution procedures and policies recognize that the merits of patent assertions matter and that there should be no shifting of the traditional burdens on patent holders to prove infringement of a valid patent. As explained below, SEPs are declared essential by their owners without any confirmation by the SSO. Further, SEPs asserted in litigation have fared extremely poorly. Given those facts, there is no reason to provide a shortcut for SEP holders to pressure potential licensees into paying royalties.

* * *

²⁵ See, e.g., Philip Elmer-DeWitt, *Apple had 57% of mobile profits in Q1, Samsung 43%*, CNNMONEY, May 7, 2013, <http://tech.fortune.cnn.com/2013/05/07/apple-samsung-profits-canaccord/>.

²⁶ Ann Armstrong, Joseph Mueller & Timothy Syrett, *The Smartphone Royalty Stack: Surveying Royalty Demands for the Components Within Modern Smartphones* 2, 13-14 (Working Paper, 2014), available at http://www.wilmerhale.com/uploadedFiles/Shared_Content/Editorial/Publications/Documents/The-Smartphone-Royalty-Stack-Armstrong-Mueller-Syrett.pdf (explaining that the public demands for LTE royalties on a \$400 smartphone amount to \$54 and that based on publicly available data, the cumulative royalty burden for a \$400 smartphone data is approximately \$120).

In this submission, we further highlight key aspects of the problem of abusive licensing—and the solution—and we also address other significant issues raised by the Consultation.

We hope that our submission is a helpful contribution to the European Commission's consideration of matters related to standards and patents. We will be happy to further discuss aspects raised by our submission, and we invite the Commission to also rely on our commitment to support and contribute to any possible follow-up actions to the Consultation.

The remainder of our submission is organized as follows: In the subsequent eight sections, we comment on the eight key issues raised in the Consultation Questionnaire. Where applicable, we provide a reference to the detailed questions listed in the Questionnaire in relevant parts of the text.

I. Response to Question 1

Question 1: Standardisation involving patents is common in the telecommunication industry and in the consumer electronics industry. Which other fields of standardisation comprise patent-protected technologies or are likely to do so in the future?

Standardisation involving patents has traditionally played a strong role in the core ICT areas of telecommunications, IT, and consumer electronics, and Intel expects that to continue. At the same time, the use of standardised technologies is becoming pervasive across virtually all sectors of European industry, where standards serve as an important engine for innovation and growth. Examples are found in the automotive and aviation industries, numerous “e” initiatives, such as e-Health, e-learning, e-procurement, e-invoicing, smart metering, and smart grids,²⁷ and ultimately, IoT. These examples are far from exhaustive; standardised technology is becoming omnipresent. Standardisation will be an important enabler for growth in all these areas, and technology and innovation will be a core part of that—thereby also increasing the role of patents in areas of standardisation that may traditionally have been less patent-intensive. Unfortunately, the kind of disputes already present within the ICT segment have begun to spill over to such other segments, including, for example, the automotive industry.²⁸

The increasing needs for standardisation across various growth segments in European industry are also reflected in the European Commission’s *Rolling Plan for ICT Standardisation*, which provides a “multi-annual overview of the needs for preliminary or complementary ICT standardisation activities to undertake in support of the EU policy activities,” and addresses a wide variety of sectors, ranging from societal challenges (e-Health, accessibility, e-learning, and others), innovation for the digital single market (e-procurement, card, Internet and Mobile Payments, and others), sustainable growth (smart grids and smart metering, smart cities, intelligent transport systems, and others), and key enablers and security (cloud computing, e-government, e-privacy, IoT, and others).²⁹ Intel therefore believes that the increased significance of standardisation involving patents is driven in part by the convergence of various industry technologies, requiring technical interoperability across relevant platforms.

²⁷ See generally EUROPEAN COMMISSION ENTERPRISE AND INDUSTRY DIRECTORATE-GENERAL, PATENTS AND STANDARDS: A MODERN FRAMEWORK FOR IPR-BASED STANDARDIZATION (2014), available at http://ec.europa.eu/enterprise/policies/industrial-competitiveness/industrial-policy/intellectual-property-rights/patents-standards/index_en.htm; *Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee: The annual Union work programme for European standardization for 2015*, COM (2014) 500 final, July 30, 2014, available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2014:0500:FIN:EN:PDF>.

²⁸ See, e.g., Rebecca McCray, *Honda Falls Prey to Slew of GPS Tech Patent Suits*, LAW360, Dec. 12, 2014, <http://www.law360.com/articles/604255/honda-falls-prey-to-slew-of-gps-tech-patent-suits>; Igor Kossov, *Mercedes-Benz, Ferrari Facing GPS Tech Patent Suit*, LAW360, Dec. 11, 2014, http://www.law360.com/articles/603913/mercedes-benz-ferrari-facing-gps-tech-patent-suit?article_related_content=1.

²⁹ EUROPEAN COMMISSION ENTERPRISE AND INDUSTRY DIRECTORATE-GENERAL, ROLLING PLAN FOR ICT STANDARDISATION 5 (2013), available at <http://ec.europa.eu/DocsRoom/documents/4122>.

The increasing prevalence of standards involving patents and their relevance for future European growth underscore the need to respect all applicable laws, especially competition laws—and for adherence to commitments to license on FRAND terms patents that are claimed essential to standards.

A. The prevalence and effect of standardisation involving patents

1. Fields of standardisation involving patents (Q.1.1.1)

Standard setting has long played an important role in the economy and has taken on increased importance with the emergence of complex, “converged” devices containing many standardised features. In the Final Report for the European Commission, entitled *Patents and Standards: A Modern Framework for IPR-based Standardization*,³⁰ the authors discuss standardisation and licensing in four industries. In addition to telecommunications and consumer electronics, these are the automotive industry and electricity generation and distribution, which encompasses smart grids and smart metering. As the report notes, the latter two industries have been “chosen as subjects of research on a forward looking basis, recognizing that in these industries the role of ICTs is increasing and hence the issues now experienced with patents in standards in the ICT industry will most likely be encountered in these standards-based industries in the near future.”³¹ Further, the Commission has recognized the economic benefit of standardisation: “Studies show that standardisation adds between 0.3% and 1% to GDP thereby helping industry towards the target of contributing 20% of the EU’s GDP by 2020.”³²

One example of the breadth of standards in a converged device is the modern laptop, which one study found commonly includes 251 technical interoperability standards and specifications.³³ The standards and specifications used in laptops cover a wide range of technological areas: display, graphics, sound, storage, processor, power, networking, wireless, interoperability, memory, software, codecs, security, and others.

The study found that the majority of standards and specifications implemented in a laptop are developed by consortia (44%) and formal SSOs (36%), but also that a significant number of specifications are developed by private companies (20%). For instance, a single company can develop and promulgate technical specifications intended for broader industry adoption. Indeed, Intel has developed and released several such specifications, including AC’97 (an audio codec standard), HD Audio (the standard superseding AC’97), AGP (Accelerated Graphics Port), DMI2 (Direct Media Interface), and EHCI (Enhanced Host Controller Interface).

³⁰ PATENTS AND STANDARDS, *supra* note 27.

³¹ *Id.* at 57.

³² *Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee, The annual Union work programme for European standardisation*, at 2, COM (2013) 561 final, July 31, 2013, available at http://www.isrm.gov.mk/images/upload/dokumenti/com2013_0561en01.pdf.

³³ See Brad Biddle, Andrew White & Sean Woods, *How Many Standards In A Laptop? (And Other Empirical Questions)*, Sept. 10, 2010, available at <http://ssrn.com/abstract=1619440>.

The licensing regimes under which the standards in the laptop study were developed varied: 22% of a large subset of these standards³⁴ were developed under royalty-free terms; 75% of the standards were developed under FRAND licensing terms pursuant to the SSOs' IPR policies; and a small minority of 3% relied on patent pool arrangements.

Given the importance of interoperability standards, the underlying patented technologies will likely continue to play an important role, especially in FRAND licensing regimes.³⁵ The growing importance of standards and patents is primarily driven by the increased convergence of technologies and related standards. Many consumer products now commonly implement technologies from several different sectors, such as computing, telecommunications, and consumer electronics. For example, cars are now available with cellular modems, and refrigerators with Wi-Fi, to allow Internet access. This convergence will increase the significance and also the number of relevant standards being developed, as well as the number of alleged essential patents in those standards.

2. Trends in standardisation and the prevalence of standards (Q.1.1.2, Q.1.1.3)

Technological convergence continues to drive the adoption of standardised technologies in new industries. This leads to interactions between a variety of disparate industries that may have had different approaches and practices regarding standards and related patents. In the past several years, convergence has increasingly required use and interoperability of multiple technologies covering different applications, operating platforms, and industries, including telecommunications, automotive, healthcare, finance, and transportation. Each of these industries involves a different set of players, suppliers, and customers, as well as distinct regulations and industry customs for manufacturing, operating, and entering into transactions. For convergence to work, participants in the various industries must ensure that their respective technologies and products can operate in a way that still satisfies each industry platform and technology standard. This reinforces the need to employ a consistent application of existing rules to ensure the certainty required for successful convergences.

A primary example is IoT: an emerging paradigm for connecting physical objects through wireless communications and other networks to enable them to take an active part in the Internet by exchanging information about themselves and their surroundings. IoT has been defined as a “world-wide network of interconnected objects uniquely addressable, based on standard communication protocols.”³⁶ Therefore, IoT necessarily requires use of multiple technologies covering different applications, operating platforms, and industries, such as telecommunications and transportation. It requires interoperability standards for technologies implemented by a new array of products, such as refrigerators or cars with cellular and Wi-Fi capabilities, wearable

³⁴ The study focused on 197 standards that could be categorized into one of the broad IPR licensing models: royalty-free licensing, reasonable and non-discriminatory (“RAND”) licensing, and patent pool licensing.

³⁵ See *id.*

³⁶ Debasis Bandyopadhyay & Jaydip Sen, *Internet of Things - Applications and Challenges in Technology and Standardization*, May 9, 2011, at 3 (citation omitted), available at <http://arxiv.org/pdf/1105.1693v1.pdf>.

electronic gadgets, and others. IoT will likely have various applications, including smart homes and offices, e-Health, assisted living,³⁷ business process management, and intelligent transportation of people and goods.³⁷

A great number of institutions and SSOs are actively developing interoperability standards to support IoT deployment. This includes activities by organizations, such as the oneM2M partnership project that the European Telecommunications Standards Institute (ETSI) contributes to; a variety of established SSOs, such as the Internet Engineering Task Force (IETF), the Institute of Electrical Electronics Engineers (IEEE), and Organization for the Advancement of Structured Information Standards (OASIS)³⁸; and also new organizations that are specifically dedicated to IoT. One important example is the Open Interconnect Consortium (OIC), which was founded in 2014. It combines the development of interoperability standards with making open-source implementations of those standards available.

With IoT or any other area where there is a convergence of disparate industries, standardisation will play a very important role; clear rules of the road will therefore be critical so that economic growth is not stifled. In particular, the risk of abusive licensing practices could create disincentives to adopt converged technologies through standardisation. Accordingly, where patents in a standard are governed by FRAND terms, it is imperative that those commitments be respected.

3. Standardisation in support of innovation (Q.1.1.4)

Intel believes that the key purpose of the European standardisation system is to drive innovation across industries and, with it, economic growth in Europe. Standards can generate economic value in two important ways: (1) standards promote innovation and cost efficiencies for consumers; and (2) standardisation allows implementers of a standard to efficiently develop innovative products without facing significant licensing risks (under a FRAND licensing regime).

First, and most importantly, standards allow consumers to enjoy innovative products and cost efficiencies from widespread interoperability and economies of scale. For example, the 802.11 (Wi-Fi) standard ensures that a consumer using a laptop containing an Intel 802.11 Wi-Fi chip can access the Internet through any access point (*e.g.*, a router) that contains an 802.11 chip manufactured by any Wi-Fi chip supplier. Because of these benefits, standardisation has undoubtedly driven innovation that has led to a diverse range of interoperable products that support communication standards implemented across the globe— such as DVB, GSM, 3G/UMTS, 4G/LTE, and Wi-Fi. Abuses of the promise to license on FRAND terms jeopardize the growth of these technologies.

Standardisation also creates incentives and opportunities for firms, including, in particular, new entrants, to compete and differentiate their products on top of the common platform established

³⁷ See *id.* at 1-2, 6.

³⁸ See ROLLING PLAN FOR ICT STANDARDISATION, *supra* note 29, at 81 for an overview of those activities.

by the standards.³⁹ As noted in the Commission’s Communication, *For A European Industrial Renaissance*,⁴⁰ investment in R&D is still comparatively low in Europe, but “[w]ell-designed, timely European standards will accelerate the diffusion of innovations and EU reforms in the field of intellectual property rights will also encourage creativity and innovation.”⁴¹ To give just one example of a new entrant, Apple had no presence in the mobile phone business until it entered that space with the iPhone in 2007. The iPhone combined existing telecommunications standards and also included numerous new non-standardised features that held great appeal for consumers (such as a unique design and operating system) and have spurred further competition on non-standardised technology among smartphone suppliers.

Second, FRAND licensing commitments and standardisation are intended to ensure that firms can develop innovative products that implement the standard without facing significant risks of being exploited by holders of claimed SEPs. In this respect, it is essential that competition laws strike the correct balance between implementers or manufacturers of innovative products that support standards and entities that have a greater interest in just monetizing their declared SEPs.

A crucial aspect of striking this balance is ensuring that SEP holders are not permitted to use their patents to expropriate—through excessive patent royalty demands—hold-up value created by the standardisation process (as distinct from the inherent technical value of their patents before the standardisation), or the value of others’ innovations built on top of the standards. For example, if two patented technologies of equal value are being considered for inclusion in a standard and one is selected, the selected SEP does not gain in value simply by virtue of its inclusion in the standard.

Prohibitively high royalty demands (or, potentially even more damaging, threats of injunctions) by SEP owners can disrupt the economic benefits of standard setting. The Commission, for example, found that Motorola’s pursuit of an injunction against Apple in Germany for an SEP claimed to be essential to a 3G cellular standard was a “disproportionate interference with the freedom of Apple to conduct its business”⁴²:

³⁹ See *Communication from the Commission: Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements*, 2011 O.J. (C 11) 1, ¶ 263 [hereinafter *Horizontal Guidelines*], available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2011:011:0001:0072:EN:PDF> (“Standardisation agreements usually produce significant positive economic effects, for example by promoting economic interpenetration on the internal market and encouraging the development of new and improved products or markets and improved supply conditions. Standards thus normally increase competition and lower output and sales costs, benefiting economies as a whole. Standards may maintain and enhance quality, provide information and ensure interoperability and compatibility (thus increasing value for consumers).”).

⁴⁰ See *Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions For a European Industrial Renaissance*, COM (2014) 14 final, Jan. 22, 2014, available at <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52014DC0014>.

⁴¹ *Id.* at 3.

⁴² Commission Decision of 29 March 2014 addressed to Motorola Mobility LLC relating to proceedings under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement, Case AT.39985, ¶ 522, COM (2014) 2892 final, Apr., 29, 2014, available at http://ec.europa.eu/competition/antitrust/cases/dec_docs/39985/39985_928_16.pdf.

[A]s the technology covered by the Cudak GPRS SEP in Germany relates only to the baseband chipset, a small component of the relevant end-product whose selling price amounts to only a fraction of the final mobile device, the seeking and enforcement of an injunction by Motorola against Apple in Germany on the basis of the Cudak GPRS SEP, as of Apple's Second Orange Book Offer, constitutes a disproportionate interference with the freedom of Apple to conduct its business.

Another example is Motorola's pursuit of an injunction against Microsoft in Germany for SEPs claimed to be essential to the H.264 standard. In concurrent litigation in the United States, the District Court for the Western District of Washington recognized the disruption Microsoft would face upon an injunction in Germany:

A German injunction would force Microsoft to alter its business relationships with such multinational companies, providing software licenses to offices outside of Germany and ceasing support to offices within Germany. For a multinational company seeking a unified information technology environment across all corporate offices, such an arrangement will be undesirable. According to Microsoft, this arrangement will damage its reputation for providing broad information technology solutions that successfully operate across international borders.⁴³

In fact, to avoid the impact of a potential injunction in Germany, Microsoft ultimately moved its European distribution facility from Germany to the Netherlands, where Microsoft later claimed relocation costs of \$11.6 million (approximately €10 million) and annual increased operating costs of approximately \$5 million (approximately €4.25 million).⁴⁴ Microsoft's 330,000 square-foot facility in Germany had handled shipments of over 25 million units of products annually.⁴⁵ Upon the threat of a potential injunction, Microsoft had to go through "a very rushed process" and disruption of moving the entire facility in less than two months, where moving a facility of that size would typically take 12 to 18 months.⁴⁶ The costs to the German economy of such a

⁴³ *Microsoft Corp. v. Motorola Inc.*, 871 F. Supp. 2d 1089, 1102 (W.D. Wash. 2012) (granting Microsoft's motion for an anti-suit injunction against Motorola) (citations omitted).

⁴⁴ Op., *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 25-26 (W.D. Wash. Sept. 24, 2013) (Dkt. No. 926) ("Motorola argues that Microsoft 'failed to present evidence' that Motorola's actions caused Microsoft to move its European distribution facility from Germany to the Netherlands. This is a frivolous contention. Microsoft did present this evidence at trial."); Microsoft's May 3, 2013 Letter to Honorable James L. Robart at 2, *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR (W.D. Wash. May 3, 2013) (Dkt. No. 686) (Microsoft "embarked on the massive effort to move its EMEA distribution facility to the Netherlands before an injunction shut down the operation in Germany. This relocation effort began in March 2012 . . . and was accomplished in ten weeks at a cost of about \$11.6 million for the relocation and annual increased operating costs of about \$5 million.").

⁴⁵ Transcript of Trial at 64:10-67:16, *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR (W.D. Wash. Aug. 29, 2013).

⁴⁶ *Id.* at 71:21-75:25.

relocation are not just the direct loss of jobs at the facility and taxes, but also the secondary impacts, such as tolls paid by trucks going to and from the facility.

The Commission's Horizontal Guidelines caution that, despite their potential benefits, standard setting can pose such risks⁴⁷:

Standard-setting can, however, in specific circumstances, also give rise to restrictive effects on competition by potentially restricting price competition and limiting or controlling production, markets, innovation or technical development. This can occur through three main channels, namely reduction in price competition, foreclosure of innovative technologies and exclusion of, or discrimination against, certain companies by prevention of effective access to the standard.⁴⁸

* * *

[S]tandardisation may lead to anti-competitive results by preventing certain companies from obtaining effective access to the results of the standard-setting process (that is to say, the specification and/or the essential IPR for implementing the standard). If a company is either completely prevented from obtaining access to the result of the standard, or is only granted access on prohibitive or discriminatory terms, there is a risk of an anti-competitive effect.

This is not to say that innovators whose technology gets incorporated into a standard should not be able to benefit in the form of royalties or other non-monetary rewards, such as a cross-license to other technologies in the same standard; however, it is essential that SEP's holders commit to license under FRAND terms. FRAND licensing still benefits the licensors, who gain the ability to license to a broader base of suppliers for high volumes of product units because the standard promotes widespread adoption.

For standardisation to contribute to innovation and the uptake of new technologies, it depends on companies investing in implementing the standards, which often entails considerable expense and risk, particularly in the initial stages of developing products that support the standards. As an example of these potential costs, in the semiconductor industry, it takes investment of billions of Euros to build fabrication facilities. For instance, Intel has invested more than \$12.5 billion (approximately €10.5 billion) in Ireland on its Leixlip campus that includes four fabrication facilities.⁴⁹ In order to support the innovation and benefits of standardisation and standards, it is necessary to ensure that those investments will not be jeopardized by abusive licensing.

⁴⁷ *Horizontal Guidelines*, *supra* note 39, ¶ 268.

⁴⁸ *Id.* ¶ 264.

⁴⁹ Intel, *Manufacturing and Operations*, <http://www.intel.eu/content/www/eu/en/silicon-innovations/manufacturing-and-operations.html> (last visited Jan. 23, 2014); Intel, *Intel Ireland Locations*, <http://www.intel.com/content/www/us/en/jobs/locations/ireland/sites/leixlip.html> (last visited Jan. 23, 2014).

B. The decision to include patented technologies into a standard

1. Over-inclusion of patents in standards (Q.1.2.1)

The perceived advantage of having larger portfolios of SEPs to generate more licensing revenue may create incentives for opportunistic behaviour in SSO participants, such as efforts to patent technologies covering even trivial features of the standard. The result can be SEPs that do not represent any real technological benefit to the standard but that nonetheless add to the patent—and potential royalty—stack.

An academic study has found a strong relationship between timing of essential patent filing and the occurrence of SSO meetings (where standard specifications are discussed, agreed upon, and later finalized by the participants).⁵⁰ According to this study, which focuses on the development of the W-CDMA and LTE standards, the patenting intensity in the pre-SSO meeting periods is much higher than the idle period in between the meetings, especially for patents where one of the meeting participants is a named inventor. For instance, in the pre-meeting period, the patenting intensity is three times higher than in the idle periods; during the meeting period, it is one and a half times higher.⁵¹

Further, licensing incentives have spurred an increase in transfers of SEPs to pure licensing and non-practicing entities (NPEs). As outlined in response to Question 4, NPEs often face fewer constraints in aggressively asserting SEPs and seeking non-FRAND royalties than the operating companies where many SEPs originated. Also, as described in response to Question 6, where a licensee must obtain licenses that would cover all the marginal SEPs from multiple parties who often seek similar rates, this can create an excessive royalty stack that could jeopardise the adoption and the deployment of the standard. As the United States Court of Appeals for the Federal Circuit (CAFC), which has exclusive jurisdiction over U.S. patent disputes, recently found, “SEPs pose two potential problems that could inhibit widespread adoption of the standard: patent hold-up and royalty stacking.”⁵² Specifically, “[i]f companies are forced to pay royalties to all SEP holders, the royalties will ‘stack’ on top of each other and may become excessive in the aggregate.”⁵³

⁵⁰ See generally Byeongwoo Kang & Rudi Bekkers, *Just-in-time Inventions and the Development of Standards: How Firms Use Opportunistic Strategies to Obtain Standard-Essential Patents (SEPs)* (Working Paper, 2013), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2284024.

⁵¹ *Id.* at 10.

⁵² *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1209 (Fed. Cir. 2014).

⁵³ *Id.* On the particular facts presented in D-Link, the CAFC found that no showing of royalty stacking had been made. But it held that a jury could be instructed about the dangers of royalty stacking where evidence is presented about other licenses or royalty demands showing the existence of a royalty stack. *Id.* at 1234.

2. Criteria and process for inclusion decision (Q.1.2.2, Q.1.2.3)

In most SSOs, the work of defining the standard is primarily done at the working group level, where participants draft, submit, discuss, and revise (or sometimes merge) technical proposals for particular aspects of the standard. At working group meetings, participants work and agree on the finalized proposals to include in the draft specification. The process of selecting technology for inclusion in the standard often involves compromise, and the technology ultimately chosen for the standard does not necessarily represent the best technical solution. Often there are competing alternative ways in which to accomplish the same functionality in a standard, and there may be pluses and minuses for each that the working group will consider.

In SSOs with a FRAND-based IPR policy, these activities typically proceed under the group's understanding that any patented technology will be made available on FRAND terms. So long as members will honour their obligation to license on FRAND terms, participants in standard setting are free to focus on the technical aspects of the standard without regard to whether or not it is patented, the validity of the patent, and the terms of the license. As outlined more fully in responses to Questions 2 and 6, the proper and uniform application of FRAND commitment principles will ensure that the cumulative royalties will be reasonable, that alleged SEP holders are deterred from exploitive conduct, and that excessive cumulative royalties and hold-up of implementers do not create impediments to efficient implementation of the standard.

II. Response to Question 2

Question 2: A variety of rules and practices govern standardisation involving patents. Which elements of these rules and practices are working well and should be kept and/or expanded? Which elements on the other hand can be improved?

As a company that has invested heavily in standardisation both as a participant in numerous SSOs and as a supplier of products that implement standards, Intel's foremost concern for rules and practices governing patents in standards is adherence to the FRAND commitment and the principles behind it. In short, Intel believes that the FRAND commitment is based on certain clear principles, including that licenses must be made available to all implementers of a standard without discrimination, that FRAND royalties must reflect the value of the SEPs and not any hold-up value, injunctions for SEPs should be limited to circumstances where FRAND royalties are not available, and SEP holders are not entitled to shortcuts past the traditional burdens of patent holders. Intel addresses those subjects in response to Questions 6 (the meaning of the FRAND commitment), 7 (FRAND adjudication) and 8 (the availability of injunctions).

In addition to its primary concern regarding FRAND compliance, Intel believes that increasing disclosure burdens on SSO participants carries costs that should be weighed against the actual benefits that can be gained before imposing such requirements. Intel reviews that subject in response to Question 3.

In its response to Question 2 below, Intel first briefly directs the Commission's attention to the Open Interconnect Consortium's (OIC) Intellectual Property Policy, which Intel considers to be a particularly promising initiative. Intel then addresses the issue of patent quality because we believe that this is an important additional area where improvements could help to address problems arising from patents related to standards.

A. Promising initiatives (Q.2.2.2)

As one example of a recent promising initiative in rules and practices of standard-setting organisations, Intel directs the Commission to the discussion of the Open Interconnect Consortium's Intellectual Property Policy ("OIC Policy") in response to Questions 6 and 8. That Policy explicitly addresses a number of important concerns with respect to both FRAND compliance and disclosure. First, the OIC Policy includes explicit recognition of factors properly considered in determining a (F)RAND royalty⁵⁴:

In determining an appropriate reasonable rate, the Member shall take into account a number of factors including a royalty based on the smallest saleable unit including a Compliant Portion, the technical value of the relevant Necessary Claims, and the overall royalty that could be charged for all Necessary Claims.

⁵⁴ OPEN INTERCONNECT CONSORTIUM, INTELLECTUAL PROPERTY RIGHTS POLICY § 3.2 (2014), *available at* http://openinterconnect.org/wp-content/uploads/2014/09/Open-Interconnect-Consortium-IPR-Policy_08222014.pdf.

Second, the OIC Policy properly provides that patents subject to a (F)RAND commitment should not be used to seek an injunction where it is possible to obtain (F)RAND compensation⁵⁵:

For Necessary Claims subject to this Section 3.2, Member agrees that it shall neither seek nor seek to enforce an injunction, exclusion order, or similar remedy against another Member's Compliant Portion if reasonable and non-discriminatory ("RAND") compensation for practice of such Necessary Claims can otherwise be obtained, or if the potential licensee is willing to be bound by an independent third party adjudication of RAND compensation.

While these two clauses of the OIC Policy are clarifications on the meaning of FRAND (see discussion in our response to Question 6) rather than setting rules that otherwise would not apply, Intel believes such clarifications as part of an SSO's IPR policy are extremely helpful to inform and ensure a clear understanding among participants and implementers. Intel hopes that other SSOs will follow the lead of the OIC and adopt IPR policies that make explicit appropriate FRAND principles.

B. Patent quality

Beyond the issues of FRAND licensing and disclosure, patent quality is another area of concern to Intel. Poor patent quality can exacerbate the problem of abusive licensing practices with SEPs. The more low quality patents are issued—*i.e.*, patents that will be found invalid, not enforceable, non-essential, or not infringed upon closer examination—the greater the risk of potentially adding to the patent thicket and presenting opportunities for abusive licensing in the standards context.

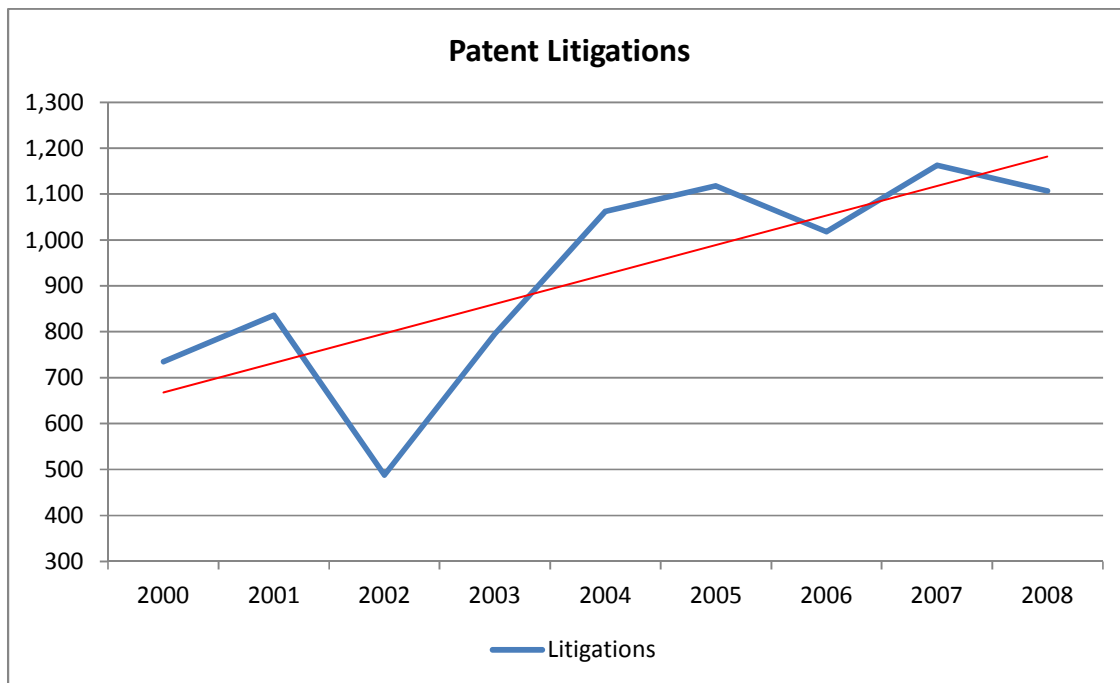
The overall trends in European patenting and patent litigation suggest that patent quality will continue to be an issue of concern. On average, both the number of patent applications and granted patents in Europe have been increasing each year in the last decade.⁵⁶ Although more patents issuing does not necessarily result in a higher proportion of low quality patents (although that is a possibility), assuming that the proportion of low quality patents holds steady, it will result in an increase of low quality patents.

The same trend appears true for patent litigation in Europe. While this data is not routinely tracked and can be difficult to obtain, the available data suggests that patent litigation is on the rise. Shown below (by the blue line) are the total number of patent litigations filed each year in Germany, France, the Netherlands, England, and Wales between 2000 and 2008. Although there

⁵⁵ *Id.*

⁵⁶ European Patent Office, *European patent applications 2004-2013 per country of residence of the applicant* (2014), available at <http://www.epo.org/about-us/annual-reports-statistics/statistics/patent-applications.html>; European Patent Office, *Granted patents 2004-2013 per country of residence of the applicant* (2014), available at <http://www.epo.org/about-us/annual-reports-statistics/statistics/granted-patents.html>.

are some yearly variations, the trend (shown by the red line) is an upward increase in the amount of annual patent litigation.⁵⁷



Further, SEPs have been found more likely to be litigated than patents that are not claimed to be essential to a standard. For example, in the study conducted for the Commission for this project, the authors compared a set of SEPs to a baseline set of patents with similar characteristics but that had not been declared essential to a standard. The SEPs in the sample were five times more likely to be litigated (6.7% or 393 SEPs of 5,768 total SEPs) than the baseline set (1.7% or 89 patents litigated of 5,768 total baseline patents).⁵⁸

All of these factors—increasing number of patent applications and granted patents, increasing patent litigation, and a greater likelihood that SEPs will be litigated—make patent quality a particular concern for standardisation.

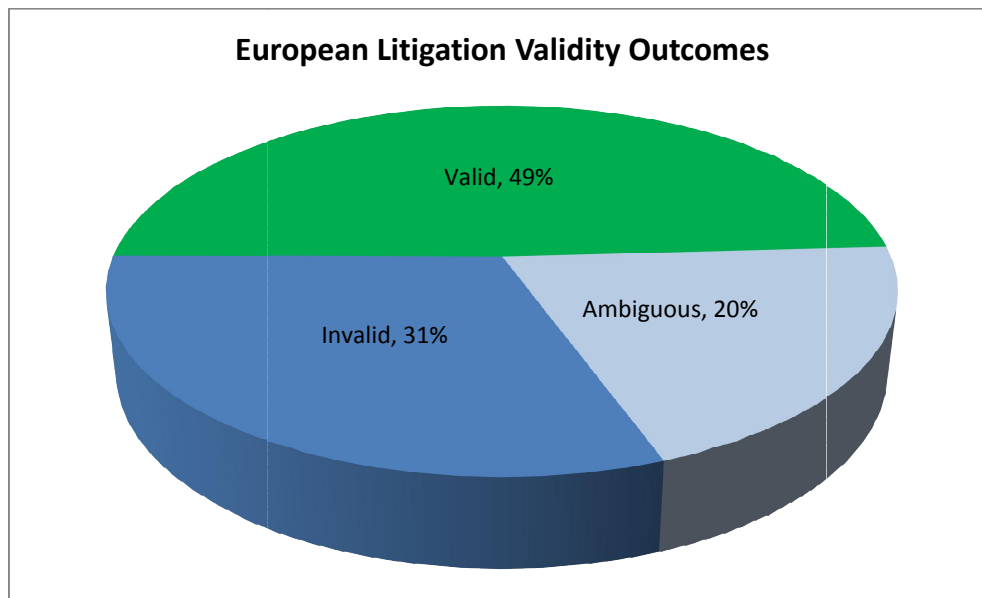
The data on patent quality show that there is continued room for improvement. One study of patent litigation outcomes in France, Germany, Spain, the Netherlands, and the United Kingdom between 2000 and 2010 concluded that in cases where at least one invalidity defence was raised, the defendant succeeded 31% of the time in obtaining a finding of invalidity (*i.e.*, all claims challenged as invalid were held invalid).⁵⁹ In another 20% of such cases, the defendant

⁵⁷ Katrin Cremers, et al., *Patent Litigation in Europe* 43 (Sept. Centre for European Economic Research, Discussion Paper No. 13-072, 2013), available at <http://ftp.zew.de/pub/zew-docs/dp/dp13072.pdf>.

⁵⁸ PATENTS AND STANDARDS, *supra* note 27, at 125.

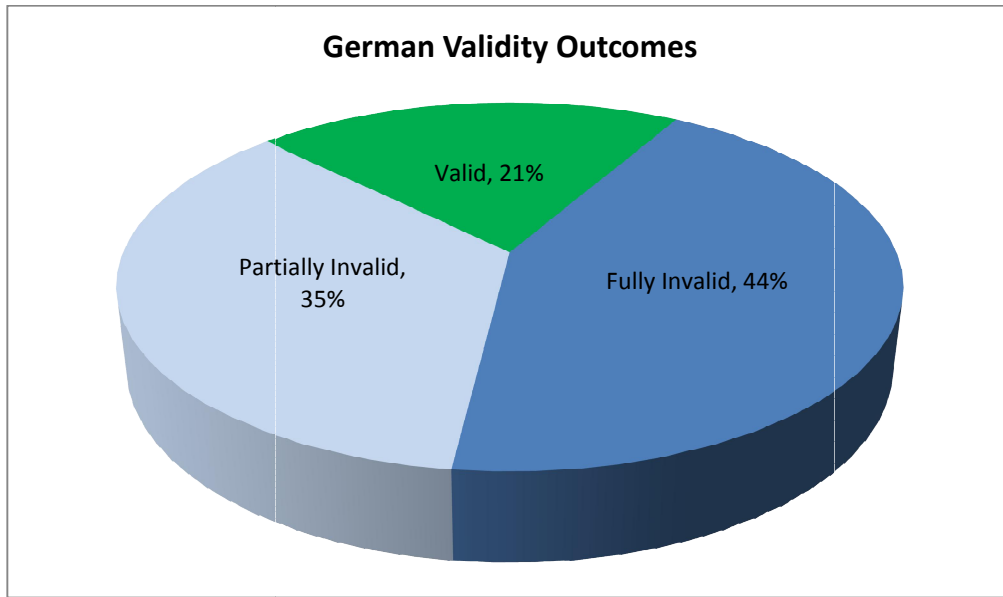
⁵⁹ Stuart J.H. Graham & Nicolas Van Zeebroeck, *Comparing Patent Litigation Across Europe: A First Look*, 17 STAN. TECH. L. REV. 655, 694-695 (2014), available at <http://journals.law.stanford.edu/sites/default/files/stanford-technology-law-review/online/patentlitacrosseurope.pdf>.

succeeded to some extent in challenging invalidity (*i.e.*, one or more claims were held invalid but one or more claims were also held valid)—those cases are referred to as “ambiguous” by the study. Finally, in 49% of the cases studied, an invalidity challenge was entirely unsuccessful and the claims were held valid.

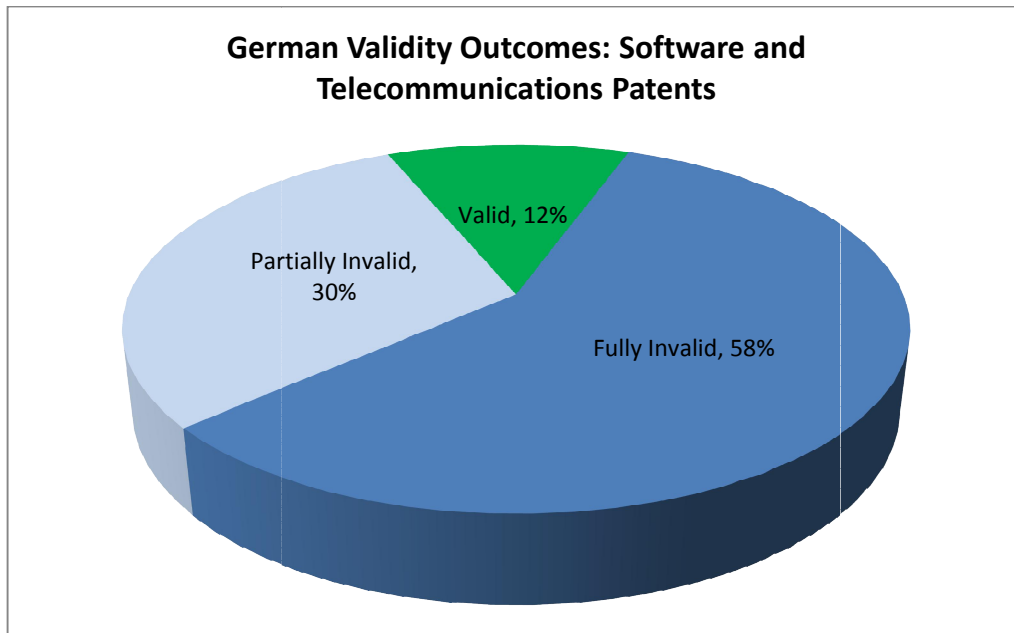


A recent study focusing exclusively on German validity litigations found even lower rates of validity. The authors examined nullity decisions of the German Federal Patent Court and the German Federal Court of Justice from 2010 through 2013 and found that only 20.92% of patents challenged as invalid were judged fully valid, while 43.62% were found fully invalid, and 35.46% were found partially invalid.⁶⁰

⁶⁰ Peter Hess, Tilman Müller-Stoy & Martin Wintermeier, *Sind Patente nur “Papiertiger”?* [Are Patents merely “Paper Tigers”?], MITT. 2014, 439, at 6 (2014), available at http://www.bardehle.com/uploads/files/Patent_Papiertiger.pdf.



The authors separately assessed software and telecommunications patents based on their experience that “a particularly high invalidation rate had to be presumed for these patents.”⁶¹ The results backed the authors’ expectations: only 11.89% of software and technology patents were judged fully valid, 58.04% were found fully invalid, and 30.07% were found partially invalid.⁶²



⁶¹ *Id.* at 5.

⁶² *Id.* at 7.

Thus, according to these data sets, there is a very strong likelihood that a European patent will be found invalid (at least to some extent) if examined more closely after issuance. To be sure, this issue is not limited to Europe. For example, a study of patent litigation outcomes in the United States between 2009 and 2013 found that accused infringers were successful in challenging the validity of a patent 42% of the time.⁶³ (Even higher findings of invalidity have been found in the new U.S. *inter partes* review proceedings discussed below.)

While it is not realistic to expect that the patent application process can match the scrutiny to which patents are exposed through litigation, these figures suggest that there is room for improvement in the patent review process. A full accounting of the steps that could be taken to improve patent quality is beyond the scope of this Questionnaire. In general, Intel supports steps that will lead to increased patent quality, including improved training and access to information for patent examiners. The challenge, of course, is balancing increased rigor in the review process with the costs and time required to conduct such reviews.

In the United States, one approach for addressing patent validity after issuance, *inter partes* review proceedings, was instituted in 2012 and appears to be off to a promising start. An *inter partes* review allows challenges by third parties to validity based solely on published prior art. The *inter partes* review is an adversarial proceeding and is conducted by the judges of the Patent Trials and Appeals Board (PTAB), rather than patent examiners. The proceeding allows for limited discovery (e.g., deposition of the opponent's witnesses who submit written testimony) and includes oral hearings. The intended time frame for conducting the proceeding is 12-18 months. The benefits of *inter partes* review are that it allows more timely and less expensive decisions on validity than engaging in full scale patent litigation. Accordingly, instituting an *inter partes* review has been an attractive option for many parties facing demands from patent holders with patents of dubious validity. Unlike a European opposition proceeding, which must be commenced within nine months, an *inter partes* review can be sought long after the patent issues.

A study of the early results of *inter partes* review proceedings suggests that they are being used to good effect to challenge invalid patents and avoid litigation expense. The study found that the PTAB has instituted review of at least one claim that is challenged in a patent 84% of the time and instituted review for all challenged claims 74% of the time.⁶⁴ Of reviews instituted and that have reached a final determination, the PTAB found invalid all claims 78% of the time.⁶⁵ The study also found that the *inter partes* review proceeding has been a particular benefit to patent defendants to stay the litigation in favour of the PTAB review process. In 80% of the *inter partes* reviews, the patent at issue was also pending in litigation between the same parties, and a

⁶³ John R. Allison, Mark A. Lemley & David L. Schwartz, *Understanding the Realities of Modern Patent Litigation*, 92 TEXAS L. REV. 1769, 1786-87 (2014).

⁶⁴ Brian J. Love & Shawn Ambwani, *Inter Partes Review: An Early Look at the Numbers*, 81 U. CHICAGO L. REV. DIALOGUE 93, 99-100 (2014).

⁶⁵ *Id.* at 101.

request to stay the litigation in favour of the PTAB review was granted (at least in part) 82% of the time.⁶⁶

* * *

These statistics on patent validity coupled with the data presented in response to Question 3 on the poor success rates of SEPs in litigation (studies concluding that SEPs lead to findings of infringement of a valid SEP in only 12% or 16% of cases) underscore that potential licensees must be allowed to challenge assertions by SEP holders. This is equally true in the context of FRAND rate setting, including for portfolios—a prospective licensee must always have the right to raise the patent merits. As set forth more fully in response to Questions 7 and 8, there is no potential efficiency gained by altering the traditional burdens of patent holders to make it easier for SEP holders to generate licensing revenues, particularly where there are demonstrated shortcomings in SEP portfolios. The notion that “declared essential” patents will inevitably be proven “truly essential” is simply not true, as extensive litigation data has demonstrated.

⁶⁶ *Id.* at 103.

III. Response to Question 3

Question 3: Patent transparency seems particularly important to achieve efficient licensing and to prevent abusive behaviour. How can patent transparency in standardization be maintained/increased? What specific changes to the patent declaration systems of standard setting organizations would improve transparency regarding standard essential patents at a reasonable cost?

While the goal of more transparency in standard setting sounds self-evidently beneficial, caution is needed in pursuing this goal. As noted in the Introduction, the greatest threat to the benefits of standardisation is abusive licensing through the refusal to honour the commitment to license on FRAND terms. Patent transparency in the form of declarations is generally not the answer. Instead, enforcing adherence to FRAND commitments and the underlying principles behind such commitments is the way to safeguard standard setting. Moreover, increased transparency through disclosure could not be easily achieved and would add significant costs to participants and slow the standard-setting process. Experience shows that some policies adopted by SSOs with the intention to increase transparency through disclosure may not have actually furthered that goal. Where disclosure requirements increase obligations to disclose more and more information, it can have negative effects for parties required to make declarations as well as potential licensees reviewing the resulting data—of which Intel is both.

In particular, requiring disclosure on a patent-by-patent basis imposes significant burdens on standard-setting participants, and proposals to add to that burden should be carefully assessed. There is a thicket of disclosure information that is of little value in accurately gauging the landscape of patents across a standard, because many of the patents declared essential are not actually essential or the information is not actually made public. Some organizations that require disclosure do not even supply a database to access those disclosures, further limiting the usefulness of this information for decision making.⁶⁷

Because neither patent holders nor licensees necessarily benefit from greater disclosure, individual SSOs must be free to determine what disclosure requirements best suit them and their members and implementers—and how to use disclosure to promote the critical goal of ensuring that SEP holders are faithful to their FRAND commitments. So long as SEP holders make FRAND commitments and then abide by them, the economic viability of the standard will be protected and transparency becomes less important. But, that requires industry-wide compliance with proper FRAND principles. Increasing disclosure obligations will not necessarily promote that goal.

Intel's views here relate only to the question of whether particular transparency requirements should be imposed on all SSOs as a one-size-fits-all requirement. To the extent that SSOs in which Intel participates have imposed particular disclosure requirements, Intel acts in good faith to abide by them and expects other participants to do so as well.

⁶⁷ For example, the Video Electronics Standards Association (VESA) requires disclosure of specific patents, and the Wi-Fi Alliance (WFA) strongly encourages disclosure of specific IPRs by members, but neither have online databases for review of such disclosures.

A. The relevance of patent transparency (Q.3.1)

Although more transparency is a worthwhile goal, its value needs to be seen in context and measured by the contribution it can deliver to preventing abusive behaviour. Potential benefits must be weighed against the costs and burdens associated with achieving greater transparency.

There are two periods when transparency of patents for standards may be relevant—during the process of setting a standard (*i.e.*, *ex ante*) and during the process of licensing SEPs after the standard is set (*i.e.*, *ex post*). In Intel’s experience, detailed patent disclosure during either stage is less important than vigorously enforcing adherence to the FRAND commitment by SEP owners. Moreover, measures aimed at more detailed patent disclosures for either stage could impose significant costs and burdens without delivering proportional benefits.

1. Patent transparency during standardisation (Q.3.1.2)

During standardisation, the existence of patents that may cover technology being incorporated into the standard could be relevant to decision making. For example, standard-setting participants may be able to take into consideration the existence of patents when weighing competing proposals for technology to include in the standard. In Intel’s experience, the *ex ante* disclosure of information that potentially essential patents exist is most useful when the SSO is selecting technology for inclusion in a standard.

Protecting standard implementers from abuses, however, does not necessarily require identification of specific patents. In some cases, technical working group participants are required to disclose some general information about relevant IPR, which allows for the members of the technical working group to determine if they want more information and gives them an opportunity to pursue it as part of their process of determining whether to support including particular technology in a proposed standard. In fact, many SSOs simply employ a general “call for IPR” during standard setting to ensure that members will make known if they have IPR that may cover a proposed technical solution.⁶⁸ A slightly different approach adopted by some SSOs and consortia is simply to make a requirement of membership or participation in standard setting

⁶⁸ For example, the IEEE-SA requires a “call for patents” to “occur at every standards-developing meeting” that “inform[s] the participants at a meeting that if any individual believes that Patent Claims might be Essential Patent Claims, that fact should be made known to the entire working group and duly recorded in the minutes of the working group meeting.” IEEE, *IEEE-SA Standards Board Operators Manual* § 6.3.2, <http://standards.ieee.org/develop/policies/opman/sect6.html> (last visited Jan. 24, 2015).

the obligation to license patents that are essential to the standard on FRAND terms.⁶⁹ The point is that any of these or other approaches may work, and the best and most efficient solutions are tailored to the particular circumstances of the SSO.

Fundamentally, members of the working group usually are not in a position to make a legal analysis of the disclosed patents, and they make decisions on the inclusion of certain technology, despite the potential existence of essential patents. In many cases, members believe that this analysis is unnecessary, because they assume that they can rely on the FRAND undertakings made by the disclosing members to ensure that FRAND licenses will be available to all implementers for all IPR claimed essential to the standard. The members of technical bodies are generally engineers who do not have responsibility for their companies' patent disclosures or patent strategies. So long as the standard will not become unavailable because of a refusal to license on FRAND terms, there will generally be little concern among the technical working groups at SSOs regarding IPR issues.

In addition, exploring what patents are relevant to particular proposals could expose members to claims of wilful infringement with the potential for enhanced damages. Therefore, many companies advise their technical people not to inquire regarding the patents of other companies without proper legal advice.

Generally speaking, companies like Intel want their technical employees participating in these working groups to focus on devising technical solutions. If detailed patent analysis is required, they are asked to consult with the company's legal adviser(s). Given the complexity and fast moving nature of both patent laws and the standard development process, and given the huge number of patents often disclosed in today's standard development process, deeper legal analysis of individual patents and their relationship to the proposed standard is exceedingly time-consuming and costly. This presents a challenge for all enterprises participating in standards setting, including large entities which generally have in-house legal departments as well as small- and medium-sized entities (SMEs) that may not have dedicated legal resources. If every technical decision by the working group needed to be run through each company's legal adviser, the standard development process would be bogged down and not able to meet the needs of the fast moving European ICT industry or help drive European competitiveness in ICT innovations.

The technical participants simply need enough information (*e.g.*, a member has potentially a number of essential patents covering a technology under consideration) to make a decision to

⁶⁹ For example, the PCI Special Interest Group makes FRAND licensing of essential patents a requirement of membership. BYLAWS OF PCI SIG § 15.3 ("When the Member or its Affiliate makes a Contribution to a Specification of the Corporation, including revisions thereto, or when the Corporation adopts and approves for release a Specification after providing notice as set forth in Section 15.2, above, the Member and its Affiliates hereby agree to grant to other Members and their Affiliates under reasonable terms and conditions that are demonstrably free of any unfair discrimination, a nonexclusive, nontransferable, worldwide license under its Necessary Claims to allow such Members to make, have made, use, import, offer to sell, lease and sell and otherwise distribute Compliant Portions, provided that such agreement to license shall not extend to any part or function of a product in which a Compliant Portion is incorporated that is not itself part of the Compliant Portion. Each Member agrees that they will not transfer, and have not transferred, patents having Necessary Claims for the purpose of circumventing this Section 15.3."), *available at* https://www.pcisig.com/membership/about_us/bylaws.

include or exclude the technology. The decisive factor is usually whether the disclosing member has made a FRAND undertaking or not, not the particulars of the potentially essential IPR that the disclosing member holds. This principle is echoed in the European Commission’s Horizontal Guidelines, which discuss FRAND undertakings and note the importance of “good faith disclosure” in this context. The Guidelines give examples of IPR policies that ensure that sufficient disclosure is made and one option is a policy under which “the participant declares that it is likely to have IPR claims over a particular technology (without identifying specific IPR claims or applications for IPR).”⁷⁰

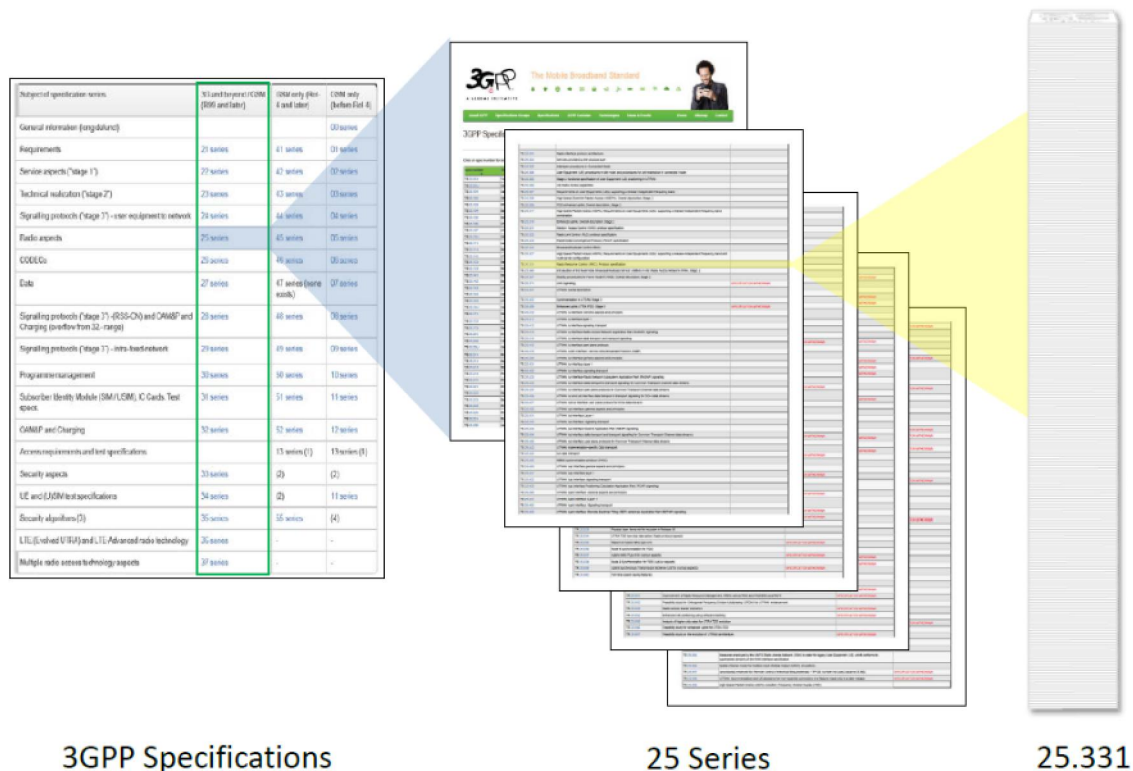
There are many SSOs throughout the world that have successfully supported tens of thousands of standards and industry specifications without requiring specific disclosure of individual patents—and instead just require “blanket declarations” confirming parties’ intent to license on FRAND/RAND terms any standard-essential patents that they have. Examples of such organizations include the International Telecommunication Union, the Institute of Electrical and Electronics Engineers, Ecma International, CENELEC (European Committee for Electrotechnical Standardization), and the Distributed Management Task Force. As noted above, there are also successful SSOs and consortia that do not require IPR disclosures, just the obligation to license on FRAND terms through participation or membership. Examples of such organizations include the PCI-SIG, the Alliance for Wireless Power (A4WP), and the Trusted Computer Group (TCG). The absence of specific disclosure obligations has not undermined the development of standards by these SSOs.

Further, although it may be possible to identify some potentially essential IPR before a standard is set, it is often not practicable to identify all such IPR. The evolving content of the draft specification as it is developed, the complexity of the specification, and the evolution of patent applications all mean that it may not be possible to identify all truly essential IPR until after the standard is set and implemented. All of these factors are also impacted by the fact that specifications can be exceedingly voluminous. For example, the cellular specifications for 3G and beyond (outlined in green below) developed by 3GPP run from the 21 series standards through the 37 series standards. This is one generation of the specifications, with two older generations listed to the right below. Specific technical areas of the standard are found in particular series, *e.g.*, radio aspects of the standard are found in the 25 series while security is found in the 33 series.⁷¹ Then, within each series, there are a number of separate specifications. The 25 series, for example, is highlighted in blue below and contains over 200 separate specifications, with a table of contents that spans five pages. Within this 25 series, the 25.331 specification (highlighted in yellow) alone runs for over 2,000 pages⁷²:

⁷⁰ See *Horizontal Guidelines*, *supra* note 39, ¶ 286.

⁷¹ 3GPP, *Specification Numbering*, <http://www.3gpp.org/specifications/79-specification-numbering>. (last visited Jan. 24, 2015).

⁷² 3GPP, *3GPP Specification Detail 25.331 (ver. 12.3.0)*, <http://www.3gpp.org/DynaReport/25331.htm> (last visited Jan. 24, 2015).



Given the size and complexity of standards and the pace of standard setting, the disclosure of individual IPRs during standard setting may not be practically feasible. Moreover, experience demonstrates that less burdensome disclosure regimes—particularly, blanket declarations—or the absence of disclosure obligations at all—where participation or membership constitutes a commitment to license on FRAND terms—can result in successful standard setting and adoption. In the end, what matters most is that patents incorporated into the standard be available for licensing on FRAND terms. If a standard-setting system can ensure that outcome, there is little reason to complicate the process and add more costs to participating by imposing increased disclosure obligations.

2. Patent transparency for licensing (Q.3.1.3)

Detailed patent disclosure is also not necessarily crucial for licensing SEPs after the standard is set. Owners of SEPs that are interested in licensing them have little difficulty in identifying companies that are supplying products that operate using an industry standard. For example, mobile phones that operate using a particular cellular standard (such as LTE) are readily identifiable. Thus, the current level of patent disclosure is not an impediment to SEP holders in seeking FRAND royalties from parties implementing standards.

Detailed self-serving patent disclosures by the SEP holders are often of little use to prospective licensees, because many (if not most) patents declared essential are unlikely actually to be

essential. As an example, there are more than 29,000 patents listed in the ETSI IPR Database for the LTE standard alone (and more than 166,000 patents across all standards).⁷³ This level of patent-specific disclosure amounts to *de facto* blanket disclosure because it is not practicable for any company (particularly an SME) to evaluate this volume of patents. This level of disclosure also underscores the significant costs that would be required to vet declared-essential patents, either by the declaring companies or by the SSO. Industry studies in which claims in a patent family that has been declared as essential are compared against the text of the standard have concluded only 27% to 54% of declared SEPs are actually essential.⁷⁴ Moreover, these studies do not address the invalidity or enforceability of the patents studied.

The outcomes from the assertion of declared SEPs in litigation also underscore the high rate of over declaration. For example, in prior litigation with Wi-LAN, Inc., Intel prevailed on summary judgment of non-infringement with respect to ten patents asserted against 802.16 (WiMAX)-compliant products.⁷⁵

Likewise, in an English case, Nokia challenged the claimed essentiality of twenty-nine patents that InterDigital had declared to be essential to 3GPP cellular standards. At trial, InterDigital only sought to support the essentiality of four of the twenty-nine patents. Of those four, the court determined only one of them to be essential to the standard.⁷⁶ That translates to a rate of essentiality for those patents of only 3.4%.

Similarly, a study of 380 declared SEPs that were asserted in the United States (either in federal district courts or at the U.S. International Trade Commission (ITC)) from January 1, 2005 to June 30, 2014, found that of SEPs asserted in cases that went to judgment, they resulted in findings of infringement of valid patents only 16% of the time. Non-SEPs had a 34% success rate in similar circumstances.⁷⁷

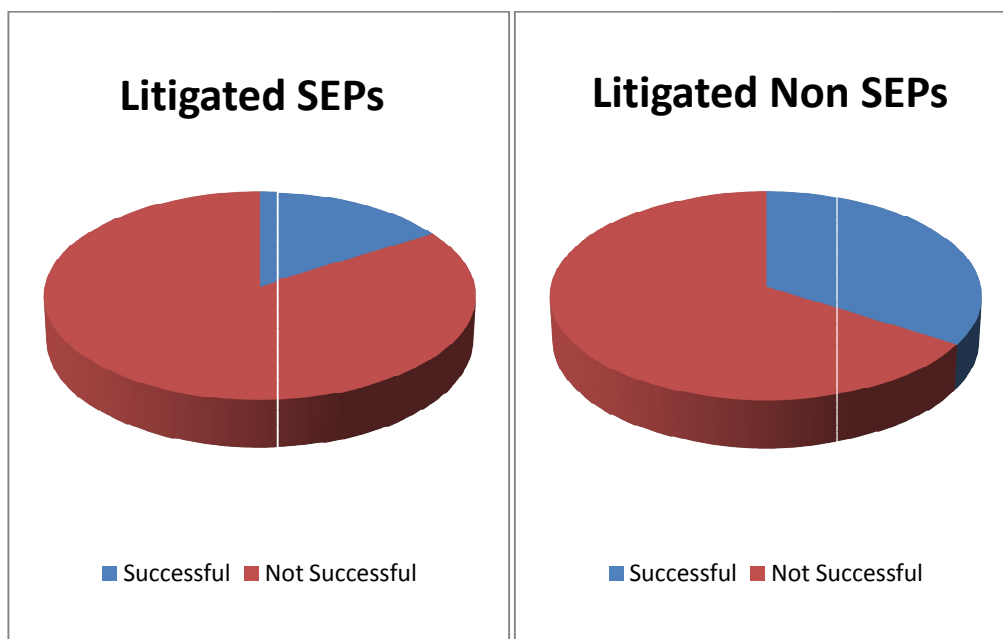
⁷³ ETSI IPR DATABASE, <http://ipr.etsi.org/> (last visited Jan. 24, 2015).

⁷⁴ FAIRFIELD RES. INT'L, ANALYSIS OF PATENTS DECLARED AS ESSENTIAL TO GSM AS OF JUNE 6, 2007 7 (2007), available at http://frlicense.com/GSM_FINAL.pdf; FAIRFIELD RES. INT'L, REVIEW OF PATENTS DECLARED AS ESSENTIAL TO WCDMA THROUGH DECEMBER, 2008 1 (2009), available at <http://www.frlicense.com/wcdma1.pdf>; CYBER CREATIVE INST. CO. LTD., EVALUATION OF LTE ESSENTIAL PATENTS DECLARED TO ETSI 23 (ver. 3.0, 2013), available at <http://cybersoken.com/research/pdf/lte03EN.pdf>.

⁷⁵ See *Intel Corp. v. Wi-LAN, Inc.*, No. C 08-04555 JW, 2011 WL 62494 (N.D. Cal. Jan. 7, 2011).

⁷⁶ *Nokia Corp. v. Interdigital Tech. Corp.*, [2007] EWHC 3077 (Pat).

⁷⁷ RPX CORP., STANDARD ESSENTIAL PATENTS: HOW DO THEY FARE? 9, (2014), available at <http://www.rpxcorp.com/wp-content/uploads/2014/01/Standard-Essential-Patents-How-Do-They-Fare.pdf>; see also John ("Jay") Jurata, Jr. & David B. Smith, *Turning the Page: The Next Chapter of Disputes Involving Standard Essential Patents*, CPI ANTITRUST CHRONICLE, Oct. 2013, at 5, available at <https://www.competitionpolicyinternational.com/file/view/7000> (showing that of a set of 58 declared SEPs that went to judgment in litigation since 2009, only 7 had been found valid and infringed, with the remainder found invalid (18), not infringed (17), withdrawn by the SEP holder (14), or otherwise dismissed (2)).



A smaller study of SEP assertions in fifteen cases in the U.S., Germany, Korea, and Japan found that only 12% of SEPs (7 out of 58) resulted in a finding of infringement of a valid patent. In the remaining 88% of cases, the declared SEPs were found not infringed, found invalid, dismissed on other grounds, or voluntarily withdrawn by the patent holder.⁷⁸

Thus, a declaration of essentiality is not an effective predictor of whether the patent is actually essential, and is even a weaker predictor of whether the patent would be found to be infringed by a specific product supporting the standard.

SSOs typically rely on self-determinations of essentiality by members and do not have the expertise, capacity, or willingness to accept the burdens and legal liabilities necessary to evaluate the declarations that are submitted. This can lead to over declaration of patents as essential.

Such over declaration may be motivated by a variety of concerns. In some cases, an SSO's disclosure policy may encourage over declaration by requiring disclosure of patents before the standard is set, meaning that there will necessarily be disclosure of patents for technology that is not ultimately standardised. As an example, the ETSI IPR Policy requires that "a MEMBER submitting a technical proposal for a STANDARD or TECHNICAL SPECIFICATION shall, on a bona fide basis, draw the attention of ETSI to any of that MEMBER's IPR which might be ESSENTIAL if that proposal is adopted."⁷⁹ By requiring disclosure before a standard is set, ETSI necessarily encourages over declaration because not every "technical proposal" that "might be ESSENTIAL if that proposal is adopted" will actually be adopted.

⁷⁸ Jurata, Jr. & Smith, *supra* note 77.

⁷⁹ EUROPEAN TELECOMMUNICATIONS STANDARDS INST., ETSI INTELLECTUAL PROPERTY RIGHTS POLICY § 4.1, (2014), available at <http://www.etsi.org/images/files/IPR/etsi-ipr-policy.pdf>.

Further, the risk of a finding that a patent is unenforceable because it was not disclosed in accordance with an SSO's IPR policy—or other serious adverse consequences, such as breach of contract or antitrust claims—also tends to encourage participants to err on the side of disclosing IPRs even without certainty about essentiality.⁸⁰ In addition, there are strong financial incentives for companies to declare more patents essential so that they have larger portfolios of declared SEPs to assert in licensing negotiations to generate royalties.

Similarly, there is little incentive to correct the information in a prior declaration of essentiality. A correction will make no material difference in where the standard is adopted, and any potential licensee will not directly benefit from identification of patents by patent number.

The end result is that the disclosed information about the standard in aggregate or even the portfolio of a particular company often provides limited information about how many actually essential patents there are. Again, this emphasizes that what is most important is strict adherence to the FRAND commitment, such that patents incorporated into the standard remain available for licensing on FRAND terms.

B. The costs of detailed patent disclosure (Q.3.2)

Intel's experience is that the cost of compliance with detailed patent disclosure obligations is high (Q.3.2.4). Intel participates in approximately 55 SSOs that require disclosures of varying degrees, ranging from general letters of assurance to specific identification of patents. The study prepared for the Commission in connection with this Questionnaire estimates a cost of €600 to €1800 for a "first instance essentiality test."⁸¹ In Intel's experience, the cost of disclosing a single IPR is at or above the estimated upper range. Applied across a broad patent portfolio (even without an obligation to search the portfolio) and participation in a number of SSOs, these costs quickly become quite significant.

These high costs of detailed patent disclosure and the additional time burdens on the standards development process can be a disincentive for participating in standard setting and can thereby jeopardize pro-competitive standard-setting efforts. Although there are many factors that Intel considers in determining whether to participate in a particular SSO, the disclosure obligations that Intel will face is an important one. Specifically, Intel has encountered situations where the cost involved in complying with specific (rather than blanket) patent disclosure obligations is sufficiently high to make participation in a standards development effort economically unattractive, even though Intel had an interest in the standard. The standard likely would have benefited from Intel's technical contribution, which Intel found itself unable to provide.

⁸⁰ Courts have concluded that a SEP holder may waive its rights to enforce its patent where "(1) the patentee had a duty of disclosure to the standard setting organization, and (2) the patentee breached that duty." *Hynix Semiconductor Inc. v. Rambus Inc.*, 645 F.3d 1336, 1348 (Fed. Cir. 2011) (citing *Qualcomm Inc. v. Broadcom Corp.*, 548 F.3d 1004, 1011-12 (Fed. Cir. 2008)).

⁸¹ See PATENTS AND STANDARDS, *supra* note 27, at 142.

C. The quality of patent declarations (Q.3.3)

As described above, the quality of patent declarations identifying specific patents is generally low, with many patents declared essential that turn out not to be so. The Questionnaire raises the possibility of imposing additional obligations on parties that have declared patents as essential, such as an obligation to update prior declarations (Q.3.3.2). Further, the Questionnaire asks whether declarations should be submitted for a check by someone other than the declarant (whether to assess essentiality, validity, and/or enforceability) (Q.3.3.3, Q.3.3.4).

These additional steps would impose even higher costs on standard-setting participants and SSOs and are unlikely to produce any tangible benefits. An updating requirement might help to reduce the thicket of declared SEPs but in considering whether to update and retract prior declarations, SSO participants would still face the same incentives to maintain their prior declarations that led to over declaration in the first place. Further, an updating requirement would amount to another form of “patent searching” that most SSOs have properly recognized cannot be justified given the significant burdens placed on participants. This process would likely slow the specification development process as each period or process for updating would likely have a set time frame, thus building in weeks and possibly months to the development time. ETSI’s Intellectual Property Rights Policy, for example, provides that the disclosure obligations “do however not imply any obligation on MEMBERS to conduct IPR searches.”⁸² But requiring updating of prior declarations would essentially be a form of searching as members would be required to continually reassess their portfolio of disclosed IPRs.

Checks of essentiality by an SSO may provide a better view of the scope of patent coverage for a standard, but would impose significant costs on SSOs, and there are already third-party groups that do such work. Checks of validity or enforceability would be difficult to perform in a meaningful manner and would be of marginal value without access to information often only available through litigation and without incurring significant costs. The Commission’s *Patents and Standards* report estimates a range of costs for additional analyses of declared-essential patents. For an “extensive essentiality and/or infringement test in the context of a court case,” the report estimates a cost of “Approx. > 20,000 Euro per patent.”⁸³ The low end of this estimate is extremely conservative, with the cost of conducting the evaluation necessary for litigation—including retaining attorneys, technical experts, and often engaging a search firm to locate prior art—likely to be multiples of €20,000 per patent. It is not practical for SSOs to undertake such reviews. But short of such a thorough analysis, the benefits of additional checks by an SSO on declared SEPs are unclear.

Further, even if increased disclosure and verification obligations were imposed on standards participants and SSOs, it still would not ensure that potential implementers have all of the information they require to assess the licensing landscape for the standard. To the extent that SEP holders are able to engage in abusive licensing, simply knowing more about the scope of their portfolios is not enough. Rather, implementers of standards, from large enterprises like

⁸² ETSI INTELLECTUAL PROPERTY RIGHTS POLICY, *supra* note 79, § 4.2.

⁸³ PATENTS AND STANDARDS, *supra* note 27, at 148.

Intel to SMEs, would benefit most from consistent application of FRAND principles. As just one example, which is addressed in further detail in Question 6, if royalties for SEPs are set with reference to the price (or profit margin) of the component (such as a cellular processing chip) that implements the standard, it provides a degree of cost certainty that cannot be achieved through disclosure alone (and just as importantly, ensures that compensation is closely tied to the actual inventive contribution of the patent).

Moreover, each patent system provides its own process for ensuring that only valid patents that are actually infringed will generate reward, and—where parties are unable to resolve their differences through private negotiations—this process usually is based on litigation in courts. It is not until a patent is tested in litigation that problems with validity (which may be affected by the particular claims of infringement—*e.g.*, the claims of a patent are stretched by the patent holder in an attempt to prove infringement to a degree that, if accepted, would render the patent invalid) or enforceability (*e.g.*, seeking non-FRAND royalties after failing to disclose a patent) surface. Further, imposing a review process by the SSO could threaten to significantly slow the pace of standard setting.

When parties negotiate patent licenses, there are invariably disputes about the value, coverage, validity, and sometimes enforceability of the patents at issue. That happens whether or not patents have been declared essential to a standard. Because of these disputes, not all parties do reach agreement and the patent system anticipates that some disputes may need to be adjudicated in court where both parties have an opportunity to defend their views on the patent(s)—in particular, patent litigation processes have built in safeguards against invalid or non-infringed patents. The same is true with SEPs. An SSO reaching conclusions that do not bind the parties on issues of essentiality, validity, and enforceability is unlikely to avoid the reality that some licensing disputes will need to be resolved in court.

* * *

In the end, there is no “one-size-fits-all” solution to disclosure obligations at SSOs. Individual SSOs should be permitted the latitude to gauge what disclosure obligations are consistent with the needs of their members and the standard at issue—and which, if any, promote the more fundamental goal of ensuring that SEP holders adhere to FRAND licensing. To the extent that the core principles of the FRAND commitment are respected, that should provide the certainty necessary for both SEP holders and potential licensees without a need for more detailed knowledge of the relevant patents. Intel further addresses these issues in its responses to Questions 2 and 6.

IV. Response to Question 4

Question 4: Patents on technologies that are comprised in a standard are sometimes transferred to new owners. What problems arise due to these transfers? What can be done to prevent that such transfers undermine the effectiveness of the rules and practices that govern standardisation involving patents?

Transferring ownership of SEPs in principle should not present a problem, provided the recipient respects the previously committed licensing obligations, and parties generally should be free to transfer patents as they see fit. Intel has itself acquired SEPs to strengthen its patent portfolio to protect Intel products that support standards.⁸⁴ Consistent with its public position that “FRAND commitments follow the transfer of a patent to subsequent owners,” Intel has respected the existing FRAND commitments for these patents.⁸⁵

Problems can arise, though, if SEPs are transferred to new owners that do not abide by the royalty-free or FRAND commitments made by the former owner. If the licensing commitments do not transfer with SEPs, SEP acquirers may refuse to offer royalty free or FRAND rates to implementers of the relevant standards. This will encourage patent hold-up in which a potential licensee’s investment in implementing the standard is leveraged to demand non-FRAND royalties. As explained more below, this may also result in royalty stacking. These problems, if left unaddressed, would reduce the innovation and growth potential of the European standard system.

In particular, transfers of SEPs from operating companies to patent assertion entities (PAEs) or other NPEs that will not face the same constraints in asserting the patents as the operating companies raise special concerns. NPEs typically do not participate in the relevant SSO so will not find their technical proposals disfavoured based on a history of FRAND misconduct, generally do not have the same reputational concerns, and enjoy immunity from patent countersuit because they sell no products. As the U.S. Federal Trade Commission (FTC) has described NPEs, they “focus[] on purchasing and asserting patents against manufacturers already using the technology, rather than developing and transferring technology[;] . . . they can deter innovation by raising costs and risks without making a technological contribution.”⁸⁶ Transfer of SEPs to NPEs that do not abide by FRAND principles can impose significant costs on implementers of standards.

Such transfers can be particularly problematic where NPEs are used as proxies for licensing or litigation campaigns designed to benefit the original patent owner. Such “patent privateer”

⁸⁴ Intel, *Interdigital Agrees to \$375 Million Patent Transaction with Intel*, June 8, 2012, http://newsroom.intel.com/community/intel_newsroom/blog/2012/06/18/interdigital-agrees-to-375-million-patent-transaction-with-intel.

⁸⁵ Intel, *Intel patent licensing practices for industry standards*, <http://www.intel.com/content/www/us/en/standards/standards-patent-licensing-practices.html> (last visited Jan. 25, 2015).

⁸⁶ FED. TRADE COMM’N, *THE EVOLVING IP MARKETPLACE ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION* 8-9 (2011), available at <http://www.ftc.gov/os/2011/03/110307patentreport.pdf>.

business models have become more common recently, and may be used by some patent owners to target competitors or to multiply their own patent royalty intake without regard to royalty stacking concerns. Royalty stacking can result where SEP portfolios are split up among multiple parties so that increased royalties can be sought, and threatens to add to the aggregate royalties that may be demanded for practicing a given standard. Also, some patent holders will sell off portions of their portfolios while retaining a “back end” interest in any royalties collected, and simultaneously maintain prior rates for their retained patent portfolios. Such improper multiplication of royalty claims violates FRAND, and can hinder the industry by growing the patent thicket.

On the other hand, where SEPs are transferred along with the FRAND commitment and the acquiring party adheres to proper FRAND principles, that can eliminate the various potential problems that can result from patent transfers described below. That outcome is preferred to imposing any strict limitations on patent transfers in general.

A. Prevalence, causes, and consequences of transfers (Q.4.1.1-4.1.3)

There are two primary reasons for acquisition of SEPs—to use them offensively as part of a patent monetization business or to use them defensively, either as a deterrent through the threat of countersuit or for cross-licensing.

1. Acquisition of SEPs for defensive use

Defensive acquisition of SEPs is unlikely to raise significant concerns because any parties that need SEPs for defensive purposes most often face incentives that will constrain abuses of the SEPs. In particular, a defensive acquirer of SEPs will almost certainly be a product company that faces the risk of countersuit if it asserts the acquired SEPs, as well as additional SEP litigation directed at its products, and so should typically have incentives not to stray from the FRAND commitment.⁸⁷ For example, in approving acquisitions by Apple and Microsoft of SEPs, the U.S. Department of Justice (DOJ) noted that each of these companies had publicly taken positions that they would not seek an injunction on an SEP.⁸⁸

2. Acquisition of SEPs for offensive use

On the other hand, when SEPs are acquired for offensive use, there can be cause for concern because of the different incentives for a party seeking to monetize patents—often an NPE (or sometimes, an operating company that may nevertheless *behave* like an NPE by focusing principally on generating licensing revenue above product revenue). NPEs typically do not make

⁸⁷ It should be noted, however, that some operating companies that might have been defensive acquirers of SEPs at the time may later change their business models to focus on patent monetization and begin using their SEPs offensively.

⁸⁸ Press Release, U.S. Dep’t of Justice, *Statement of the Department of Justice’s Antitrust Division on Its Decision to Close Its Investigations of Google Inc.’s Acquisition of Motorola Mobility Holdings Inc. and the Acquisitions of Certain Patents by Apple Inc., Microsoft Corp.*, Feb. 13, 2012, available at <http://www.justice.gov/opa/pr/statement-department-justice-s-antitrust-division-its-decision-close-its-investigations>.

or sell products; they instead seek revenues from monetizing patents by licensing or suing product companies. Most importantly, NPEs do not have the same constraints on patent assertion that might otherwise constrain a product manufacturing company. These constraints include risk of a countersuit rising from claims that their own products infringe the opponent's patents, damage to business reputation (including within the SSO that adopted the relevant standard), or strain on customer relations.

As noted, in some cases, manufacturing companies transfer pieces of a SEP portfolio to NPE proxies (or "privateers") and influence the NPEs (through contracts or other means) to aggressively enforce patents against competitors, thereby circumventing constraints on their own ability to enforce the patents and raise rivals' costs. Such practices may enable manufacturing companies to evade FRAND commitments made to SSOs and seek royalties above FRAND rates from users of a standard.

NPEs are an increasingly active participant in the transfer of patents. A 2009 study, for example, found patent transfers to NPEs represented 75 percent of all patent transactions in the marketplace.⁸⁹ Similarly, the *Patents and Standards* study conducted for the Commission found that there had been a significant increase in SEP transfers between 1997 and 2009, with reason to believe that the trend would continue.⁹⁰ Further, a 2013 study found that "NPE-asserted patents are three times more likely to have changed hands between issue and enforcement than product company-asserted patents," and that they change hands more frequently over a longer period of time than patents litigated by product companies.⁹¹

3. The impact of NPEs in Europe

The problem of NPEs in the United States is well documented and has drawn attention from the highest levels of government. For example, in 2011, the FTC published a 300-page report on the IP marketplace that focuses on the problems concerning NPEs.⁹² As the Federal Trade Commission observed, "[i]ncreasing activity by patent assertion entities (PAEs) in the information technology (IT) industry has amplified concerns about the effects of ex post patent transactions on innovation and competition."⁹³ Further, in June 2013, President Obama announced several executive orders "to protect innovators from frivolous litigation" by NPEs or "patent trolls."⁹⁴

⁸⁹ Anne Kelley, *Practicing in the Patent Marketplace*, 78 U. CHI. L. REV. 115, 118 (2011) (citing Oliver Wyman, *IP Secondary Market Study: Summary Findings from Oliver Wyman Research* *7 (Apr. 23, 2009)).

⁹⁰ PATENTS AND STANDARDS, *supra* note 27, at 190.

⁹¹ Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could A Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309, 1333 (2013).

⁹² See generally THE EVOLVING IP MARKETPLACE, *supra* note 86.

⁹³ *Id.* at 8.

⁹⁴ Edward Wyatt, *Obama Orders Regulators to Root Out 'Patent Trolls'*, N.Y. TIMES, June 4, 2013, available at http://www.nytimes.com/2013/06/05/business/president-moves-to-curb-patent-suits.html?_r=0.

The detrimental impact of NPEs on innovation is also clear. Rather than encouraging innovation by funding inventors, NPEs' activities have imposed on accused firms an astonishing amount of direct costs—approximately \$29 billion (approximately €24.5 billion) in 2011, an increase by 400 percent since 2005.⁹⁵ These costs include legal costs, settlement costs, and other costs for resolved lawsuits, unresolved lawsuits, and non-litigated assertions.⁹⁶

NPEs are often thought of as a particularly American problem. In particular, NPEs in Europe can face certain challenges that they do not face in the United States, including greater risk of paying the defendant's attorneys' fees and smaller damages awards.⁹⁷ But despite these challenges, NPEs are having an impact in Europe and may pose a greater threat in the future.

One well known example of a European NPE is IPCom, which acquired a portfolio of patents from Bosch GmbH and has been an active and aggressive litigant. For example, IPCom requested €1.57 billion from Apple for a single patent claimed to be essential to 3G mobile standards.⁹⁸ Apple was found not to infringe the IPCom patent. More broadly, one study of patent litigation in the United Kingdom from 2000 to 2010 found that NPE suits constituted 11% of total patent suits.⁹⁹ Moreover, with the advent of a unitary European patent that could be enforced with continent-wide impact in a single court, NPEs may have increased incentives and opportunities to litigate in Europe.¹⁰⁰ For example, the owner of an active U.S. NPE, IPNav, remarked that the unified patent system "is going to cut the cost of litigation down significantly."¹⁰¹

Further, the licensing of SEPs is a global business. Thus, to the extent that European companies offer products or services that use standards, they face a risk of lawsuits from NPEs whether in Europe or abroad. Deutsche Telekom (which operates in the United States through T-Mobile) and Nokia, for example, rank 17th and 18th, respectively, on a list of the top targets for NPE suits in the United States.¹⁰²

⁹⁵ James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes* 22-24, 48 (Boston Univ. School of Law & Economics Research Working Paper No. 12-34, June 25, 2012), 99 CORNELL L. REV. (forthcoming 2014), available at <http://www.bu.edu/law/faculty/scholarship/workingpapers/revcov.html>.

⁹⁶ *Id.* at 48.

⁹⁷ Christian Helmers et al., *Is There a Patent Troll Problem in the U.K.*, 24 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 509, 511510-12 (2014).

⁹⁸ Loek Essers, *German court dismisses €1.57 billion patent suit against Apple*, IDG NEWS SERVICE, Feb. 28, 2014, <http://news.idg.no/cw/art.cfm?id=AE3F4D37-0111-48BF-120A91012BE09E55>.

⁹⁹ Helmers, *supra* note 97, at 515.

¹⁰⁰ *Id.* at 514.

¹⁰¹ Danny Hakim, *Tech Giants Fear Spread of Patent Wares to Europe*, N.Y. TIMES, Sept. 25, 2013, at B1., available at <http://www.nytimes.com/2013/09/26/technology/tech-giants-fear-spread-of-patent-wars-to-europe.html?pagewanted=all>.

¹⁰² PatentFreedom, *Most Pursued Companies*, <https://www.patentfreedom.com/about-npes/pursued/> (last updated July 14, 2014).

4. SEP transfers leading to patent hold-up

The principal danger from the transfer of SEPs is the risk of patent hold-up. Patent hold-up occurs when a firm utilizes the leverage gained by a firm's investments in implementing the standard to demand excessive non-FRAND royalties for SEPs. The firm thereby "holds up" those seeking to implement the standard by significantly raising their costs to do so. (Intel addresses patent hold-up and the determination of FRAND royalties more fully in response to Question 6.)

If SEPs are transferred to new owners, such as NPEs, that do not abide by the FRAND commitments made by the former owner, patent hold-up can occur. The same lack of constraints for NPEs addressed above raises concerns for patent hold-up.

5. SEP transfers leading to royalty stacking

Transfer of SEPs can also lead to royalty stacking. Royalty stacking occurs when multiple companies claim to hold patents essential to the practice of a particular standard and demand royalties that do not account for the presence of other patent holders demanding royalties. (Intel addresses royalty stacking and the determination of FRAND royalties more fully in response to Question 6.)

One example of how the disaggregation of a SEP portfolio can lead to an increased royalty stack is Nokia. Nokia pledged that it would not charge more than 2% of the end device price¹⁰³ in royalties for its declared cellular SEPs spanning multiple generations of standards (e.g., 3G and 4G).¹⁰⁴ Nokia has subsequently transferred declared essential patents to a number of NPEs that are now asserting those declared SEPs. For instance, Vringo acquired 31 patents families that Nokia had declared essential to wireless telecommunications standards.¹⁰⁵ In litigation with ZTE, Vringo has demanded \$2.50 (or approximately €2) per smartphone for a license to its cellular portfolio of SEPs.¹⁰⁶ Nokia also transferred declared cellular SEPs to Sisvel, which seeks a royalty of €0.99 per device for a license to a group of LTE patents that include the former Nokia patents.¹⁰⁷ Finally, Nokia transferred 1,200 declared SEPs to Core Wireless Licensing,

¹⁰³ As explained below in response to Question 6, charging a royalty on the full price of an end device is not consistent with FRAND principles because it charges royalties on far more than the value contributed to the device by the SEPs.

¹⁰⁴ Eric Stasik, *Royalty Rates And Licensing Strategies For Essential Patents On LTE (4G) Telecommunication Standards*, LES NOUVELLES, Sept. 2010, at 117 n.23, available at <http://www.investorvillage.com/uploads/82827/files/LESI-Royalty-Rates.pdf>.

¹⁰⁵ Press Release, Vringo, *Vringo to Acquire Over 500 Patents and Applications from Nokia*, Aug. 9, 2012, available at <http://www.vringoip.com/cgi-bin/news.pl>.

¹⁰⁶ Vringo, *First Quarter 2014 Investor Presentation*, at 12, available at <http://www.vringoip.com/cgi-bin/presentations.pl>.

¹⁰⁷ Sisvel, *Introduction and Royalty Rate*, <http://www.sisvel.com/index.php/lte> (last visited Jan. 25, 2015); Sisvel, *Patent Owners*, <http://www.sisvel.com/index.php/lte/patent-owners> (last visited Jan. 25, 2015). It should be noted that Sisvel and other NPEs may sometimes seek to style themselves as "patent pools" rather than NPEs, even though their non-FRAND methodologies and practices offer none of the benefits of patent pooling.

which is now operated by the NPE Conversant Intellectual Property Management.¹⁰⁸ It has not yet been publicly disclosed what royalties Core Wireless is seeking for its portfolio.

Where once the Nokia portfolio would be available through one license from Nokia, it would now require four separate licenses. The intrinsic value of the patents cannot have increased through their transfer from Nokia, but the transfers have resulted in aggregate royalty demands that exceed what Nokia would have once sought, assuming that Nokia has not reduced its demands in proportion to the rates sought by the new owners of its former patents, of which there is no public suggestion that that is the case:

Company	Royalty Demand
Nokia	2% of end device price
Vringo	\$2.50 (approximately €2)
Sisvel	€0.99
Core Wireless	Not yet disclosed

This is not an isolated circumstance or concern. For instance, Ericsson has pursued a similar disaggregation and privateering strategy. It has sold or transferred patents that are claimed to be essential to communications standards to at least Sisvel and Unwired Planet, each of which are pursuing their own licensing efforts in addition to Ericsson's own licensing program, seeking high royalties based on only a portion of Ericsson's portfolio, and apparently without any corresponding reduction in Ericsson's own royalty demands.¹⁰⁹ The Commission should remain vigilant in addressing such circumstances, and ensure that patent privateers are not utilized as mere proxies to obscure behaviour that would be abusive if pursued directly.

B. Effectiveness of current rules (Q.4.2.1-4.2.3)

SSOs have generally developed effective approaches to address the problems raised by SEP transfers, mainly requiring transferability of FRAND commitments for SEPs. For instance, the ETSI IPR Policy requires members to bind the transferee to the member's FRAND commitments, thus requiring the transferee to pass the FRAND obligation on to subsequent patent holders¹¹⁰:

¹⁰⁸ Conversant, *Core Wireless Licensing*, <http://www.conversantip.com/patent-category/core-wireless/> (last visited Jan. 25, 2015).

¹⁰⁹ See Press Release, Unwired Planet, *Unwired Planet Strengths Mobile Intellectual Property Portfolio with the Contribution of Complementary IP from the Industry Leader in Mobile Communications*, Jan. 10, 2013, available at http://www.unwiredplanet.com/storage/pd2f110/Press%20_release_up011013.pdf; Press Release, Sisvel, *Sisvel Launches 802.11 Wi-Fi Joint Licensing Program*, Sept. 9, 2013, available at <http://www.prnewswire.com/news-releases/sisvel-launches-80211-wi-fi-joint-licensing-program-222937951.html>.

¹¹⁰ ETSI INTELLECTUAL PROPERTY RIGHTS POLICY, *supra* note 79, § 6.1bis.

FRAND licensing undertakings made pursuant to Clause 6 shall be interpreted as encumbrances that bind all successors-in-interest. Recognizing that this interpretation may not apply in all legal jurisdictions, any Declarant who has submitted a FRAND undertaking according to the POLICY who transfers ownership of ESSENTIAL IPR that is subject to such undertaking shall include appropriate provisions in the relevant transfer documents to ensure that the undertaking is binding on the transferee and that the transferee will similarly include appropriate provisions in the event of future transfers with the goal of binding all successors-in-interest. The undertaking shall be interpreted as binding on successors-in-interest regardless of whether such provisions are included in the relevant transfer documents.

Further, the International Telecommunication Union (ITU) recently decided to amend the current Patent Guidelines, as well as the licensing declaration form, to “make it clear that reasonable and non-discriminatory licensing commitments made to ITU are intended to bind both the current patent holder and subsequent purchasers of the patents.”¹¹¹ The amended language in the Patent Guidelines provides:

Licensing declarations made pursuant to Clause 2.1 or 2.2 of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC shall be interpreted as encumbrances that bind all successors-in-interest as to the transferred Patents. Recognizing that this interpretation may not apply in all jurisdictions, any Patent Holder who has submitted such licensing declaration according to the Common Patent Policy - be it selected as option 1 or 2 on the Patent Declaration form - who transfers ownership of a Patent that is subject to such licensing declaration shall include appropriate provisions in the relevant transfer documents to ensure that, as to such transferred Patent, the licensing declaration is binding on the transferee and that the transferee will similarly include appropriate provisions in the event of future transfers with the goal of binding all successors-in-interest. The licensing declaration shall be interpreted as binding on successors-in-interest regardless of whether such provisions are included in the relevant transfer documents. By complying with the above, the Patent Holder has discharged in full all of its obligations and liability with regards to the licensing commitments after the transfer or assignment. This paragraph is not intended to place any duty on the Patent Holder to compel

¹¹¹ Antoine Dore, *Private Property in the Public Interest: The Interplay of Patents and Standards*, Organisation for Economic Co-operation and Development, DAF/COMP/WD (2014) 82, at 8 (Nov. 25, 2014), available at <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WD%282014%2982&doclanguage=en>.

compliance with the licensing commitment by the assignee or transferee after the transfer occurs.

The Commission has also taken a strong position that FRAND commitments should be transferred with SEPs. The Commission's *Guidelines on the Applicability of Article 101 of the Treaty on the Functioning of the European Union to Horizontal Co-operation Agreements* provide: "To ensure the effectiveness of the FRAND commitment, there would also need to be a requirement on all participating IPR holders who provide such a commitment to ensure that any company to which the IPR owner transfers its IPR (including the right to license that IPR) is bound by that commitment, for example through a contractual clause between buyer and seller."¹¹²

This issue arose with Bosch's transfer of declared SEPs to IPRCom. In that case, the Commission emphasized that "[t]he transfer of FRAND commitments after the sale of standard-essential patents is important from a competition law perspective."¹¹³ The Commission intervened after IPRCom had initiated a variety of patent suits, leading IPRCom to make a public statement that the company would abide by the FRAND commitments made by Bosch.¹¹⁴ In response, the Commission stated in a press release: "The unrestricted access to the underlying proprietary technology on FRAND terms for all third parties safeguards the pro-competitive economic effects of standard setting. Such effects could be eliminated if, as a result of a transfer of patents essential to a standard, the FRAND commitment would no longer apply."¹¹⁵

Even with the policy safeguards in place at the SSO level and by the Commission, abuse based on patent hold-up or royalty stacking continues to be a potential problem. In particular, courts need to recognize that a prior owner's FRAND commitment travels with the patent upon transfer to a new owner (whether by sale, merger, bankruptcy, etc.). Strong SSO IPR policies mandating transfer of FRAND commitments, as well as the courts' recognition that the commitment transfers with the SEP, and the Commission's continued approach to enforcing the transferability of FRAND commitments, coupled with recognition and enforcement of the appropriate FRAND principles, should be sufficient to provide effective protections against potential problems arising from SEP transfers.

¹¹² *Horizontal Guidelines*, *supra* note 39, ¶ 285.

¹¹³ Press Release, European Commission, *Antitrust: Commission Welcomes IPRCom's Public FRAND Declaration*, Memo/09/549, Dec. 10, 2009, available at http://europa.eu/rapid/press-release_MEMO-09-549_en.htm.

¹¹⁴ *Id.*

¹¹⁵ *Id.*

V. Response to Question 5

Question 5: Patent pools combine the complementary patents of several patent holders for licensing out under a combined licence. Where and how can patent pools play a positive role in ensuring transparency and an efficient licensing of patents on technologies comprised in standards? What can public authorities and standard setting organizations do to facilitate this role?

As explained in the Introduction, the central problem facing standardization is abusive licensing practices that undermine FRAND commitments made for SEPs. Patent pools are by no means a complete solution to that problem, but pools that adhere to the relevant competition law safeguards, include a meaningful share of the relevant SEPs, and properly set FRAND rates may provide benefits—in particular, by demonstrating that appropriate, transparent FRAND licensing terms can benefit both licensors and licensees and stimulate the proliferation of the standardized technology. Further, the robust screening process for essential patents that many pools use can provide some insight into the total number of patents within an industry that are actually essential to the standard and for which royalty payments may be appropriate.

Conversely, where patent pools do not abide by regulatory requirements, include only a smaller portion of relevant SEPs, or do not follow appropriate FRAND principles, they undermine standard setting and become another tool for abusive licensing. In the end, the value of patent pools cannot be easily generalized and will depend on the specific patent pool at issue and the nature of the standard for which it was formed. Intel therefore recommends that EU policy makers and regulators focus on ensuring that appropriate FRAND principles are adhered to in the first instance, rather than pool formation, as a way to ensure a healthy and competitive European standard system.

This focus on substance over form is particularly significant given the recent emergence of alleged “pooling” arrangements that include only a small number of licensors. Such joint licensing arrangements are not properly viewed as pools in that they do not include a meaningful number of patent owners, may develop long after market adoption of the standardized technology, and often do not implement FRAND licensing principles.

Intel addresses this question as a company that has considered joining patent pools on a number of occasions but in most instances, has either decided against participation because of some of the challenges of pools outlined below or because the contemplated pool was ultimately not formed. For example, Intel was a participant in the 2008 formation of the Open Patent Alliance (OPA), which was founded as a patent pool for WiMAX 4G cellular technology patents. The OPA was intended to create a patent pool with competitive royalties that would provide predictable costs to implementers and spur adoption of WiMAX. Ultimately, LTE emerged as the dominant 4G cellular standard instead of WiMAX.

A. Benefits and costs of patent pools

1. Situations in which a patent pool may be useful (Q.5.1.1)

Patent pools are more likely to form when the use of the technology will benefit from widespread adoption (*i.e.*, there are significant network effects) and when there is substantial potential for downstream product sales. Further, pools may serve as licensing clearinghouses for a large number of patents for a standard, which may be particularly desirable for suppliers of complex devices incorporating a variety of standards, a large number of patents, or different types of intellectual property that will need to be licensed.¹¹⁶ These factors explain why IT, telecommunications, and consumer electronics are the main industries in which pools have formed. But where commercial success depends on a manufacturer's ability to exclude others from making the same product (for example, in the pharmaceuticals sector), or where certain patent holders insist on unreasonable licensing approaches for the pool, pools have not tended to form.

2. Potential benefits of patent pools (Q.5.1.2)

In the context of standardization, patent pools sometimes provide a useful benchmark for the market, courts, and regulators about FRAND royalties for a given standard.

A patent pool's royalties may be a useful benchmark for analysis of FRAND royalties where they are set by a number of licensors who have an interest in royalties that both provide an adequate return and are also attractive to licensees, thereby promoting widespread adoption of the technology. Further, so long as a patent pool's rates are determined through arm's length negotiations free of the coercive threat of litigation (including injunction threats) that may taint bilateral patent license agreements, the rates are also more likely to be fair and reasonable. The value of a particular pool as a benchmark for FRAND royalties will turn on the specific facts about a particular pool and the degree to which FRAND principles were properly adhered to in forming the pool and setting its rates.

In addition, because competition authorities generally mandate screening for essentiality of patents before they are added to the pool, a patent pool that implements proper screening can provide a better measure of the value being licensed than in a bilateral agreement where a portfolio of patents is merely self-declared as essential without any independent verification. Thus, when a patent pool charges a rate for a certain number of patents in the pool, it usually represents a rate for a set of patents that have been deemed (by at least one neutral reviewer) to be essential. Further, this screening process could reduce the overall royalties payable compared to the royalties that would potentially be demanded by all the individual SEP holders licensing bilaterally. Of course, screening processes vary in substance and quality, and the benefits of screening are meaningful only if the process is robust.

A recent judgment of the U.S. District Court in the Western District of Washington illustrates how FRAND rates can be considered in view of rates charges by a patent pool as a benchmark.

¹¹⁶ PATENTS AND STANDARDS, *supra* note 27, at 172.

The case concerned a dispute between Microsoft and Motorola over what would be an appropriate FRAND rate for two groups of Motorola patents that were respectively claimed to be essential to the ITU's H.264 video coding technology standard and the IEEE's 802.11 Wi-Fi standard.¹¹⁷ District Judge Robart drew heavily on the MPEG LA pool's H.264 royalty rate as an "indicator of a RAND royalty rate" because of that pool's success in promoting the "widespread adoption" of that standard.

The success of the MPEG LA pool in the market was central to the judge's analysis. Judge Robart noted: "The pool includes approximately 275 U.S. SEPs and over 2400 SEPs worldwide from over 26 licensors including leading technology firms such as Apple, Cisco, Ericsson, Fujitsu, LG, Microsoft, and Sony."

To be sure, there are limitations to using a patent pool's royalties as a benchmark. *First*, it must be clear that the pool's rate reflects appropriate FRAND principles. *Second*, for a pool to be used as a robust benchmark for FRAND rates, it must include a sufficiently high number of licensors and SEPs. For example, Judge Robart was more cautious when considering Via's IEEE 802.11 pool, which included far less patent owners and had "not been very successful in obtaining licensors and licensees."¹¹⁸ Nonetheless, given its "focus exclusively on the standard" and aim to "foster widespread adoption of the 802.11 Standard consistent with the intent behind the RAND commitment," the judge found that the Via pool "has certain characteristics that are indicative of a RAND royalty rate."¹¹⁹ *Third*, pools generally set royalties for patents within the pool only as a proportionate share of the total patents in the pool, which does not give consideration to the varying technical merits of the patents within the pool. *Fourth*, participation in pools must be voluntary.¹²⁰ Among other problems, if participation is not voluntary, the pool's royalty rate would become more removed from the normal free market conditions and the rate less reliable as a benchmark for FRAND. *Fifth*, some SEP holders simply refuse to participate in patent pools for fear of limitations intended to ensure adherence to appropriate FRAND principles. This often reduces the utility of the pool and discourages other SEP holders or implementers from participating in the pool.

More practically, from Intel's perspective as an owner of a significant patent portfolio and a licensee, the potential benefits of patent pools lie in the reduction of transaction costs. As the

¹¹⁷ *Microsoft Corp. v. Motorola, Inc.*, No C10-1823JLR, 2013 WL 2111217, at *82 (W.D. Wash. Apr. 25, 2013).

¹¹⁸ *Id.* at *89. For similar scepticism regarding the Via pool, see *In re Innovatio IP Ventures, LLC Patent Litig.*, No. 11C9308, 2013 WL 5593609, at *35 (N.D. Ill. Oct. 3, 2013).

¹¹⁹ *Microsoft Corp.*, 2013 WL 2111217, at *89.

¹²⁰ See PIERRE REGIBEAU & KATHARINE ROCKETT, ASSESSMENT OF POTENTIAL ANTICOMPETITIVE CONDUCT IN THE FIELD OF INTELLECTUAL PROPERTY RIGHTS AND ASSESSMENT OF THE INTERPLAY BETWEEN COMPETITION POLICY AND IPR PROTECTION 4 (2011), available at http://ec.europa.eu/competition/consultations/2012_technology_transfer/study_ipr_en.pdf ("Economic analysis provides some support for the current antitrust treatment of *patent pools*. In particular, current analysis broadly suggests a rather relaxed attitude towards pools that form spontaneously and voluntarily as long as independent licensing clauses are included. Significantly, this conclusion does not hold for pools that are imposed by regulatory activity. One should therefore pay close attention to the governance rules of pools that are set up as remedies to antitrust or merger issues.").

European Commission's *Technology Transfer Guidelines* note: "The creation of a pool allows for one-stop licensing of the technologies covered by the pool. This is particularly important in sectors where intellectual property rights are prevalent and licenses need to be obtained from a significant number of licensors in order to operate on the market."¹²¹

3. Safeguards for patent pools (Q.5.1.2)

Competition authorities have long recognized that only patent pools fulfilling certain conditions are pro-competitive. Intel endorses the importance of adequate safeguards to ensure that patent pools enhance consumer welfare; otherwise, pools can undermine competition. As the Commission's *Technology Transfer Guidelines* warn, pools present the risk of reducing competition between parties and "may also, in particular when they support an industry standard or establish a *de facto* industry standard, result in a reduction of innovation by foreclosing alternative technologies."¹²²

Both the EU and the US antitrust authorities have established criteria for pro-competitive pools. The most recent *Technology Transfer Guidelines*, for example, establish a safe harbour (meaning that the pool falls outside the Article 101(1) TFEU¹²³ prohibition) provided that certain conditions are met. These conditions are a useful checklist for what constitutes a pro-competitive pool.

Two conditions are worth highlighting as of particular importance for pools of SEPs. *First*, the Commission mandates that "the pooled technologies are licensed out to all potential licensees on FRAND terms." This requirement is essential to ensure that a pool is not used as a means for concerted action to extract non-FRAND royalties. Pool licensing terms—like terms for other SEP licenses—should be set with careful adherence to proper FRAND principles. Moreover, where circumstances change, pools may need to adjust their licensing terms. For instance, per unit licensing rates that apply when unit pricing is high but unit volumes are low may later become less reasonable as the market develops, and unit pricing drops as volumes increase. Likewise, pool licensing terms should take into account patent expiration, such as where "early" or fundamental SEPs expire and a pool is left with less significant, incremental patents.

Second, the Commission properly requires that "the parties contributing technology to the pool and the licensees are free to challenge the validity and the essentiality of the pooled technologies."¹²⁴ This provision recognizes the patent litigation system as a safeguard that provides standards implementers with an important right—even after entering a license—to challenge a SEP and to ensure that royalties are not being paid for invalid or non-essential

¹²¹ See *Communication from the Commission: Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements*, 2014 O.J. (C 89) 3, ¶ 245, available at [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0328\(01\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0328(01)&from=EN).

¹²² *Id.* ¶ 246.

¹²³ *Id.* ¶ 261.

¹²⁴ *Id.*

patents. Where such challenges are successful, pools may need to adjust their licensing terms accordingly.

In the United States, several pools have received approval or guidance in the form of “Business Review Letters” from the DOJ.¹²⁵ These letters and a 2007 DOJ Report entitled *Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition* impose similar requirements as the Commission on pool formation.

4. Main difficulties of pool creation (Q.5.1.4)

The *Patents and Standards* report’s investigation of patent pool formation suggests the difficulties of pool formation. Of the 51 pool formation processes reviewed, only six were deemed “effective pools,” and some 30 were deemed ineffective due to a failed launch or the call for patents still being open.¹²⁶

The main barrier to creating a pool is generating sufficient interest from potential participants. SEP owners often have conflicting interests. One results from different degrees of vertical integration: some licensors develop essential technology to manufacture downstream products and may have a greater interest in seeing consistent application of proper FRAND principles than in maximizing licensing revenue.¹²⁷ Other companies are not vertically integrated and more focused on patent aggregation. They will typically want to maximize licensing revenues and are less inclined to welcome consistent application of proper FRAND principles. This tension also manifests itself when royalty allocation mechanisms are being considered.

In addition, setting up patent pools requires significant time and resources. There are cost and time associated with obtaining expert opinions on essentiality; with discussions among the multiple participants about how the pool should be structured; with drafting and agreeing on the numerous legal documents, such as the pool participation agreement, the licenses to the pool, the licenses from the pool to licensees, and the pool administration agreements; and, finally, with obtaining any necessary regulatory clearance to establish the pool.

¹²⁵ See, e.g., Letter from Thomas O. Barnett, Assistant Attorney Gen., to William F. Dolan & Geoffrey Oliver, Esq., Jones Day, Oct. 21, 2008, *available at* <http://lawjournal.rutgers.edu/sites/lawjournal.rutgers.edu/files/issues/v38/2/07NelsonVol.38.2.pdf>; Letter from Joel I. Klein, Assistant Attorney Gen., to Garrard R. Beeney, Esq., Sullivan & Cromwell, June 26, 1997, *available at* <http://www.justice.gov/atr/public/busreview/215742.htm>; Letter from Charles A. James, Assistance Attorney Gen., to Ky P. Ewing, Esq., Vinson & Elkins, Nov. 12, 2002, *available at* <http://www.justice.gov/atr/public/busreview/200455.htm>; Letter from Joel I. Klein, Assistance Attorney Gen., to Garrard R. Beeney, Esq., Sullivan & Cromwell, Dec. 16, 1998, *available at* <http://www.justice.gov/atr/public/busreview/2121.htm>; Joel I. Klein, Assistant Attorney Gen., to Carey R. Ramos, Esq., Paul, Weiss, Rifkind, Wharton & Garrison, Jun. 10, 1999, *available at* <http://www.justice.gov/atr/public/busreview/2485.htm>.

¹²⁶ *Id.*

¹²⁷ See Richard J. Gilbert, *Ties that Bind: Policies to Promote (Good) Patent Pools*, 77 ANTITRUST L. J. 1, 18 (2010) (explaining that incentives to defect from a pool or not join in the first place depend on many factors and outlining those factors).

5. Alternatives to patent pools when ownership of essential patents is widely dispersed (Q.5.1.3)

A properly functioning FRAND licensing regime in which SEP owners respect their FRAND commitments (*e.g.*, taking royalty stacking into proper account when setting rates) is an alternative to patent pools. Even when ownership is dispersed, implementers of the standard should be able to negotiate the necessary licenses or cross-licenses with at least the owners of a large number of SEPs, and then be able to market products supporting the standard even if they do not obtain a license to every single alleged SEP. In practice, in the fields in which Intel is active, licenses are negotiated with SEP owners, but it is not generally expected that implementers will conclude all licenses before marketing a product.

VI. Response to Question 6

Question 6: Many standard setting organizations require that patents on technologies included in their standards are licensed on “fair”, “reasonable” and “non-discriminatory” (FRAND) terms, without however defining these concepts in detail. What principles and methods do you find useful in order to apply these terms in practice?

A commitment to license on “fair, reasonable, and non-discriminatory” or FRAND terms embodies certain fundamental principles that have been recognized widely by courts and regulators. These principles arise from the fundamental purpose of the FRAND commitment: to promote widespread adoption of the standard. The FRAND commitment is thus aimed principally at preventing patent holders from using their patented technology to exploit the hold-up power created by the investments made by implementers to develop products using the standard to extract unreasonable royalties and concessions. As the Commission explains in its Horizontal Guidelines¹²⁸:

FRAND commitments are designed to ensure that essential IPR protected technology incorporated in a standard is accessible to the users of that standard on fair, reasonable and non-discriminatory terms and conditions. In particular, FRAND commitments can prevent IPR holders from making the implementation of a standard difficult by refusing to license or by requesting unfair or unreasonable fees (in other words excessive fees) after the industry has been locked-in to the standard or by charging discriminatory royalty fees.

Further, as the Commission has made clear, the FRAND commitment is intended to help ensure that the potential competitive harms raised by collective standard setting do not develop¹²⁹:

The assessment whether the agreement restricts competition will also focus on access to the standard. Where the result of a standard (that is to say, the specification of how to comply with the standard and, if relevant, the essential IPR for implementing the standard) is not at all accessible, or only accessible on discriminatory terms, for members or third parties (that is to say, non-members of the relevant standard-setting organisation) this may discriminate or foreclose or segment markets according to their geographic scope of application and thereby is likely to restrict competition.

Abusive licensing practices create a disincentive for companies to implement standards, threatening the adoption of standards themselves as well as the non-standardized innovations that implementers add on top of standardized technology to differentiate their products. Those

¹²⁸ Horizontal Guidelines, *supra* note 39, ¶ 287.

¹²⁹ *Id.* ¶ 294.

incentives directly affect consumers, who may confront decreased competition, less innovation, and higher prices.

In choosing to make a FRAND commitment, a SEP holder willingly makes a trade-off. Unlike the more general patent holder, the SEP holder has accepted as part of the *quid pro quo* of standardisation that the royalties it may earn, and its scope to secure injunctive relief, will be constrained by the “fair, reasonable, and non-discriminatory” commitment. SEP holders willingly relinquish these rights because of the valuable benefits they may receive if their patented technology is standardized, including the often substantially expanded licensing opportunities that widespread adoption of the standard can create. Standardisation can transform the potential licensing revenue of a patent dramatically if each and every device complying with the standard will necessarily use it. Intel is itself the owner of numerous SEPs (as well as a licensee of many other SEPs) and accepts that this trade-off is inherent in making FRAND commitments for its patents.

Consistent with the aim of the FRAND commitment to promote widespread adoption of a standard, there are certain principles that follow:

- Non-discrimination requires that a SEP holder is prepared to negotiate with and provide a FRAND license to anyone who requests one for the purpose implementing the standard, no matter what type of standard-implementing component or product they supply;
- Fair and reasonable royalties must reflect the value of the SEPs, which generally includes applying at least the following factors to setting a rate:
 - Assessing a royalty based on the relevant aspect of the component that implements the SEPs (often referred to as the “smallest saleable patent-practicing unit”), not the full price of the end device into which that component is incorporated;
 - Reflecting only the *ex ante* or incremental value of the SEPs before the standard is set, not any hold-up value conferred by standardisation¹³⁰; and
 - Considering the potential aggregate royalty demands for other SEPs (*i.e.*, “royalty stacking”).

Intel uses the term “Component” herein to refer to the smallest saleable patent practicing unit. As explained below, in Intel’s experience the smallest saleable patent practicing unit for interoperability standards is often a processing chip that is incorporated into an end device—*e.g.*, a baseband processing chip incorporated into a mobile phone to provide cellular functionality, or a Wi-Fi chip integrated into a laptop to allow an Internet connection on a wireless local area network. In other contexts the smallest saleable patent practicing unit may be different technology, such as a piece of software or a section of a service. In using the term “Component,” we are also referring to such technologies. The key point is distinguishing

¹³⁰ See also *Ericsson, Inc. v. D-Link Sys.*, 773 F.3d 1201, 1232 (Fed. Cir. 2014) (describing two “special” and “necessary” SEP apportionment considerations: “First, the patented feature must be apportioned from all of the unpatented features reflected in the standard. Second, the patentee’s royalty must be premised on the value of the patented feature, not any value added by the standard’s adoption of the patented technology.”).

between a standards-implementing component/technology that is responsible for providing standardized functionality, on the one hand, and end products or services that embrace not only standardized functionality but also other features, on the other hand. It is appropriate to base FRAND royalties using (at most) the cost of a standards-implementing component/technology as a starting point, to ensure the tightest possible correspondences between FRAND royalties and the actual patented inventions.¹³¹

Although these basic FRAND principles follow clearly from the purpose and nature of the FRAND commitment, some SEP holders choose to ignore them for their own gain through abusive and discriminatory licensing practices.

A. Non-discrimination requires being prepared to license anyone who implements the standard, including component suppliers (Q.6.6.1, Q.6.6.2)

A FRAND obligation requires a SEP holder to be prepared to negotiate and grant a reasonable license to all interested implementers of the standard—including both sellers of end products (*e.g.*, cellular phones, laptops, and wireless routers) and manufacturers of Components that provide the patented functionality within those products (*e.g.*, cellular baseband chips, Bluetooth chips, and Wi-Fi chips).

The ITU, for example, requires that a party making a RAND commitment agree that it “is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations”¹³² The only exception noted in the licensing commitment is that a SEP holder can indicate that its “willingness to license is conditioned on Reciprocity”—*i.e.*, a licensee must be willing to similarly license its SEPs to the licensor for implementation of the relevant ITU “Recommendation.”¹³³ The Common Patent Policy that governs the ITU disclosure further provides that the licensing “statement must not include additional provisions, conditions, or any other exclusion clauses in excess of what is provided for each case in the corresponding boxes of the form.”¹³⁴ As the United States Court of Appeals for the Ninth Circuit concluded about the ITU commitment: “This language admits of no limitations as to who or how many applicants could receive a license (‘unrestricted number of applicants’)”¹³⁵

¹³¹ *Id.* at 1226 (“As we explained recently in *VirnetX, Inc. v. Cisco Systems, Inc.*, 767 F.3d 1308 (Fed. Cir. 2014), where multi-component products are involved, the governing rule is that the ultimate combination of royalty base and royalty rate must reflect the value attributable to the infringing features of the product, and no more.”)

¹³² *Patent Statement and Licensing Declaration for ITU-T or ITU-R Recommendation, ISO or IEC Deliverable* at 2, available at http://www.itu.int/dms_pub/itu-t/oth/04/04/T04040000020003PDFE.pdf.

¹³³ *Id.* (emphasis added).

¹³⁴ ITU, *Common Patent Policy for ITU-T/ITU-R/ISO/IEC* ¶ 3, <http://www.itu.int/en/ITU-T/ipr/Pages/policy.aspx> (last visited Feb. 9, 2015).

¹³⁵ *Microsoft Corp. v. Motorola, Inc.*, 696 F.3d 872, 884 (9th Cir. 2012).

The ETSI IPR Policy describes the FRAND commitment as follows and similarly contains only an exception for reciprocity¹³⁶:

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.

Nonetheless, Intel’s experience is that some SEP holders seek to license only at the end-product level and refuse to license any other implementer of the standard, including Component suppliers (such as Intel), even though the standardized functionality is provided by a Component (often a processor or chip). The doctrine of patent exhaustion—under which the first authorized sale of a patented good may extinguish the patent holder’s right to seek royalties on subsequent sales and which is recognized to varying degrees in Europe and also the United States, among other jurisdictions—means that SEP holders cannot license the same patent rights to both end device suppliers and their upstream Component suppliers.¹³⁷

SEP holders are likely motivated to license at the end-product level in the hope that they can tax a much larger royalty base than just the price of the Component supplying the allegedly infringing functionality. That is, a SEP holder may believe that using the cost of a multifunctional and complex device, such as a smartphone, to determine a royalty will allow it to claim a larger royalty than if the royalty were set on a lower-cost Component or device. Similarly, some SEP holders seek royalties from *users* of such end products. In some cases, SEP holders have even chosen to pursue royalties from the end users of devices rather than even the device suppliers. For example, in *Innovatio*, the SEP holder sued numerous coffee shops, restaurants, hotels, supermarkets, retailers, and other commercial users of Wi-Fi networks. The

¹³⁶ ETSI INTELLECTUAL PROPERTY RIGHTS POLICY, *supra* note 79, ¶ 6.1.

¹³⁷ See, e.g., *Centrafarm BV and Adriaan de Peijper v. Sterling Drug Inc.*, Case C-15/74, 1974 ECR 11641147 (“The grant by a patentee of a sales licence in a member-State has the consequence that the patentee can no longer oppose the marketing of the patented product throughout the Common Market.”); *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 625 (2008) (“The longstanding doctrine of patent exhaustion provides that the initial authorized sale of a patented item terminates all patent rights to that item.”).

suppliers of the Wi-Fi devices, such as routers, then initiated proceedings against the SEP holder so that the end users would not have to face the infringement claims.¹³⁸

In seeking royalties from end-product suppliers or users, SEP owners are seeking to benefit from innovations that have nothing to do with their SEPs. The patent holder truly seeking FRAND compensation for its valid and infringed SEPs achieves the same royalty regardless where it licenses in the supply chain (*e.g.*, if the SEP's value is €X, that value remains the same even if the Component incorporating the SEP is bundled in a complex multifunction device or if applied in an end-user application). That is, proper FRAND royalties can be sought at any link in the supply chain—because no matter where sought, such royalties will use a common, non-discriminatory approach.

In contrast, aggressive SEP holders seeking unjust enrichment from excessive royalties that appropriate the value of non-standardized, product-differentiating technologies, may try to license at the end-product level of the supply chain simply because end products have the highest price. Such SEP holders dislike having to abide by their commitments not to discriminate, because non-discrimination means having to license at the level where their patented technologies may actually be implemented—and that, in turn, means a smaller royalty base to target.¹³⁹ (The unreasonableness of determining FRAND royalties at the end-device level is addressed further below in Section B.)

Moreover, SEP holders breach their FRAND commitment when they refuse to license implementers simply because of their position in the product supply chain. Such refusals violate the basic commitment to license on a *nondiscriminatory* basis. This principle of nondiscrimination is part of all RAND and FRAND commitments, and moreover is reinforced by other aspects of standard-setting rules. For example, at the ITU, a party making a RAND commitment obligates itself to license “an unrestricted number of applicants . . . to make, use and sell implementations,” and therefore encompasses all levels in the supply chain. Similarly, the ETSI FRAND commitment requires SEP holders to be prepared to license no matter the type of implementation by requiring that a license will be available to “MANUFACTURE, including the right to make or have made customized components and sub-systems to the licensee’s own design for use in MANUFACTURE.” A refusal to license an implementer simply cannot be squared with these clear commitments. Nor does permitting refusals to license certain implementers fit with the purpose of the FRAND commitment to promote widespread adoption of a standard. Tolerating discriminatory refusals to license threatens to undermine incentives for a wide variety of standard-setting participants, who will be prevented from licensing the standard they helped to develop. Simply put, having made a FRAND commitment to license any interested implementer, a SEP holder has relinquished the right to discriminate in this manner.

¹³⁸ *In re Innovatio IP Ventures*, 2013 WL 5593609, at *1.

¹³⁹ See *e.g.*, Florian Mueller, *Ericsson explained publicly why it collects patent royalties from device (not chipset) maker*, FOSS PATENTS, Jan. 29, 2014, <http://www.fosspatents.com/2014/01/ericsson-explained-publicly-why-its.html> (citing Ericsson presentation stating: “One big advantage with this strategy is also that it is likely that the royalty income will be higher since we calculate the royalty on a more expensive product.”).

Such discrimination also flies in the face of the obligation not to abuse a dominant position under Article 102 TFEU.

B. Fair and reasonable royalties must reflect the value of the SEPs (Q.6.1.1)

When it comes to setting FRAND royalties for SEPs, they must reflect the value of the SEPs at issue to the relevant products rather than any hold-up value conferred by the standard as a whole. The following factors are critical to ensuring that FRAND royalties properly reflect the actual technical merits of the patents.

1. A FRAND royalty must be assessed on relevant aspect of the Component that implements the SEPs, not the full price of the end device into which the Component is incorporated (Q.6.5.2)

Patent royalties are often determined, whether by parties negotiating a license or by courts, by multiplying a royalty rate by a royalty base. The royalty base that is selected for setting a rate is critical to ensure that the resulting royalty accurately reflects the incremental value of the patents. If an improper base is selected, it can skew the determination of a royalty. In the case of SEPs, the royalty base should be set with reference to, at most, the price of the Component that supplies the standardized functionality. In particular, using the Component that implements the SEPs to derive the royalty base is an important step to ensuring that the resulting royalties will be reasonable and non-discriminatory, and will compensate the patent owner for its actual invention, and not based on the value of other unpatented, downstream technologies.

a) Using a royalty base that is no greater than the Component is critical to ensuring reasonableness

FRAND royalties should be determined with reference to the price (or some portion thereof) of, at most, the Component that implements the SEPs (*i.e.*, smallest saleable patent practicing unit). Determining royalties at the Component level enables the patent holder to be compensated for whatever value its patent contributes to the end product—that value is included in the price of the Component—but ensures that the patent holder does not obtain value to which it is not entitled.

This principle has been recognized by at least one SSO that has expressly indicated in its intellectual property rights policy what factors are to be taken into account in assessing a FRAND royalty.¹⁴⁰ Thus the OIC Policy directs that FRAND royalties must take into account, among other factors, the “smallest saleable unit” practicing the standard¹⁴¹:

In determining an appropriate reasonable rate, the Member shall take into account a number of factors including a royalty based on the smallest saleable unit including a Compliant Portion, the

¹⁴⁰ Neither ITU or ETSI do so.

¹⁴¹ OIC INTELLECTUAL PROPERTY RIGHTS POLICY, *supra* note 54, ¶ 3.2.

technical value of the relevant Necessary Claims, and the overall royalty that could be charged for all Necessary Claims.

This approach, with its concept of the “smallest saleable unit” reflects a longstanding principle of patent damages law in the United States, that a patent holder must apportion the value contributed by its patent from other value in a device accused of infringement. The U.S. Supreme Court has held that a patent holder¹⁴²:

must in every case give evidence tending to separate or apportion the defendant’s profits and the patentee’s damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.

Further, the CAFC has held that one way in which to apportion the value contributed by a particular patent to a complex device is to consider the “smallest saleable patent-practicing unit” as a royalty base.¹⁴³ But even when the smallest saleable patent-practicing unit is identified, that “is simply a step toward meeting the requirement of apportionment. Where the smallest saleable unit is, in fact, a multi-component product containing several non-infringing features with no relation to the patented feature . . . the patentee must do more to estimate what portion of the value of that product is attributable to the patented technology.”¹⁴⁴

For wireless interoperability standards, such as cellular or Wi-Fi, that are generally implemented in a chip, the chip is the appropriate smallest saleable unit from which to derive a royalty base. For example, in a recent case in which patents claimed to be essential to 3G and 4G cellular standards were asserted against Apple, the court held “as a matter of law that in this case, the baseband processor is the proper smallest saleable patent-practicing unit.”¹⁴⁵ In particular, the court rejected the patent holder’s contention that the relevant “invention [of its patents] is the entire device” and not just in the baseband chip: “GPNE may not claim the entire accused iPhones and iPads as the smallest salable patent-practicing units for damages purposes solely because GPNE claimed a ‘node’ having a processor that can perform the invented signaling steps rather than just the processor itself.”¹⁴⁶ Similarly, in the recent *Innovatio* case in which the court

¹⁴² *Garretson v. Clark*, 111 U.S. 120, 121 (1884).

¹⁴³ *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1327-28 (Fed. Cir. 2014).

¹⁴⁴ *Id.* at 1327.

¹⁴⁵ *GPNE Corp. v. Apple, Inc.*, No. 12-CV-02885-LHK, 2014 WL 1494247, at *13 (N.D. Cal. Apr. 16, 2014).

¹⁴⁶ *Id.*

set RAND royalties for Wi-Fi SEPs, the court concluded that it would “consider the price of a Wi-Fi chip to be the appropriate RAND royalty base.”¹⁴⁷

Using the full cost of a Component, such as a cellular chip, as a royalty base will generally be over inclusive because such a Component often incorporates other functionality beyond a single standard and even single standards are often covered by numerous (in some cases, thousands) essential patents.¹⁴⁸ Moreover, the price of a Component encompasses more than just the cost of patent royalties to third parties. The price also must account for the costs of development for that Component for the supplier, production costs, materials, shipment, sales and marketing, and a host of other costs of the design, manufacturing, and distribution processes. Accordingly, the *Innovatio* court, although it started with the price of the Wi-Fi chip, ultimately concluded that the average profit margin on the chips was a more appropriate royalty base. As the court observed, “[i]f the royalty is excessive in comparison to a chip manufacturer’s profit margin on a chip, . . . the royalty is too high. . . . chip manufacturers facing a demand for a royalty far outstripping their expected profit margin would not agree to take a license on the patents, but would instead exit the chip-making business.”¹⁴⁹

In contrast to the United States, we are not aware of any case law in Europe in which FRAND royalties have been assessed.¹⁵⁰ But in the Commission’s Decision in its proceedings against Rambus for alleged deceptive conduct in an SSO setting standards for Dynamic Random Access Memory (DRAM), the Commission did not accept Rambus’s proposed commitments until Rambus first “clarified that the royalty shall be determined on the basis of the price of an individually sold chip and not of the end-product. If they are incorporated into other products, the individual chip price remains determinative.”¹⁵¹ Likewise, and consistent with the U.S. approach to calculating royalties based only on the patented functionality, the commitment used a royalty cap to provide for additional apportionment for chips that incorporated additional functionality beyond Rambus’s patents.¹⁵²

Moreover, the approach outlined above, and in particular the concept of apportionment, is consistent with the general approach to the assessment of damages for infringement mandated by Article 13 of Directive 2004/48/EC on the enforcement of intellectual property rights, which mandates that damages be “appropriate to the actual prejudice suffered” by the patent holder.¹⁵³

¹⁴⁷ *In re Innovatio IP Ventures*, 2013 WL 5593609, at *18.

¹⁴⁸ *See, e.g., id.* at *43 (finding there are approximately 3000 potential Wi-Fi SEPs).

¹⁴⁹ *Id.* at *38.

¹⁵⁰ Consideration by the German courts of such issues has only taken place in the context of determining whether or not to grant an injunction in respect of an SEP when applying the principles established by the Federal Supreme Court in Case KZR 39/06 “*Orange Book*.” Bundesgerichtshof [BGH Federal Court of Justice], May 6, 2009, Im Namen Des Volkes (Ger). In the *Motorola Mobility v. Apple* case, the Mannheim District Court stayed the rate setting proceedings. *See* LG Mannheim, 7 O 337/11, Sept. 21, 2012.

¹⁵¹ Commission Decision of 12 September 2009, art. 5.2, 2009 O.J. (C COMP/38.636) 1, 13.

¹⁵² *Id.*

¹⁵³ European Parliament and Council Directive No. 2004/48/EC of 29 April 2004, 2004 O.J. (C 48), *available at* <http://www.wipo.int/edocs/lexdocs/laws/en/eu/eu053en.pdf>.

It further finds support in both English¹⁵⁴ and German¹⁵⁵ case law on the assessment of damages. The need for proper apportionment is particularly strong for SEPs given the fact that hundreds, sometimes thousands, of SEPs may read on a single standard. Article 3(2) of the Directive also provides that remedies shall be “proportionate” and shall be applied in such a manner as to avoid the creation of barriers to legitimate trade and to provide for safeguards against their abuse.

b) Using a common royalty base avoids discriminatory rates

Assessing royalties based on the Component implementing the SEPs also better ensures that FRAND royalties will be non-discriminatory because they will be consistent across the industry no matter the type of product licensed. Because SEP holders must grant licenses to all interested licensees—including Component suppliers—determining a FRAND royalty starting from the Component level helps to ensure that SEP holders comply with their commitment to be prepared to negotiate and provide a license on their SEPs to all implementers on reasonable and **non-discriminatory** terms, when requested. As the *Innovatio* court observed, using the profit margin on the Component as a royalty base furthers the goal of setting a non-discriminatory rate “because a RAND licensor . . . cannot discriminate between licensees on the basis of their position in the market”—*i.e.*, what type of product they supply.¹⁵⁶

By contrast, royalties based on end-product prices are inherently discriminatory. Such royalties impose a disproportionate tax on standards implementers who have invested significant resources to develop products encompassing technology that far exceeds the value of the patented feature, particularly where the smallest saleable unit is a chip contained in a device.¹⁵⁷

¹⁵⁴ See, e.g., *Ultraframe (UK) Limited v. Eurocell Building Plastics Limited and another*, [2006] EWHC 1344 (Pat) (observing at [47](viii): “The reasonable royalty is to be assessed as the royalty that a willing licensor and a willing licensee would have agreed. Where there are truly comparable licences in the relevant field these are the most useful guidance for the court as to the reasonable royalty. *Another approach is the profits available approach. This involves an assessment of the profits that would be available to the licensee, absent a licence, and apportioning them between the licensor and the licensee.*”) (emphasis added).

¹⁵⁵ See THOMAS KUHNEN, PATENT LITIGATION PROCEEDINGS IN GERMANY 2261 (Carl Heymanns Verlag ed., 6th ed., Frank Peterreins trans., 2013) (“If the invention relates to a machine part which is sold both separately and as a component of a larger overall system, then, if there is any doubt over the matter, it is consistent with a reasonable and usual licence agreement to take into account, as the reference value for determining the royalty, in cases of retail sale, the net sale price for the machine part in question and, in cases of system sale, the fixed sum established as the average price based on the sale proceeds for the machine parts distributed separately.”) (internal citations omitted).

¹⁵⁶ *In re Innovatio IP Ventures*, 2013 WL 5593609, at *38.

¹⁵⁷ FRAND royalties might be determined by reference to comparable licenses where it is clear that the licenses accurately reflect the value of the SEPs and not any hold-up value. Charging royalties as a percentage of end-product prices—such as in end-product licenses—vastly over-compensates the patent holder because those charges will likely capture value of other components and features of the end product having nothing to do with the patented functionality. If such evidence is considered, courts have required that it be strictly limited. For example, the CAFC recently held that the “court should give a cautionary instruction [to the jury] regarding the limited purposes for which such testimony [about licenses based on the full cost of a device] is proffered if the accused infringer requests the instruction. The court should also ensure that the instructions fully explain the need to apportion the ultimate royalty award to the incremental value of the patented feature from the overall product.” *Ericsson, Inc.*, 773 F.3d at 1228.

For this reason, the Competition Commission of India, for example, has found discriminatory Ericsson's demand for royalties based on a full percentage of end device prices¹⁵⁸:

The royalty rates being charged by [Ericsson] had no linkage to patented product, contrary to what is expected from a patent owner holding licences on FRAND terms. [Ericsson] seemed to be acting contrary to the FRAND terms by imposing royalties linked with cost of product of user for its patents . . . For the use of GSM chip in a phone costing Rs. 100, royalty would be Rs. 1.25 but if this GSM chip is used in a phone of Rs. 1000, royalty would be Rs. 12.5. Thus increase in the royalty for patent holder is without any contribution to the product of the licensee. Higher cost of a smartphone is due to various other softwares/technical facilities and applications provided by the manufacturer/licensee for which he had to pay royalties/charges to other patent holders/patent developers. Charging of two different license fees per unit phone for use of the same technology prima facie is discriminatory and also reflects excessive pricing vis-a-vis high cost phones.

Allowing royalties based on the full price of a device—with no relation to the standardized technology at issue—creates incentives for standards implementers to forego adding additional non-standardized technology. That, in turn, will deprive consumers of choices in the marketplace.

SEP licensors often contend that their SEPs cover more than just the chip or processor that enables standardized functionality and thus that they should not be required to license at that level or for royalties to be set based on that Component. But in Intel's experience, these contentions do not hold up.

First, when put to the test of litigation, SEP infringement claims tend to centre on the chip or processor that provides the standardized functionality. For example, in litigation against Apple over two patents declared essential to the UMTS cellular standard, the infringement allegations were explicitly directed at the baseband chips supplied to Apple by Intel that provided cellular functionality.¹⁵⁹

Moreover, litigation demonstrated that the claimed royalty demands to Apple bore no relation to the value of the functionality claimed to be covered by the patents. At trial, the patent holder's

¹⁵⁸ Order under Section 26(1) of The Competition Act, 2002 ¶ 17, *In Re: Intex Technologies (India) Limited and Telefonaktiebolaget LM Ericsson*, Case No. 76/2013 (Jan. 16, 2014), available at <http://cci.gov.in/May2011/OrderOfCommission/261/762013.pdf>.

¹⁵⁹ *Apple Inc. v. Samsung Elecs. Co., Ltd.*, 920 F. Supp. 2d 1079, 1112 (N.D. Cal. 2013) ("Samsung alleges that claims 15 and 16 of the '516 Patent are embodied by Intel chipsets which were sold to Apple, and used in Apple's accused devices.").

damages expert testified that a FRAND royalty for even just one of the asserted declared-essential UMTS patents could be between 2 % and 2.75% of the full sales price of the device.¹⁶⁰

The devices accused of infringement were a range of Apple's iPhone and cellular-enabled iPad devices. An accused iPhone 4, for example, cost around \$600 dollars at that time. Apple purchased the cellular chips from Intel for an average cost of approximately \$12.00 (approximately €10), with some costing as little as about \$7.00 (approximately €6).¹⁶¹ Shown below on the left is a disassembled iPhone 4.¹⁶² On the right is a magnified view of a portion of the logic board from the iPhone (indicated by the red arrow), which contains an Intel baseband chip (shown by the red box) that provides the cellular functionality:



By seeking up to \$16.50 per device for patents that would have been implemented in an Intel chip costing Apple no more than an average of \$12, the royalty demands were not tied to the claimed technology of the SEPs. Ultimately, the jury found that Apple had not infringed either of the declared SEPs, and therefore, no damages were awarded.

Likewise, in the Commission's investigation of Motorola for seeking an injunction against Apple in Germany, the Commission concluded that "as the technology covered by the Cudak GPRS SEP in Germany relates only to the baseband chipset, a small component of the relevant end-product whose selling price amounts to only a fraction of the final mobile device, the seeking and enforcement of an injunction by Motorola against Apple in Germany on the basis of the Cudak GPRS SEP . . . constitutes a disproportionate interference with the freedom of Apple to

¹⁶⁰ Transcript of Record at 3125, *Apple Inc. v. Samsung Elecs. Co.*, No. 11-cv-01846-LHK (N.D. Cal. Apr. 15, 2011).

¹⁶¹ *Id.* at 3168, 3171.

¹⁶² iFixit, *iPhone 4 Teardown*, <https://www.ifixit.com/Teardown/iPhone+4+Teardown/3130> (last visited Jan. 25, 2015).

conduct its business.”¹⁶³ Although the issues of seeking an injunction and setting a royalty are not identical, both involve a concern for an outcome proportional to the SEP at issue.

Similarly, in Microsoft and Motorola’s recent litigation regarding a RAND rate for Motorola’s declared SEPs, the court concluded that Marvell’s “semiconductor chipsets . . . provide 802.11 functionality for a variety of products, including the Microsoft Xbox.”¹⁶⁴ The court went on to explain that “Marvell manufactures and sells its chips to Microsoft, Motorola, Sony and others, which the companies incorporate into products as diverse as the Sony Playstation and the Audi A8 automobile. Though the products are diverse, each company incorporates the Marvell chips into its products for the same reason: to provide 802.11 functionality.”¹⁶⁵

Second, even where the language of the claim of a SEP nominally covers more than just the Component responsible for implementing the standardized technology—*e.g.*, a Wi-Fi or cellular chip—that does not mean that the proper royalty base is broader than the standardized Component. The FTC, for example, has warned that the inquiry into the appropriate royalty base should focus on the “economic realities and not the vagaries of claim drafting”¹⁶⁶:

Another artificial construct for identifying the base that courts should reject is always to equate it with the device recited in the infringed claim. In many cases, there will be an easy correspondence between the inventive feature, the device recited in the infringed claim, and the appropriate base. In other cases, the correspondence will not be so clear. For example, a software invention for rendering video images can be recited in a claim covering video software, or in a claim covering a standard personal computer running the video software. . . . The real focus ought to be on the economic realities and not the vagaries of claim drafting, particularly because the way claims are drafted [is] . . . so manipulable.

Similarly, the U.S. Supreme Court, in addressing whether sales by Intel of microprocessors to its customer Quanta exhausted certain patents to which Intel was licensed, rejected the idea that there was no exhaustion merely because the claims required the microprocessor to use certain “standard components in the system”¹⁶⁷:

[T]he Intel Products constitute a material part of the patented invention and all but completely practice the patent. Here . . . the

¹⁶³ Commission Decision (EC) 1/2003 of 29 April 2014, ¶ 522, 2014 O.J. (Case AT.39985), *available at* http://ec.europa.eu/competition/antitrust/cases/dec_docs/39985/39985_928_16.pdf.

¹⁶⁴ *Microsoft Corp.*, 2013 WL 2111217, at *93.

¹⁶⁵ *Id.*

¹⁶⁶ THE EVOLVING IP MARKETPLACE, *supra* note 86, at 211.

¹⁶⁷ *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 633 (2008) (emphases added).

incomplete article substantially embodies the patent because the only step necessary to practice the patent is the application of common processes or the addition of standard parts. Everything inventive about each patent is embodied in the Intel Products. . . . *Naturally, the Intel Products cannot carry out these functions unless they are attached to memory and buses, but those additions are standard components in the system, providing the material that enables the microprocessors and chipsets to function.* The Intel Products were specifically designed to function only when memory or buses are attached; Quanta was not required to make any creative or inventive decision when it added those parts. Indeed, Quanta had no alternative but to follow Intel’s specifications in incorporating the Intel Products into its computers because it did not know their internal structure, which Intel guards as a trade secret. *Intel all but practiced the patent itself by designing its products to practice the patents, lacking only the addition of standard parts.*

The same logic applies to SEPs. Even if the claim of a SEP recites the use of some other common Components of a device—such as an antenna in a cellular phone—that does not mean that the central inventive aspect of the patent extends beyond the Component actually implementing the standard.¹⁶⁸

2. FRAND royalties must reflect only the *ex ante* or incremental value of the SEPs before the standard is set, not any hold-up value conferred by standardisation (Q.6.1.1)

A FRAND royalty must reflect only the value of the SEP, not any value conferred on the SEP holder by the value of the standard or hold-up value through standardisation. The Commission has recognized this point in its Horizontal Guidelines: “the assessment of whether fees charged for access to IPR in the standard-setting context are unfair or unreasonable should be based on whether the fees bear a reasonable relationship to the economic value of the IPR.”¹⁶⁹ Similarly, the CAFC has recently explained that assessing the actual or incremental value of SEPs involves two separate steps of apportionment¹⁷⁰:

When dealing with SEPs, there are two special apportionment issues that arise. First, the patented feature must be apportioned from all of the unpatented features reflected in the standard.

¹⁶⁸ See, e.g., *In re Innovatio IP Ventures, LLC Patent Litig.*, 956 F. Supp. 2d 925, 949 (N.D. Ill. 2013) (“[T]he obligation to license a standard-essential independent patent claim at a RAND rate would be meaningless if the patent holder could charge an exorbitant fee for a claim dependent on the standard-essential independent claim and reciting only a technically basic additional element.”).

¹⁶⁹ *Horizontal Guidelines*, *supra* note 39, ¶ 289.

¹⁷⁰ *Ericsson, Inc.*, 773 F.3d at 1232 (emphasis added).

Second, the patentee's royalty must be premised on the value of the patented feature, not any value added by the standard's adoption of the patented technology. These steps are necessary to ensure that the royalty award is based on the incremental value that the patented *invention* adds to the product, not any value added by the standardization of that technology.

One robust method to gauge the incremental value of SEPs is to assess the value of the patent before the effects of standardisation. The Commission has endorsed such an approach: "it may be possible to compare the licensing fees charged by the company in question for the relevant patents in a competitive environment before the industry has been locked into the standard (*ex ante*) with those charged after the industry has been locked in (*ex post*)."¹⁷¹ Similarly, the FTC has also advocated that "[c]ourts should cap the royalty at the incremental value of the patented technology over alternatives available at the time the standard was chosen."¹⁷²

In particular, consideration should be given to whether there were alternative solutions available at the time of standardisation or whether the SSO simply could have foregone including the function the technology performs in the standard altogether. Analysing the availability of such alternatives prior to standardisation—and the price competition they would have created—allows an appropriate assessment of the SEP's incremental worth and reduces the risk of hold-up skewing the patent's valuation.¹⁷³ Although determining with precision the *ex ante* value of a SEP may be challenging, even if analysing available alternatives does not yield a precise royalty figure, it nonetheless may provide direction about the appropriate range of values for the SEP.

The inventive value of the technology covered by a SEP may be quite low, with any substantial value coming only from the ability (improperly) to extract hold-up value from the fact the SEP is standardised. The technical specifications that standards developers draft often address a series of small details regarding how to implement standardised functionality—details that do not present significant technical challenges but that necessarily must be solved by choosing one solution, even if others could serve equally well. As set forth more fully in response to Question 2, thousands of these details are aggregated to create voluminous standards for which there may be thousands of patents claimed to be essential. SSO decision-making can be a process in which many factors affect the solution that is chosen.¹⁷⁴ Referring to a SEP as "essential" thus reflects not that the patent was necessarily superior to technical alternatives available at the time, but that

¹⁷¹ *Horizontal Guidelines*, *supra* note 39, ¶ 289.

¹⁷² THE EVOLVING IP MARKETPLACE, *supra* note 86, at 23.

¹⁷³ See *In re Innovatio IP Ventures*, 2013 WL 5593609, at *37 (adopting methodology that "best approximates the RAND rate that the parties to a hypothetical *ex ante* negotiation most likely would have agreed upon ... before Innovatio's patents were adopted into the standard"); Joseph Farrell, et al., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST L. J. 603, 659 (2007) ("[T]he consensus view among economists [is] that FRAND should be based on *ex ante* technology competition.").

¹⁷⁴ See, e.g., *In re Innovatio IP Ventures*, 2013 WL 5593609, at *20 n.12 ("Because of the requirement of 75% consensus [in the IEEE subcommittee that created the 802.11 standard], often the subcommittee had to merge or alter different proposals to make them acceptable to a larger group of people.").

by virtue of its inclusion in the standard, and only because of this, it was transformed into technology that is now essential to implement the standard.

Litigations in which FRAND (or RAND) royalties have been determined demonstrate that there is often a significant divergence between the demands of SEP holders and what judges or juries believe an actual FRAND royalty should be upon examination of the facts—with the adjudicated FRAND rates suggesting that SEPs often lack significant inventive value. The chart below summarizes demands made by SEP holders in cases in which a judge or jury later set a FRAND rate for the SEP portfolio at issue. The original demands of the SEP holder were far above the ultimate court-determined rate¹⁷⁵:

Case	Standard	Royalty Requested by Patent Holder	FRAND Royalty Set By Court or Jury
<i>Microsoft Corp. v. Motorola, Inc.</i>	Wi-Fi /802.11	2.25% of end product, resulting in royalties of up to \$9 per Xbox ¹⁷⁶	\$0.03471/unit (for Xbox) ¹⁷⁷
	H.264	2.25% of end product prices, such as laptops and smartphones	\$0.00555/unit ¹⁷⁸

¹⁷⁵ In *Commonwealth Scientific & Research Organization v. Cisco Systems, Inc.*, the patent holder requested a royalty of \$1.40 to \$3.80 per device for patents claimed to be essential to Wi-Fi/802.11, and the court ultimately awarded \$0.65 to \$0.90 per device. Findings of Fact and Conclusions of Law at 16, 34, *Commonwealth Sci. & Research Org. v. Cisco Sys., Inc.*, No. 6:11-cv-00343, 2014 WL 3805817 (E.D. Tex. July 23, 2014) (Dkt. No. 324). The court, however, found that patent holder was not under a RAND obligation as to many of the products at issue because they were covered by later generations of the standard and the RAND commitment was only as to a prior generation of the standard. Further, the decision, which is currently on appeal, does not account for proper apportionment of the value of the patents under CAFC precedent. See Brief for *Amici Curiae* Intel Corporation, Dell Inc., and Hewlett-Packard Company In Support of Defendant-Appellant and Reversal, *Commonwealth Scientific & Research Org. v. Cisco Sys., Inc.*, No. 2015-1066 (Fed. Cir. Jan. 28, 2015).

¹⁷⁶ Motorola initially offered Microsoft a license to its purported Wi-Fi SEPs at a royalty of 2.25%. *Microsoft Corp.*, 2013 WL 2111217, at *2.

¹⁷⁷ This rate on eleven alleged SEPs was set based on the court's application of its RAND royalty rate analysis to the Xbox. *Id.* at *1, 99. This relates to a per-patent rate of 0.32 cents per device.

¹⁷⁸ *Id.* at *4.

Case	Standard	Royalty Requested by Patent Holder	FRAND Royalty Set By Court or Jury
<i>Innovatio IP Ventures</i>	Wi-Fi /802.11	\$3.39 - \$36.90 per end product ¹⁷⁹	\$0.0956 per Wi-Fi chip ¹⁸⁰
<i>Realtek Semiconductor Corp. v. LSI Corp.</i>	Wi-Fi /802.11	5% of end product ¹⁸¹	0.19% of chip price, or \$0.0033, for two patents ¹⁸²

3. FRAND royalties must consider potential aggregate royalty demands for other SEPs (Q.6.4.1, Q.6.4.2)

In addition to considering the incremental value of SEPs free from any hold-up value, a FRAND rate must also consider royalties for other patents required to implement the standard. The goal of widespread adoption of a standard cannot be achieved if these aggregate demands are not considered when setting a FRAND rate, or else a “royalty stack” will be created that makes implementing the standard uneconomical.

The need to account for the aggregate royalty stack is well recognized. The Commission has stated that “hold-up is exacerbated where a large number of SEPs, covering various standards, are applied to a single product. In such circumstances, the number of potential licensors may cause the combined royalty payments made to the various SEP-holders to become excessive. This phenomenon is known as ‘royalty stacking’.”¹⁸³

The CAFC, for example, has held that “SEPs pose two potential problems that could inhibit widespread adoption of the standard: patent hold-up and royalty stacking.” It further described that “[r]oyalty stacking can arise when a standard implicates numerous patents, perhaps hundreds, if not thousands. If companies are forced to pay royalties to all SEP holders, the

¹⁷⁹ *In re Innovatio IP Ventures*, 2013 WL 5593609, at *12 (Innovatio advocated a damages methodology of determining a “Wi-Fi feature factor” for a device that takes into account the value of Wi-Fi to the product, multiplying that feature factor by the end device price and then applying a 6% rate to that figure, resulting in “royalties on average of approximately \$3.39 per access point, \$4.72 per laptop, up to \$16.17 per tablet, and up to \$36.90 per inventory tracking device (such as a bar code scanners).”).

¹⁸⁰ *Id.* at *45 (covering nineteen patents found by the Court to be among the top 10% most valuable 802.11 SEPs, resulting in a per-patent rate of 0.5 cents).

¹⁸¹ *Realtek Semiconductor Corp. v. LSI Corp.*, 946 F. Supp. 2d 998, 1001-02 (N.D. Cal. 2013) (noting a 2002 demand by Agere of 5% on all 802.11b products sold by Realtek).

¹⁸² A jury awarded LSI/Agere 0.19% of Realtek’s chipset price for two asserted patents. Jury Verdict Form, *Realtek Semiconductor Corp. v. LSI Corp.*, No. CV-12-3451-RMW (N.D. Cal. 2013) (Dkt. No. 324). Testimony at trial indicated the average chip price was \$1.74. Trial Transcript, *id.* at 607. This produces a per-patent rate of less than 0.17 cents per chip.

¹⁸³ Opinion of AG Wathelet, *Huawei v. ZTE*, Landgericht Düsseldorf [LG], Nov. 20, 2014, note 14.

royalties will ‘stack’ on top of each other and may become excessive in the aggregate.”¹⁸⁴ The court in the *Microsoft* case likewise held that when setting a RAND rate, “the parties attempting to reach an agreement would consider the overall licensing landscape in existence vis-à-vis the standard and the implementer’s products. In other words, a RAND negotiation would not be conducted in a vacuum. The parties would instead consider other SEP holders and the royalty rate that each of these patent holders might seek from the implementer based on the importance of these other patents to the standard and to the implementer’s products.”¹⁸⁵ As noted above, the OIC IPR Policy also provides that a FRAND rate should factor in the “overall royalty that could be charged for all Necessary Claims.”

Although the FRAND litigation royalty rates listed in the chart above—fractions of pennies on a per-patent basis—may seem low, they nonetheless could result in considerable licensing revenue given the proliferation of standardized devices that may potentially lead to licensing royalties. For example, one estimate puts the number of Wi-Fi devices sold in 2014 alone at 2.3 billion and the overall total number sold passing 10 billion in January 2015.¹⁸⁶ Similarly, as of 2013, there were estimated to be 6 billion 3GPP (GSM, HSPA, and LTE) cellular subscriptions worldwide.¹⁸⁷

Moreover, these royalty awards are also significant in light of the potential aggregate industry demands and the actual cost of the Components at issue. For example, in the *Microsoft* case, the district court set a RAND rate of \$0.03471 per unit for Motorola’s eleven 802.11 SEPs that applied to the Xbox.¹⁸⁸ That portfolio rate translates to \$0.00316 per patent, and it has been estimated that there may be over 3,000 SEPs for the 802.11 standard.¹⁸⁹ If each SEP was valued using the per-patent rate set by the *Microsoft* court, the cumulative royalty stack for the 802.11 standard would be \$9.47 (approximately €8.00) per unit (below, the “Implied Royalty Stack (3,000 SEPs)”).

By contrast, the chips that Microsoft uses to provide Wi-Fi functionality in the Xbox were described by the court as “commodity products” that sell for less than \$3 (approximately €2.60) per chip.¹⁹⁰ Thus, the aggregate royalty demand for an 802.11 product applying the district court’s RAND rate (\$9.47) far exceeds the *entire* cost of the chip (\$3.00), as shown in the chart

¹⁸⁴ *Ericsson, Inc.*, 773 F.3d at 1208. In acknowledging royalty stacking, the CAFC ruled that jury instructions on stacking issues should be provided by the court so long as one of the parties has presented evidence of stacking problems in the particular case.

¹⁸⁵ *Microsoft Corp.*, 2013 WL 2111217, at *20.

¹⁸⁶ Wi-Fi Alliance, *Total Wi-Fi® device shipments to surpass ten billion this month*, Jan. 5, 2015, available at <http://www.wi-fi.org/news-events/newsroom/total-wi-fi-device-shipments-to-surpass-ten-billion-this-month>.

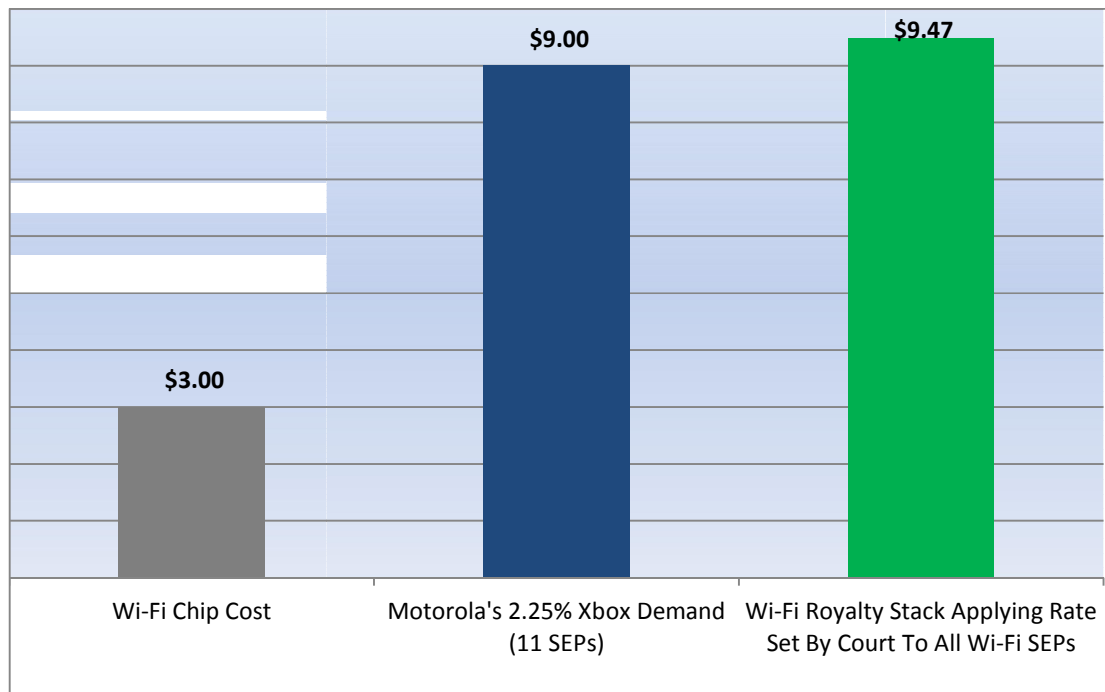
¹⁸⁷ 3GPP, *6 Billion & Growing!*, Mar. 2013, <http://www.3gpp.org/news-events/12-news-events-others/press-clippings/1465-6-billion-growing>.

¹⁸⁸ Motorola asserted that it had twenty-four 802.11 SEPs but that only eleven were relevant to the Xbox. *Microsoft Corp.*, 2013 WL 2111217, at *55.

¹⁸⁹ *In re Innovatio IP Ventures*, 2013 WL 5593609, at *42.

¹⁹⁰ *Microsoft Corp.*, 2013 WL 2111217, at *93-94. The cost of Wi-Fi chips has continued to decline over time and many are now available for far less than \$3.00 per unit.

below. The unreasonableness of basing a FRAND royalty on the cost of the entire device price is shown in Motorola's demand of 2.25%, which would have resulted in royalties of \$9 (approximately €8) where the chip supplying Wi-Fi functionality cost only \$3:



Further, if the *initial* demands of SEP holders—before being decreased through litigation—are considered on an industry-wide basis, they are staggering. For example, Motorola's pre-litigation of \$9 per Xbox for 11 SEPs amounts to \$0.82 per SEP. If all patent holders sought that amount for the reported 3,000 Wi-Fi SEPs, it would create a royalty stack of \$2,454 per \$3 (or less) Wi-Fi chip.

SEP licensors often try to paint royalty stacking as merely theoretical. But as a practical matter, no rational SEP licensee views a single SEP licensing negotiation in isolation; rather, the licensee necessarily views the current negotiation in the context of past and future negotiations for all SEPs needed to practice the standard (or at least those for which it is reasonably foreseeable that will be demanded). Accordingly, the rational willing licensee will not agree to pay royalties for a single license that would make it uneconomical to license the remaining SEPs it may need, and so the licensee necessarily will take into account the potential royalty stack, even in its first negotiation. In any event, royalty stacking is far from theoretical as the SEP litigations discussed above and in response to Question 7 illustrate. For example, Intel alone has been the subject of numerous demands and litigations over alleged Wi-Fi SEPs, including cases filed by CSIRO, Wi-LAN, Ericsson, and numerous others.

Moreover, taking action to address royalty stacking only *after* a prohibitively expensive royalty stack has been created necessarily will not prevent harmful effects from royalty stacking. If the first royalty is not set in light of the potential aggregate demands to come, a disproportionate share of royalties would go to those SEP holders first in line, without regard to the relative value

of their SEPs. That has serious potential to distort innovation incentives by undercompensating inventors of truly valuable standardized technologies and overcompensating inventors of low value technologies simply because they acted quickly and aggressively to demand high royalties.

C. In appropriate circumstances, a portfolio license may be an efficient means of licensing but it should not be required of licensees (Q.6.3.1-6.3.3)

Portfolio licensing (whether for SEPs to a particular standard, all patents relevant to a particular type of device, or to a company's entire portfolio) can be an attractive choice for companies because it can reduce costs and administrative burdens. Rather than having to license patents piecemeal, a portfolio-wide license can provide "patent peace" between companies for a number of years. Further, the broader the license, the greater the "freedom to operate" without fear of entanglement in the licensor's patents. Cross-licensing can also have the benefit of reducing the cash expenditures needed for a license as payment is made through patent rights. These are among the reasons that Intel has typically entered into broad cross-licensing agreements.

But these business incentives for entering portfolio licenses do not mean that a licensee should be required to license a SEP holder's portfolio as a whole if it does not wish to do so. This principle has been recognised in litigation before the English High Court, which observed that "although it is a truism that disputes of this kind often end up with a global licence, one needs to be careful turning that truism into something like a right to compel a defendant to enter into such a licence."¹⁹¹ A potential licensee should have the right to determine the scope of a license it wants from a SEP holder, including taking a license to less than the full portfolio, which could be motivated by a number of reasons. For example, a provider of cellular phones or Components likely will have no need for a license for a SEP holder's network infrastructure SEPs. Likewise, a company that operates only in a particular country or geographic region may have no interest in paying for worldwide rights that it does not need.¹⁹²

Further, a licensee should not be obligated to pay for a portfolio of SEPs simply on the basis of self-declaration by the SEP holder that they are essential. As set forth more fully in response to Question 3, the rates of over declaration of SEPs are significant, and most SEPs that are declared essential are likely not actually essential where many of these patents are likely to be invalid. Indeed, in litigation, SEPs have fared very poorly with findings of infringement of valid SEPs occurring in only 12% or 16% of cases according to studies discussed in response to Question 3. Given these facts, a potential licensee should have the right to license less than the full set of patents that a SEP holder claims to own, many of which are unlikely to be essential, valid, or used by the licensee. As explained more fully in response to Question 7, there is no basis in law or policy to allow a SEP holder to shortcut the process of facing challenges to its assertions that its patents are actually essential, valid, and used by demanding that a standard implementer pay

¹⁹¹ *Vringo Infrastructure, Inc. v. ZTE (UK) Ltd*, [2013] EWHC 1591 (Pat) ¶ 56 (June 6, 2013). See further below in response to Question 7.

¹⁹² Conversely, SEP holders with limited patent holdings (e.g., in only a few countries) sometimes demand that the licensee pay rates on every sale throughout the world. This too can reflect an improper attempt by the SEP holder to seek supra-FRAND payments.

royalties for all patents in a claimed SEP portfolio—whether or not the patents are actually truly essential, valid, or being used.

VII. Response to Question 7

Question 7: In some fields standard essential patents have spurred disputes and litigation. What are the causes and consequences of such disputes? What dispute resolution mechanisms could be used to resolve these patent disputes efficiently?

Patent litigation and reports of “hold-up” by threatening patent litigation involving declared-essential patents has surged in recent years, raising unique legal and policy issues and attracting the attention of courts, regulators, and academics around the world. Several factors, including increased convergence of industries, particularly in the mobile telecommunications and computing sectors; SEP holders’ lack of adherence to FRAND commitments; and the emergence and growth of NPEs that seek above-FRAND royalty rates for their alleged SEPs, have contributed to this surge.

Patent systems are designed to reward true innovation, not invalid patents, and only those implementers who are actually practicing the claims of a valid patent should have to pay royalties to the patent holder. Under the patent laws, courts must maintain these safeguards to ensure that patent assertions protect and fairly award true innovation and that alleged infringers have the right to challenge the alleged infringement and validity of asserted patents in courts, under traditional burdens of proof. The same principles and safeguards apply equally to SEPs—only the contributors of actually valid and infringed SEPs, not those who merely declare their patents “essential,” should receive FRAND royalties for innovation that is truly essential to implementing the standard.

Resolutions of SEP litigations must take into account the patent merits, just like any other patent infringement litigation. SEP holders should not be able to avoid the traditional burdens of patent holders and short circuit the safeguards in the patent system merely because they have unilaterally declared patents “essential” and/or have amassed many declared-essential patents. Allowing such a short cut for SEPs would not only put the implementers of standards at a competitive disadvantage (especially SMEs who can ill afford litigation expenses), it would also create opportunities for unscrupulous SEP holders to engage in abusive behaviours without fear of oversight. FRAND licensing commitments are intended as a constraint on traditional patent remedies to protect implementers of standards and in turn foster innovation that benefits consumers, not an expansion of those remedies to reward a self-proclaimed SEP holder special, unwarranted rights.

Accordingly, adjudication of a SEP dispute should not be assumed to be a matter of simply setting a FRAND rate based on an automatic assumption of essentiality, infringement, or validity. Rather, as with any other patent, a SEP holder must prove its position on the merits if challenged by a prospective licensee. Patent holders worldwide have long understood that with the significant benefits they receive comes the responsibility of proving their positions on the merits if challenged. Likewise, a potential licensee should always have the right to rely on the patent system’s traditional safeguards to challenge validity or infringement (and raise any other relevant defences) in courts as specified in the relevant patent laws. Such challenges to the patent merits are pro-competitive and healthy, and reward only the true innovators. The importance of maintaining these traditional burdens on the SEP holder is demonstrated by the astonishingly low success rate of SEPs asserted in litigation in reported court cases around the

world. Tilting the system in favour of rewarding SEP holders for having declared SEPs that are not actually essential or are invalid will generate a host of improper incentives—such as rewarding the over-declaration of patents and excessively taxing implementers of the standard.

A. Prevalence and impacts of SEP disputes (Q.7.1.1-7.1.4)

An increased prevalence of SEP litigations and issues surrounding SEP portfolio adjudication has been well-recognized. For instance, the study conducted for the Commission for this Consultation shows that SEPs are more likely to be litigated than patents that are not claimed to be essential to a standard. As noted in response to Question 2, the study compares a set of SEPs to a baseline set of patents with similar characteristics but that had not been declared essential to a standard. The SEPs in the sample were five times more likely to be litigated (6.7% or 393 SEPs of 5,768 total SEPs) than the baseline set (1.7% or 89 patents litigated of 5,768 total baseline patents).¹⁹³ At the same time, the available data suggests an overall trend of increasing litigation in Europe.¹⁹⁴ The SEP litigation success rate, however, is very low, and even lower than for non-SEPs. That dynamic raises important policy considerations that have led courts and regulators, such as the European Commission and the FTC, to articulate certain key principles regarding FRAND licensing and dispute resolution.

1. Contributing factors to increased prevalence of SEP disputes

A few key factors appear to have contributed to the significant number of SEP litigations in the United States, Europe, and other parts of the world.

The increased convergence of technologies in consumer devices has and continues to generate disputes by leading to increased tension between companies. Companies that previously operated in different spheres have been thrown into competition through devices that have integrated ever more technology and functionality. A prime example has been the convergence

¹⁹³ PATENTS AND STANDARDS, *supra* note 27, at 125; *see also* Rudi Bekkers, Christian Catalini, Arianna Martinelli, & Timothy Simcoe, *Intellectual Property Disclosure in Standards Development* (2012) (prepared for the NBER conference on Standards, Patents & Innovation, Tucson (AZ)), *available at* [http://home.ieis.tue.nl/rbekkers/Bekkers_et_al_\(2012\)_NBER_conf.pdf](http://home.ieis.tue.nl/rbekkers/Bekkers_et_al_(2012)_NBER_conf.pdf) (finding that a sample of SEPs are approximately four times more likely to be litigated).

¹⁹⁴ Katrin Cremers, et al., *Patent Litigation in Europe* 43 (Centre for European Economic Research, Working Paper No. 13-072, 2013), *available at* <http://ftp.zew.de/pub/zew-docs/dp/dp13072.pdf> (finding patent litigation increasing overall from 2000 to 2008 in Germany, France, the Netherlands, and England and Wales). A recent paper by Qualcomm employees examines data on litigation in the smart phone industry and concludes that the recent surge in smart phone litigation is primarily driven by patents that are not related to the standards and can be explained by disruptions in the sector due to new and large entrants. The paper also concludes that litigation outcomes are driven by patent quality rather than the type of patents (SEPs or not). *See generally* Kirti Gupta & Mark Snyder, *Smart Phone Litigation and Standard Essential Patents* (Hoover IP², Working Paper No. 14006, 2014), *available at* <http://hooverip2.org/wp-content/uploads/ip2-wp14006-paper.pdf>. This paper does not directly contradict Intel's main observations—Intel observes the increased prevalence of SEP litigation (not necessarily in relation to non-SEP litigation or as a source of the rise in patent litigation in general), recognizing that such increased prevalence of SEP litigation is partly due to the displacement of incumbents by new entrants. Intel also observes that litigation outcomes are driven by patent-by-patent analysis on the patent merits—a principal that should equally apply to SEP litigation.

of telephony and computing in modern mobile devices. For instance, the principal technology in early mobile phones was simply the ability to make and receive phone calls using, for example, the GSM cellular standard. By contrast, the smartphones available today are more like computers with cellular functionality as one of their many features. Moreover, smartphone suppliers primarily and increasingly compete on the basis of *non-standardized* functionality, including design, screen size, user interface, availability of applications, branding and marketing, battery life, and speed of processing. In terms of standardised technology, the modern smartphone includes much more than just cellular connectivity, including Wi-Fi, near field communications, Bluetooth, GPS, wired connections, wireless charging, and video and audio standards.

A consequence of increased convergence has been rapid changes in the fortunes of technology companies. Again, the mobile device business, for example, has seen rapid changes in fortunes with telephony incumbents frequently displaced by new innovative entrants. In instances where incumbents in a certain market segment fail to move quickly into an emerging technology or a new product space, and thereby lose out on potential markets or sales, they may attempt to recoup their losses in some other ways, such as through licensing of their patent portfolios. These changes in market dynamics have led some SEP holders that used to compete in the market by offering products to focus instead on exploiting their patents at above-FRAND rates. Further, the tremendous success of the mobile device market has significantly raised the stakes in patent litigation, where hundreds of millions of dollars in sales could potentially be lost if an injunction issues.

Indeed, there has been a flurry of SEP-related litigations. For instance, as shown in the European Commission's *Patents and Standards* report, 244 SEPs out of a total set of 4,284 declared SEPs to the mobile telecommunications standards have been litigated, and 32 of a set of 236 declared SEPs to the Wi-Fi standards have been litigated. There has also been SEP litigation in other sectors, such as audio/video systems, coding, and compression (where 32 out of a total set of 221 SEPs have been litigated) and security technologies (21 of a set of 182 SEPs litigated).¹⁹⁵

Further, as described more fully in response to Question 4, the emergence and growth of NPEs have also increased litigation involving alleged SEPs, where they have presumably acted on the assumption that declaring "essentiality" would provide a shortcut to infringement.

2. Outcomes and impacts of SEP disputes

As set forth more fully in response to Question 3, studies on declared-essential patents and SEP litigations show that many patents that have been declared "essential" to industry standards are not in fact essential and, more importantly, generally fail to result in findings of infringement of a valid patent if asserted. Those studies found that SEPs succeeded in only 12% and 16% of cases.¹⁹⁶ Notably, non-SEPs in the study finding a 16% success rate were found to succeed more

¹⁹⁵ PATENTS AND STANDARDS, *supra* note 27, at 126-27.

¹⁹⁶ STANDARD ESSENTIAL PATENTS: HOW DO THEY FARE?, *supra* note 77, at 9.

than twice as often as SEPs—34% of the time.¹⁹⁷ More recently, a litigation outcome study for smartphone patent assertions (including both SEPs and non-SEPs) revealed a similarly low success rate of less than 10%.¹⁹⁸ Further, in litigation between Nokia and InterDigital in the United Kingdom,¹⁹⁹ the essentiality of twenty nine patents that had been declared essential to the 3GPP standard was challenged, separate from validity. At trial, the patentee sought to support the essentiality of only four of these twenty nine patents, and the court ultimately found only one of those four to be essential to the standard. These results demonstrate that the mere claim that a patent holder's SEPs are "essential" does not and should not provide a shortcut to proving infringement.

In SEP litigation, removing the safeguards set in place by patent systems and eliminating the traditional burdens on patent holders to show validity and infringement would unfairly reward SEP holders who have declared SEPs that are not actually essential or are invalid. A system that rewards SEP holders simply for having declared SEPs "essential" will distort the underlying incentives—rewarding the over-declaring of patents rather than actually contributing meritorious technology to an industry standard and spurring economic growth. Further, allowing SEP owners to collect royalties on non-essential and/or invalid SEPs will have serious ramifications on companies implementing the standard. Resources that could be directed to increased innovation or growing employment will instead be diverted to pay royalties for patents that have no value.

Further, SEP litigation imposes significant immediate costs and disruptions. The cost of patent litigation is high. For example, a study for the Commission estimated that the total cost of patent litigation in the European Union for 2004 was estimated to be over €306 million.²⁰⁰ Also, the median estimated total litigation cost in the U.S. ranges from \$700,000 (for patent suits with less than \$1 million at risk) to \$5.5 million (for suits with more than \$25 million at risk), and the median estimated cost of discovery alone ranges from \$350,000 to \$3 million.²⁰¹ Further, research shows that patent assertions by NPEs, who are accountable for significant portions of SEP assertions globally, have imposed on accused operating companies an astonishing amount of direct costs—approximately \$29 billion in 2011, an increase by 400% since 2005.²⁰² These costs include legal costs, settlement costs, and other costs for resolved lawsuits, unresolved lawsuits, and non-litigated assertions.²⁰³

¹⁹⁷ *Id.*

¹⁹⁸ Florian Mueller, *Analysis of 222 smartphone patent assertions: more than 90% go nowhere, rest lacks impact*, FOSS PATENTS, Oct. 1, 2014, <http://www.fosspatents.com/2014/10/analysis-of-222-smartphone-patent.html>.

¹⁹⁹ See generally *Nokia Corp. v InterDigital Tech. Corp.*, [2007] EWHC 3077 (Pat).

²⁰⁰ CJA CONSULTANTS LTD, EUROPEAN POLICY ADVISORS, PATENT LITIGATION INSURANCE – A STUDY FOR THE EUROPEAN COMMISSION ON THE FEASIBILITY OF POSSIBLE INSURANCE SCHEMES AGAINST PATENT LITIGATION RISKS, 46 (2006), available at http://ec.europa.eu/internal_market/indprop/docs/patent/studies/pli_appendices_en.pdf.

²⁰¹ AM. INTELLECTUAL PROP. LAW ASSOC., REPORT OF THE ECONOMIC SURVEY 2013, at 34 (2013).

²⁰² James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 22-24, 48 (Boston Univ. School of Law Working Paper No. 12-34, 2012), 99 CORNELL L. REV. (forthcoming 2014), available at <http://www.bu.edu/law/faculty/scholarship/workingpapers/revcov.html>.

²⁰³ *Id.* at 48.

The low rate of success for claimed SEPs suggests that rules or policies cannot be established based on the presumption that declared SEPs will necessarily be infringed by products using the relevant standard or that such patents are even valid. In particular, these low success rates cut against the claims of SEP licensors that a potential licensee's challenge of essentiality or validity of alleged SEPs and refusal to agree to a portfolio-wide license demonstrates unwillingness to take a license.

3. Courts and regulators have protected the right to challenge the patent merits

SEP litigations have led courts and regulators, such as the European Commission and the FTC, to affirm certain key principles regarding FRAND licensing and dispute resolution. In particular, these authorities have recognized that SEPs should not be entitled to special treatment and that the same concerns that animate the competition and patent laws for non-essential patents apply with equal force in the case of SEPs.

First, a potential SEP licensee has the right to challenge the essentiality and/or validity of alleged SEPs, and exercising that right does not make a potential licensee “unwilling.” In the European Commission's investigation of Motorola's SEP licensing practices against Apple, it considered the terms of a Settlement Agreement entered into between Motorola and Apple, which included a clause allowing Motorola to terminate the agreement if Apple “files a nullity complaint, opposition or utility model cancellation against any of the Licensed Patents.”²⁰⁴ The Commission found that the provision is “capable of having a number of anti-competitive effects,” including that it “may limit Apple's ability to influence the level of royalties it will have pay to Motorola for the use of the SEPs covered by the Settlement Agreement,” and that it “may lead other potential licensees of the SEPs covered by the Settlement Agreement to pay for invalid IP.”²⁰⁵

The Commission's investigation of Samsung's SEP licensing practices was concluded when Samsung agreed, among other things, to offer prospective licensees an “Invitation to Negotiate” the terms of a FRAND license. Standard terms of this “Invitation” would provide: “Nothing herein shall restrict the ability of any Party from making or maintaining arguments regarding validity, essentiality and infringement of the other Party's Mobile SEPs during the Third Party Determination of FRAND Terms. Nothing . . . may be construed as altering the burden of proof on patent validity, infringement, and essentiality, which shall be governed by the relevant applicable law.”²⁰⁶ They further provide that “[n]othing herein shall restrict the ability of any Party from challenging validity, essentiality or infringement of the other Party's Mobile SEPs

²⁰⁴ Commission Decision (EC) 1/2003 of 29 April 2014, ¶ 329, 2014 O.J. (Case AT.39985), *available at* http://ec.europa.eu/competition/antitrust/cases/dec_docs/39985/39985_928_16.pdf.

²⁰⁵ *Id.* ¶ 336.

²⁰⁶ *Commitments offered by Samsung to the European Commission* (C-3/39.939) 3, Annex A, *available at* http://ec.europa.eu/competition/antitrust/cases/dec_docs/39939/39939_1502_5.pdf.

outside the context of the Third Party Determination of FRAND Terms.”²⁰⁷ As the Commission confirmed in its recent submission to the OECD Competition Committee: “Potential licensees cannot be regarded as unwilling merely because they challenge the validity, infringement or essentiality of a SEP.”²⁰⁸ The same view was expressed by the High Court in litigation between Vringo and ZTE in the United Kingdom, as further described below.²⁰⁹

This view is consistent with competition law principles that apply to patents generally and encourage challenges to invalid patents. The European Commission’s relevant Block Exemption Regulation, for example, creates an exemption from antitrust scrutiny for some patent license agreements, but specifically excludes from that exemption “any direct or indirect obligation of a party not to challenge the validity of intellectual property rights which the other party holds in the Union[.]”²¹⁰ As the Commission explains, this non-exemption of “no-challenge” clauses stems from the concern that to foster “undistorted competition . . . invalid intellectual property rights should be eliminated” because “[i]nvalid intellectual property stifles innovation rather than promoting it.”²¹¹

Similarly, in the settlement of its investigation of Motorola Mobility for its SEP licensing practices, the FTC confirmed the right of potential licensees to challenge infringement and validity²¹²:

[Motorola can seek an injunction against a] Potential Licensee who . . . has stated in writing or in sworn testimony that it will not license the FRAND Patent on any terms; PROVIDED THAT . . . challenging the validity, value, Infringement or Essentiality of an alleged infringing FRAND Patent does not constitute a statement that a Potential Licensee will not license such FRAND Patent[.]

²⁰⁷ *Id.*

²⁰⁸ Competition Committee, *Intellectual Property and Standard Setting—Note by the European Union*, DAF/COMP/WD(2014)117, 3, 5-6 and 9 (Dec. 17-18, 2014), available at <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WD%282014%29117&doclanguage=en>.

²⁰⁹ See *infra* pp. 70-71.

²¹⁰ Commission Regulation 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements, Article 5(2), 2014 O.J. (L 93/17). This exclusion is “without prejudice to the possibility, in the case of an exclusive license, of providing the termination of the technology transfer agreement in the event that the licensee challenges the validity of any of the licensed technology rights.” *Id.* However, by their nature, licenses of SEPs to those entities requiring such licenses will be non-exclusive.

²¹¹ Commission Communication (EC) of 28 March 2014, *Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements*, 2014 O.J. (C 89) ¶ 134, available at [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0328\(01\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0328(01)&from=EN).

²¹² Decision and Order at 8 (§II.E.2), *In the Matter of Motorola Mobility LLC and Google Inc.*, No. C-4410 (F.T.C. July 23, 2013), available at <http://www.ftc.gov/sites/default/files/documents/cases/2013/07/130724googlemotorolado.pdf>.

The FTC's decision and order also requires Motorola to offer to potential licensees the option of arbitration, but specifically notes (like the European Commission's settlement with Samsung) that it "does not restrict either party from making arguments in Binding Arbitration regarding the validity, Essentiality, Infringement or value of the patents at issue in such proceeding, or the ability of the arbitrator to consider these arguments, or to follow existing legal standards and burdens of proof."²¹³ The FTC later commented²¹⁴:

It is important to highlight that the Order, including the arbitration provision, does not negate or alter traditional burdens of proof, or deprive implementers of their rights to seek judicial review, challenge infringement, or raise defenses such as validity, exhaustion, and essentiality. Moreover, the Order does not presume infringement by the implementer, and leaves Google with the same burdens of proof it would have in any court proceeding.

As in Europe, the FTC's SEP determinations are consistent with broader competition principles for patent assertions. The FTC, for example, has recognized the risk that a "questionable patent" can "deter market entry and follow-on innovation by competitors and increase the potential for the holder of a questionable patent to suppress competition."²¹⁵ The FTC, together with the DOJ, have confirmed that "[i]nvalid patents impair competition, and as a matter of patent policy, challenges to their validity are encouraged."²¹⁶

Second, a SEP holder has the obligation to prove the patent merits, as in any patent infringement dispute, and cannot force a potential licensee to accept a portfolio-wide SEP license. That has been demonstrated by the reluctance of courts to set FRAND rates beyond the patents that are actually asserted in litigation, recognizing that they lack the authority under the patent system to require a potential licensee to agree to pay royalties for patents, absent a finding of infringement of valid and enforceable patents.

For instance, in litigation between Vringo and ZTE in the United Kingdom, ZTE would not agree to pay a global FRAND rate for Vringo's portfolio without a showing that its products were actually practicing the claims of Vringo's patents at issue, and that those patents are in fact valid. The court refused to compel ZTE to agree to pay royalties for patents it was not using

²¹³ *Id.* at 25.

²¹⁴ Letter from Donald S. Clark at 5 n.2, *In the Matter of Motorola Mobility LLC and Google Inc.*, No. C-4410 (F.T.C. July 23, 2013), *available at* <http://www.ftc.gov/sites/default/files/documents/cases/2013/07/130724googlemotorolaletter.pdf>.

²¹⁵ FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY at 5-6 (2003), *available at* <http://www.ftc.gov/sites/default/files/documents/reports/promote-innovation-proper-balance-competition-and-patent-law-and-policy/innovationrpt.pdf>.

²¹⁶ FED. TRADE COMM'N & DEP'T. OF JUSTICE, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION at 90 (2007), *available at* <http://www.justice.gov/atr/public/hearings/ip/222655.pdf>.

and/or are invalid, and, moreover, ruled that ZTE's position did not make it a so-called "unwilling licensee"²¹⁷:

In this case ZTE is not willing to be a licensee of invalid and/or not infringed patents. So ZTE is not prepared to be bound by the outcome of the determination that Vringo proposes. This raises the question of what is a willing licensee. The suggestion from Vringo was that this stance showed that ZTE was not really a willing licensee at all.

* * *

I reject the idea that the stance being taken by ZTE in this jurisdiction can fairly be said to mean that ZTE is not a willing licensee. ZTE has said it is willing to take a FRAND licence on any patent found valid and infringed. In my judgment, a defendant accused of patent infringement by a patentee who claims to have a standards essential patent is and must be entitled to say, "I wish to know if this patent is valid or infringed or not before I take a licence". Such a stance cannot fairly be described as unwillingness.

So here the defendant is entitled, in my judgment, to adopt a contingent position. In a contingent case like this, there is no basis on which the court could compel the defendants to accept a licence arrived at by approaching the matter as if the licensee was willing to take a licence without having a judicial determination of validity and/or infringement.

The court also cautioned against the contention that SEP disputes resulting in global portfolio licenses does not mean that Vringo has the right to impose such a license on ZTE because Vringo's "rights are and are nothing more than patent rights"²¹⁸:

In some ways I believe the position adopted by Vringo in this dispute confuses the true nature of its legal rights. Its rights are and are nothing more than patent rights. Although it is a truism that disputes of this kind often end up with a global licence, one needs to be careful turning that truism into something like a right to compel a defendant to enter into such a licence. The truism does not alter the character of Vringo's underlying rights.

²¹⁷ *Vringo Infrastructure, Inc. v. ZTE (UK) Ltd*, ¶¶42-43 [2013] EWHC 1591 (Pat) (June 6, 2013).

²¹⁸ *Id.* ¶ 56.

Relatedly, in *Innovatio*, the court rejected the argument that so-called “reverse hold-up”—where a potential licensee forces a SEP holder to engage in litigation by refusing to enter into a license agreement on FRAND terms—is a concern for SEPs.²¹⁹ The European Commission, in its recent submission to the OECD, has similarly recognized that while “both phenomena ‘hold-up’ and ‘reverse hold-up’ may occur in the market, the basis for competition law intervention must remain a stringent, facts-based case-by-case analysis of the effects of certain conduct on the market.”²²⁰

Safeguarding the right of potential licensees to challenge the patent merits and maintaining the traditional burdens on patent holders for SEP holders will also more broadly benefit other potential licensees and licensors. By clearing the patent thicket, all potential licensees benefit from not being subjected to requests for royalties for claimed SEPs shown not to be essential and/or invalid. Other licensors with essential and valid SEPs also benefit from a reduction in the patent thicket because it reduces competing royalty demands that are made for claimed SEPs that are not actually essential and/or are invalid. Both of those benefits are important for all industry participants but particularly for SMEs that are licensees and licensors and may lack the resources to launch such defences on their own or to demonstrate that many competing claims for royalties are based on declared SEPs that are not actually essential or are invalid.

Short circuiting inquiry into the patent merits by mandating portfolio-wide licensing would also raise a host of other problems. These include leading to inaccurate rates that are based only on the number of declared SEPs in a portfolio rather than the strength of the portfolio. Litigation of individual patents from a portfolio—which are presumably usually the SEP holder’s strongest patents—can clarify the actual strength of the portfolio and leave the parties in a better position to assess actual FRAND royalties. A rate set by a court for a portfolio in the absence of reliable data on the strength of the portfolio could lead to significant inefficiencies, overcompensating certain parties simply on the basis that they have over declared SEPs and undercompensating other SEP holders with genuinely valuable but smaller portfolios.

Mandating adjudication of global portfolios also raises issues of national sovereignty because the decision of one country’s judge will impact patent rights granted in other countries.

The wave of SEP litigation has thus been helpful in clarifying that patent systems are generally capable of addressing SEP disputes and that those systems do not merit or require any accommodations to lessen the traditional burdens on a patent holder. If anything, the low success rates of SEPs show that adherence to the traditional burdens are even more important in SEP assertions. The benefit of allowing such challenges is not just for the defendant that brings them and succeeds but for other would-be licensees who may benefit from a successful defence of another party. These may include SMEs who would not be able to launch such robust defences.

²¹⁹ *In re Innovatio IP Ventures*, 2013 WL 5593609, at *11-12 (“[T]he court is not persuaded that reverse hold-up is a significant concern in general, as it is not unique to standard-essential patents.”).

²²⁰ *Intellectual Property and Standard Setting*, *supra* note 208, at 3.

B. Benefits and costs of dispute resolution mechanisms (Q.7.2.1-7.2.5)

Dispute resolution mechanisms that short circuit the built-in safeguards in patent systems against invalid or non-infringed patents and alter the traditional burdens of proof are problematic in that they divert societal resources from supporting genuine innovation. The empirical data on SEP essentiality and litigation outcome demonstrate this point. Intel believes that parties to FRAND licensing disputes are free to negotiate and agree to pursue alternative dispute resolution (ADR) through arbitration or mediation, but that the choice to do so should be voluntary and proper safeguards must be built into the process for both sides.

The key is that the means of resolving FRAND licensing disputes should be voluntary and fair. Potential licensees of SEPs should not be forced to submit to ADR in the name of “licensing efficiency,” particularly where the ADR procedures would not afford the traditional safeguards against invalid or not infringed patents. Such practices would undermine the very purpose of FRAND licensing—to strike a fair balance between protecting the patent holders and implementers of standards—and unduly reward a self-proclaimed SEP holder special, unwarranted rights. Intel believes parties should be free to pursue voluntary ADR or other means to resolve FRAND licensing disputes as long as the process and outcome comply with the key FRAND principles, further described below.

C. Appropriate framework for dispute resolution mechanisms (Q.7.4.1-7.4.6)

In instances where parties pursue ADR for resolving FRAND licensing disputes, Intel believes it should embody the following FRAND principles:

Voluntariness: Both parties must freely agree to arbitrate/mediate the FRAND dispute (including agreement on the rules of those proceedings) instead of litigating in courts. Such agreement must be voluntary, meaning that it cannot be coerced by resort to hold-up techniques such as SEP injunctions.

Consideration of the merits under the traditional burdens of proof: **The potential licensee’s rights under patent laws to challenge the validity, essentiality, or infringement of the alleged SEP cannot be compromised in the name of licensing efficiency.** The SEP holder should have the burden of proving its entitlement to FRAND royalties through a showing that it owns infringed patents actually essential to the standard and withstanding any challenges to validity, enforceability, or any other defences. ADR should not simply be a matter of setting a rate if the licensee contests that the SEP holder has patents that it is actually using and that are valid.

Appealability: All aspects of arbitral findings must be appealable to a court.

Appropriate Openness: While there are certainly aspects of an arbitration that should be confidential, or that parties should be able to keep private, some aspects of a FRAND arbitration must be made public, including findings of validity, infringement, and the FRAND rate. The more data points regarding FRAND rates that are publicly available, the less resort to litigation there may be as SEP holders and licensees will have a better understanding of the likely outcomes.

Balanced Composition and Process: The composition of the panel should favour neither the SEP holder nor the licensee.

VIII. Response to Question 8

Question 8: How can holders of standard essential patents effectively protect themselves against implementers who refuse to pay royalties or unreasonably delay such payment? How can it be ensured that injunctions based on standard essential patents are not used to (a) either exclude companies from implementing a standard or (b) to extract unreasonable, unfair or discriminatory royalties?

This question assumes that SEP holders require additional protection, beyond what is already available under patent laws, against implementers. Intel questions this premise; patent laws and infringement actions already adequately protect SEP holders. Indeed, given the high costs of developing products that comply with standards, the number of patents that are declared essential, and the number of these that are found not to be essential, to be invalid, or not infringed, it is *implementers* that need protection from the threat of injunctions (and other forms of abusive behaviour) by SEP holders. Where SEPs are at issue, the mere threat of an injunction fundamentally distorts what would otherwise be normal licensing negotiations.

As a number of courts and competition authorities, including the European Commission, have recognized, in most circumstances a SEP holder should not be entitled to an injunction for a SEP that it has committed to license on FRAND terms. Allowing injunctions on SEPs against licensees that are willing to conclude licenses on FRAND terms would allow the SEP holder to exploit the hold-up/market power conferred by its SEP and thereby infringe competition law. Moreover, seeking an injunction on an SEP may violate the contractual commitment of the SEP holder to the SSO to be prepared to grant licenses on FRAND terms.

It is also crucial to draw a distinction between the competition issues raised by SEP holders seeking injunctions against “willing” licensees and the patent law question of whether it is appropriate for an injunction to issue. Those are separate inquiries and should remain so. That is, a patent holder’s ability to obtain an injunction is determined by the established patent law rules on when injunctive relief is appropriate, applied to the special context of patents for which the patent owner has committed to accept money (FRAND royalties) in return for use of the patent. The competition authorities’ focus on whether a licensee is “willing” or “unwilling” is analytically a separate issue. Put another way, the question of whether a SEP holder’s pursuit of an injunction violates competition law is a different question than whether an injunction should issue.

When it comes to defining the so-called “willingness” of licensees, implementers must continue to have the right to challenge the validity of a SEP, whether it actually is essential, and whether it has been infringed. These rights are a fundamental part of the patent system and the mere declaration of a patent as a SEP should not deprive a party accused of infringement of the right to challenge the patent’s merits. Companies that challenge a SEP’s merits and the royalty that is being requested should not be considered—merely because of that challenge—to be unwilling licensees against whom an injunction can be sought, let alone awarded.

The respective approaches to the grant of final injunctions in patent matters differs as between the United States (where the availability of final injunctions depends on a host of factors, such as

the balance of convenience and the adequacy of monetary compensation) and within Europe. It has, however, been recognized in Europe, as discussed below at Section A.3, that the grant of a final injunction on a SEP would be “quite extraordinary.” Under any standard, granting an injunction on a single SEP out of thousands that may be relevant to a complex device, such as a smartphone, is a disproportionate remedy and should generally not be available.

Intel awaits further guidance on this important issue from the Court of Justice of the European Union in *Huawei Technologies Co. Ltd v. ZTE Corp., ZTE Deutschland GmbH*.

A. The extent to which SEP holders and implementers are protected under the patent and competition laws (Q.8.1, Q.8.2)

1. SEP holders are adequately protected by patent laws

Patent laws have developed and been refined over hundreds of years. Although they vary country-to-country in approach and effectiveness, they seek to strike a coherent balance between patent holders and licensees, and between patent holders and companies that refuse to agree to licenses or pay royalties for valid and infringed patents. These laws already adequately protect SEP holders, as they do other patent holders. Patent laws allow all patent holders—including SEP holders—to bring infringement actions and seek monetary damages. No additional safeguards or rights are needed for SEP holders, who have committed to accept money (FRAND royalties) as compensation.

The IPR policies that SSOs have adopted require SEP holders who have made FRAND commitments to negotiate FRAND licenses. If an implementer does not pay what the SEP holder demands—*e.g.*, because it believes an asserted SEP is not actually essential—then the SEP holder can go to court to prove its case on the merits and, if successful, obtain FRAND royalties. Obtaining FRAND royalties puts the SEP holder in exactly the position that it agreed to be in when it willingly made a FRAND commitment. As discussed in more detail in response to Question 6, the benefits of SEP ownership can be considerable because of the widespread adoption of standards and the licensing opportunities that brings. But with those benefits comes a **voluntary** relinquishment—through the FRAND promise—of some rights by a SEP holder, including a commitment to be prepared to negotiate with and license any interested implementer on FRAND terms and limiting the ability to seek injunctions.

Given the performance of companies who have focused on SEP licensing and have disclosed licensing revenues, there is no evidence that they require additional measures to protect their royalty revenue streams or incentives. For example, Ericsson’s 2013 Annual Report noted that its licensing revenues increased from SEK 6.6 billion in 2012 to SEK 10.6 billion in 2013 (approximately 0.70 to 1.1 billion Euro).²²¹ Qualcomm’s Technology Licensing Segment meanwhile generated \$1.23 billion (approximately \$1 billion Euro) more in 2013 compared to

²²¹ ERICSSON INC. 2013 ANNUAL REPORT, *supra* note 18, at 37.

2012 and has consistently accounted for just under 90% of Qualcomm's total corporate-wide earnings before taxes.²²²

2. The need to ensure that implementers are not exploited

The European Commission and other competition authorities have recognized the potential for SEP holders to abuse the market power that they may gain through having their patents become part of an industry standard.²²³ More specifically as regards the ability to damage competition and consumers via injunctions on SEPs,²²⁴ in 2014 the Commission adopted landmark decisions against Samsung and Motorola who had threatened, and in Motorola's case obtained, such injunctions.²²⁵ The Commission found such conduct to be anti-competitive and illegal; as its subsequent Policy Brief notes:²²⁶

In the Samsung and Motorola cases, the Commission clarifies that in the standardisation context, where the SEPs holders have committed to (i) license their SEPs and (ii) do so on fair, reasonable, nondiscriminatory (FRAND) terms, it is anti-competitive to seek to exclude competitors from the market by seeking injunctions on the basis of SEPs if the licensee is willing to take a licence on FRAND terms. In these circumstances, the seeking of injunctions can distort licensing negotiations and lead to unfair licensing terms, with a negative impact on consumer choice and prices.

In both the *Samsung* and *Motorola* cases, the licensee (Apple) had shown itself to be "willing" to take a license on FRAND terms and the EC stated that the *Motorola* decision "provides a 'safe harbour' for standard implementers who are willing to take a licence on FRAND terms. If they want to be safe from injunctions based on SEPs by the patent holder, they can demonstrate that

²²² See QUALCOMM 2013 ANNUAL REPORT, *supra* note 16, at 35, 37.

²²³ *Horizontal Guidelines*, *supra* note 39, ¶ 269.

²²⁴ See Statement of the FTC at 2, *In re Google Inc.*, No. 121-0120, 2 (F.T.C. Jan. 3, 2013) ("In addition to harming incentives for the development of standard-compliant products, the threat of an injunction can also lead to excessive royalties that may be passed along to consumers in the form of higher prices."), available at <http://ftc.gov/os/caselist/1210120/130103googlemotorolastmttoftcomm.pdf>.

²²⁵ See European Commission, *Antitrust decisions on standard essential patents (SEPs) – Motorola Mobility and Samsung Electronics – Frequently asked questions*, 2, Apr. 29, 2014, available at http://europa.eu/rapid/press-release_MEMO-14-322_en.htm; see also Commission Decision (EC) AT. 39939 of 29 Apr. 2014, *Samsung-enforcement of UMTS Standard Essential Patents* (C 2014), available at http://ec.europa.eu/competition/antitrust/cases/dec_docs/39939/39939_1501_5.pdf; Commission Decision (EC) AT. 39985 of 29 Apr. 2014, *Motorola - Enforcement of GPRS standard essential patents* (C 2014), available at http://ec.europa.eu/competition/antitrust/cases/dec_docs/39985/39985_928_16.pdf.

²²⁶ European Comm'n, *Competition Policy Brief: Standard Essential Patents*, at 1 (June 2014), available at http://ec.europa.eu/competition/publications/cpb/2014/008_en.pdf.

they are a willing licensee by agreeing that a court or a mutually agreed arbitrator adjudicates the FRAND terms.”²²⁷

The Commission’s position in these cases coincides with what appears to be an emerging consensus in the United States and other jurisdictions. For example, the FTC took formal action against (and ultimately, entered into consent decrees with) both Bosch and Google for their pursuit of injunctive remedies using SEPs. In the *Bosch* matter, the FTC emphasized that “[s]eeking injunctions against willing licensees . . . is a form of FRAND evasion and can reinstate the risk of patent hold-up that FRAND commitments are intended to ameliorate.”²²⁸

The principles in the Commission’s *Samsung* and *Motorola* decisions and the Commission’s Policy Brief on SEPs help protect companies negotiating SEP licenses. The recognition that SEP holders cannot seek injunctions in the normal course without violating the competition laws reduces the risk of an implementer being forced to accede to demands that it would not otherwise agree to absent the threat of an injunction.

3. What is a “willing” licensee? Need to ensure that licensee’s rights of defence are not curtailed

There remains uncertainty over what precisely constitutes a “willing” or “unwilling” licensee for purposes of the competition laws. As the Commission has stated “[w]hether a company can be considered a ‘willing licensee’ needs to be determined on a case by case basis taking into account the specific facts.”²²⁹ The precise contours of what constitutes “willingness” by a licensee continue to develop but courts and competition authorities have established certain overarching principles.

If a party refused to pay a court-ordered (or otherwise adjudicated, *e.g.*, by a jointly selected arbitrator) and non-appealable FRAND royalty; or is not subject to the jurisdiction of a national court that could award FRAND royalties; or is bankrupt; then the SEP holder can be justified in seeking an injunction. That is because in those circumstances the SEP holder has no prospect of obtaining a monetary remedy, leaving only injunctive relief.

SEP holders should not, however, be permitted to use injunctions to try to obtain excessive, non-FRAND royalties. And, as Intel also addresses in response to Question 7, it is particularly important that a potential licensee be allowed to challenge the merits of alleged SEPs (such as validity, essentiality, infringement, and enforceability, etc.) and the requested royalty rate for actually infringed SEPs.²³⁰

²²⁷ *Antitrust decisions on standard essential patents (SEPs)*, *supra* note 225, at 2.

²²⁸ *See In the Matter of Robert Bosch GmbH*, No. C-4377 (F.T.C. Nov. 26, 2012).

²²⁹ *See Antitrust decisions on standard essential patents (SEPs)*, *supra* note 225.

²³⁰ More generally, the right to defend oneself in judicial proceedings is a fundamental right and should not be undermined by the threat of being found to be an unwilling licensee. *See* Charter of Fundamental Rights of the European Union, art. 47, 2012 O.J. (C 326/02) (Right to an effective remedy and a fair trial).

The Commission clearly recognizes that licensees should be able to challenge SEPs. In a press release on the subject of its SEP enforcements, for example, the Commission stated²³¹:

Is a potential licensee who challenges validity, essentiality or infringement of SEPs unwilling?

No. Potential licensees of SEPs should remain free to challenge the validity, essentiality or infringement of SEPs. It is in the public interest that potentially invalid patents can be challenged in court and that companies, and ultimately consumers, are not obliged to pay for patents that are not infringed.

The patent system can only work if it rewards innovators by granting them the right to exclude but at the same time allows challenges to patents that may have been incorrectly granted or, in the case of SEPs, may have been inappropriately declared as standard-essential. Such challenges are all the more imperative given the high number of non-essential patents incorrectly declared essential by their owners and the low percentage of findings of infringement of valid SEP patents following litigation.²³² The ETSI IPR database, for example, lists more than 160,000 patents that have been declared essential for ETSI standards. Implementing standards in products and innovating on platforms based on standards requires huge up-front investment in R&D, design, manufacturing, and marketing, and the patent system's built-in safeguards against the assertion of invalid, non-infringed, or non-essential patents are the necessary guarantee that implementers need to make such investments. Threats of injunctions should not be used to short-circuit these safeguards by forcing implementers to give up their rights and agree to non-FRAND royalties or licensing terms, lest their products be excluded from the market.

Society and consumer welfare are damaged if patent holders can assert invalid or non-infringed patents and licensees agree to license these patents. As the Commission recognized in its Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements, "In the interest of undistorted competition and in accordance with the principles underlying the protection of intellectual property, invalid intellectual property rights should be eliminated."²³³

Furthermore, if the potential licensee simply disagrees with the proposed royalty rate and instead proposes an alternative rate, unwillingness should not be presumed. If such proposals and

²³¹ *Antitrust decisions on standard essential patents (SEPs)*, *supra* note 225, at 3.

²³² Studies have found that only 27% to 54% of declared SEPs actually prove to be essential and SEPs asserted in cases that went to judgment resulted in findings of infringement of valid patents only 16% of the time. *Patent transparency for licensing*, *supra* Q.3.1.3, at p. 26. On rates of invalidity of granted patents more generally, *see Patent Quality*, *supra* Q.2.2.B, at p. 15. As noted in *Outcomes and impacts of SEP Disputes*, *supra* Q.7.1.2, at p. 67, in a 2007 English litigation between Nokia and InterDigital, [2007] EWHC 3077 (Pat), the essentiality of twenty nine patents that had been declared essential to the 3GPP standard was challenged. At the trial, the patentee sought to argue the essentiality of only four of the patents but the court determined that only one was essential (validity was not in issue).

²³³ *Guidelines on the application of Article 101*, *supra* note 210, ¶ 134.

counter-proposals continue over a period of time, the licensee should still be considered a willing licensee if it agrees to a court or an arbitrator setting the royalty rate for any valid and infringed SEPs.²³⁴ Indeed, the outcomes of cases in which FRAND rates have been determined by courts, set forth in response to Question 6, demonstrates that the initial demands of SEP holders often fall far outside what constitutes a truly FRAND rate and that the potential licensees were correct to resist acceding to those non-FRAND demands.

Courts and competition authorities should recognize that just because negotiations are taking time, the licensee may still be willing and working in good faith to conclude a license. Ultimately this question turns on its facts but delays in reaching agreements are very often not evidence of unwillingness.²³⁵

4. Whether an injunction should be awarded should not only depend on a licensee's "willingness"

The designation of a licensee as being "willing" or "unwilling" to take a license on FRAND terms is central to whether a SEP holder violates competition law by seeking an injunction for alleged infringement of a SEP. However, this competition law enquiry is different from whether injunctions should actually be granted under normal patent law principles.

Under patent laws—and more generally under courts' ability to weigh all the circumstances before granting discretionary remedies—courts should also consider the totality of the factual circumstances before deciding if an injunction is appropriate in a specific case. Even in legal systems that do not require a weighing of equitable considerations (as is the case in the United States), there can be a recognition that an injunction on a single SEP is a disproportionate outcome. Injunctions that require that a product be withdrawn from the market (sometimes even only for a short time²³⁶) are a severe remedy, and in most cases, it will be more appropriate to

²³⁴ See the Opinion of Advocate General Wathelet, *supra* note 183, ¶ 88, which discusses what an alleged infringer must do in the context of negotiations to illustrate that it is a willing licensee. "It must respond in a diligent and serious manner to the offer made by the SEP-holder. If it does not accept that offer, it must promptly submit to the SEP-holder, in writing, a reasonable counter-offer relating to the clauses with which it disagrees. As the referring court has pointed out, the bringing of an action for a prohibitory injunction would not constitute an abuse of a dominant position if the infringer's conduct were purely tactical and/or dilatory and/or not serious." *Id.*; see also *id.* ¶ 92 ("Furthermore, if negotiations are not commenced or are unsuccessful, the conduct of the alleged infringer cannot be regarded as dilatory or as not serious if it asks for those terms to be fixed either by a court or an arbitration tribunal.").

²³⁵ Intel assumes that the reference to delay is to situations where a license has not (yet) been concluded rather than to late payment contrary to a license. The latter situation is more straightforward since the definition of undue delay will often follow from the terms of the license, so the patent holder can assert breach of contract if the licensee fails to pay on time.

²³⁶ See Commission Regulation (EC) No. 139/2004 of 13 Feb. 2012, 2012 O.J. (C 1068) ¶ 107, available at http://ec.europa.eu/competition/mergers/cases/decisions/m6381_20120213_20310_2277480_EN.pdf ("Even if exclusion of competing products from the market through injunctions were to be temporary (i.e. there would be a delay only in access to the relevant products until the counter-party of the SEP holder agreed to the commercial terms demanded), in a fast-moving market such as the smart mobile device market, serious harm could potentially be caused by it.").

award damages to the SEP holder if there is a finding that its SEPs have been infringed. In his Opinion in the pending *Huawei v ZTE Corp* case, Advocate General Wathelet noted that the EU's Directive 2004/48 on the enforcement of intellectual property rights itself recognises "restrictions on the right to bring actions for a prohibitory injunction and the substitution of pecuniary compensation for that right."²³⁷

As an example of how courts have considered the significance of FRAND commitments in this context, in the UK, in the case of *Nokia GmbH v IPCOM GmbH & Co. KG*, the judge noted that IPCOM was bound by the FRAND undertaking and stated²³⁸:

I am very uncertain, to put it mildly, to see why a permanent injunction should be granted in this case at all or indeed any injunction You are willing to give a license. Nokia wants to get a license. You cannot agree on the terms. They will be determined. There will then be a license. In those circumstances . . . to get an injunction seems to me quite extraordinary.

Similarly, the CAFC recently considered whether an injunction should issue for a Motorola SEP asserted against Apple. The court declined to adopt a new *per se* rule that an injunction could never issue for a SEP, but applying the U.S. *eBay* standard for injunctions determined that sufficient rules already existed to address whether injunctions are appropriate for SEPs, and concluded that "[a] patentee subject to FRAND commitments may have difficulty establishing irreparable harm," which is a prerequisite for obtaining an injunction.²³⁹ The court went on to explain that Motorola's FRAND commitment was strong evidence that an injunction was unwarranted because Motorola could obtain FRAND royalties from Apple through litigation and would not be harmed by doing so²⁴⁰:

Motorola's FRAND commitments, which have yielded many license agreements encompassing the '898 patent, strongly suggest that money damages are adequate to fully compensate Motorola for any infringement. Similarly, Motorola has not demonstrated that Apple's infringement has caused it irreparable harm. Considering the large number of industry participants that are already using the system claimed in the '898 patent, including competitors, Motorola has not provided any evidence that adding one more user would create such harm. Again, Motorola has agreed to add as many market participants as are willing to pay a FRAND royalty.

²³⁷ See Opinion of Advocate General Wathelet, *supra* note 183, ¶ 63.

²³⁸ *Nokia GmbH v IPCOM GmbH & Co. KG*, [2012] EWHC 1446 (Ch) (May 18, 2012).

²³⁹ *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1331-32 (Fed. Cir. 2014).

²⁴⁰ *Id.* at 1332.

The question of willingness does not answer whether an injunction for a SEP is appropriate. Under recent European competition law decisions, it merely addresses the question whether a SEP holder violates competition law by seeking an injunction, not whether an injunction should properly issue.

B. Prevalence of injunctions (Q.8.3)

As outlined in response to Question 6, SEP holders often refuse to license component suppliers because they may instead seek to obtain excessively high royalties by asserting their SEPs against suppliers of end devices. As seen in our answers to Question 6, compensation should be calculated on the value to the smallest infringing product and that value should not change if assessed against high levels in the value chain—including suppliers of end-devices. Accordingly, injunctions have been most frequently sought against those same end-device suppliers that are the targets of SEP licensors.

Injunctions have been widely sought by SEP holders across a variety of standards and around the world, with significant activity in Europe as shown in the map below, in which a star indicates a country in which an injunction has been requested for an SEP:



The table below provides examples of specific cases in Europe and around the world in which injunctions have been sought on SEPs. In certain of these cases an injunction has been granted, such as Vringo's request for an injunction against ZTE in Germany and Ericsson's requests for injunctions in India against Xiomai and Mercury Electronics. In others, the courts properly recognized that injunctions are an improper remedy for SEPs.

Global Injunction Requests for FRAND-Committed Patents

Country	Case (party seeking injunction bolded)	Standard
Australia	Samsung v. Apple, Federal Court of Australia	UMTS
Brazil	Vringo v. ZTE, ²⁴¹ Court of Justice of Rio de Janeiro	3G/4G/LTE
China	Hon Hai v. Lotes	USB 3.0
France	Ericsson v. TCT Mobile , Tribunal de grande instance [TGI] [ordinary court of original jurisdiction], Paris, Nov. 29, 2013, No. 12/14922 ²⁴²	UMTS
	Samsung Electronics Co. and Samsung Electronics France v. S.A.R.L. Apple France, Tribunal de Grande Instance, Paris, Dec. 8, 2011, No. 11/58301 ²⁴³	UMTS
Germany	Vringo v. ZTE, Mannheim Regional Court	UMTS
	Motorola v. Microsoft, Mannheim Regional Court, May 2, 2012, 2 O 240/11	H.264
	Motorola v. Apple, Mannheim Regional Court, 7 O 122/11, 7 O 230/11	GPRS/UMTS
	Samsung v. Apple, Mannheim Regional Court, 7 O 166/11	UMTS
	Huawei v. ZTE, Mannheim Regional Court	LTE
	Telefonaktiebolaget LM Ericsson v. Acer Computer GmbH, 7 O 354/11	802.11
	Telefonaktiebolaget LM Ericsson v. Acer Computer GmbH, 7 O 428/11	802.11

²⁴¹ News Release, *Brazilian Court Upholds Injunction Against ZTE for Infringement of Vringo Patent*, Jun. 18, 2014, available at http://phx.corporate-ir.net/phoenix.zhtml?c=235370&p=irol-newsArticle_Print&ID=1940780.

²⁴² English translation: Veron Associates, EPLAW PATENT BLOG, February 2014, available at http://www.eplawpatentblog.com/2014/February/2013-11-29_TGI_Paris_JME_Ericsson_c_TCT%20Mobile_translation.pdf.

²⁴³ English translation: Veron Associates, EPLAW PATENT BLOG, December 2011, available at http://www.eplawpatentblog.com/2011/December/2011-12-08_TGI_Paris_Samsung_Apple_translation%284%29.pdf.

Country	Case (party seeking injunction bolded)	Standard
	Telefonaktiebolaget LM Ericsson v. Acer Computer GmbH, 7 O 429/11	802.11
India	Telefonaktiebolaget LM Ericsson v. Xiaomi Technology, (2014) H.C. (Delhi), CS(OS)3775/2014 ²⁴⁴	2G/3G
	Telefonaktiebolaget LM Ericsson v. Mercury Electronics, (2014) H.C. (Delhi), CS(OS)442/2013 ²⁴⁵	3G/Edge
	Vringo v. ZTE, (2014) H.C. (Delhi), CS(OS) 2168/2013	UMTS
Italy	Samsung Electronics Co. Ltd. e Samsung Electronics Italia S.P.A. v. Apple Inc., Apple Italia SRL, Apple Retail Italia SRL, Apple Sales International ²⁴⁶	UMTS
Japan	Samsung Electronics Co. Ltd. v. Apple Japan LLC, 2013(Ne)10043, Grand Panel of the IP High Court ²⁴⁷	UMTS
Korea	Samsung Electronics v. Apple, Seoul Central D. Ct. (South Korea), 2011 Gahap 39552, 2011 Gahap 63647	UMTS
Malaysia	Vringo v. ZTE ²⁴⁸	
Netherlands	ZTE Corporation et al. v. Vringo Infrastructure Inc. , District Court The Hague, Summary proceedings, Oct. 24, 2014, C/09/470109 / KG ZA 14-870 ²⁴⁹	UMTS
	Samsung Electronics Co. Ltd v. Apple Inc. et al, joined cases, District Court The Hague, Mar. 14, 2012, 400367 / HA ZA 11-2212, 400376 / HA ZA 11-2213, and 400385 / HA ZA 11-2215	UMTS
	Koninklijke Philips Electronics N.V. v. SK Kassetten GmbH & Co., District Court The Hague,	CD/DVD

²⁴⁴ Available at <http://spicyip.com/wp-content/uploads/2014/12/Order-dt.-08.12.14-Telefonaktiebolaget.pdf>.

²⁴⁵ Available at http://delhihighcourt.nic.in/dhcqrydisp_o.asp?pn=46519&yr=2013.

²⁴⁶ Competition Committee, *Intellectual Property and Standard Setting—Note by Italy*, DAF/COMP/WD(2014)127, Dec. 17-18, 2014, available at <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WD%282014%29127&doclanguage=en>.

²⁴⁷ Available at http://www.ip.courts.go.jp/eng/vcms_lf/25ne10043full.pdf.

²⁴⁸ News Release, *Vringo Statement on Forthcoming Patent Infringement Trial Against ZTE in Malaysia*, Dec. 17, 2014, available at http://phx.corporate-ir.net/phoenix.zhtml?c=235370&p=irol-newsArticle_Print&ID=2000303.

²⁴⁹ Available at <http://www.eplawpatentblog.com/2014/November/20141024%20-%20judgment%20Court%20The%20Hague%20-%20public%20version%20-%20ENG.PDF>.

Country	Case (party seeking injunction bolded)	Standard
	Mar. 17, 2010, Joint Case Nos. 316533/HA ZA 08-2522 and 316535/HA ZA 08-2524	
	LG Electronics v Sony, District Court, The Hague, Mar. 10, 2011, No. 389067/KG ZA 11-269 ²⁵⁰	Blu-Ray
Romania	Vringo v. ZTE ²⁵¹	LTE
United Kingdom	<i>Nokia GmbH v ICom GmbH & Co. KG</i> , [2012] EWHC 1446 (Ch) (May 18, 2012)	UMTS
	Vringo Infrastructure, Inc. v. <i>ZTE (UK) Ltd</i> , [2013] EWHC 1591 (Pat) (June 6, 2013)	UMTS
United States	<i>Apple, Inc. v. Motorola, Inc.</i> , <ul style="list-style-type: none"> No. 11-cv-8540 (N.D. Ill.) 337-TA-745 (I.T.C.) 	UMTS
	LSI v. <i>Realtek</i> , 337-TA-837 (I.T.C.)	802.11
	Ericsson v. <i>Samsung</i> , <ul style="list-style-type: none"> No. 06-cv-63 (E.D. Tex.) 337-TA-583 (I.T.C.) Nos. 12-cv-894, 895; 13-cv-364 (E.D. Tex.) 337-TA-862 (I.T.C.) 	UMTS/802.11
	<i>Apple</i> v. Samsung , <ul style="list-style-type: none"> No. 11-cv-1846 (N.D. Cal.) No. 12-cv-630 (N.D. Cal.) 337-TA-794 (I.T.C.) 	UMTS
	Ericsson v. <i>Acer</i> , No. 10-cv-473 (E.D. Tex.)	802.11
	<i>Microsoft</i> v. Motorola , <ul style="list-style-type: none"> No. 10-cv-1823 (W.D. Wa.) 337-TA-752 (I.T.C.) 	802.11/H.264
	InterDigital v. <i>Huawei/Nokia/ZTE</i> , 337-TA-800 (I.T.C.)	UMTS

²⁵⁰ Available at [http://www.hoyngmonegier.com/sites/default/files/20110324%20district%20court%20The%20Hague%20judgment\(EN\).pdf](http://www.hoyngmonegier.com/sites/default/files/20110324%20district%20court%20The%20Hague%20judgment(EN).pdf).

²⁵¹ News Release, *Vringo Provides Update on Romanian Litigation*, Oct. 13, 2014, available at http://phx.corporate-ir.net/phoenix.zhtml?c=235370&p=irol-newsArticle_Print&ID=1976850.

The consequences of injunctions or the threat of injunctions are stark. They include increased likelihood that the licensee will agree to exorbitant royalties to avoid an injunction; licensees agreeing to such royalties instead of challenging SEPs' validity, essentiality or infringement; and greater uncertainty over implementers' ability to rely on FRAND commitments that might otherwise be assumed to recognize that FRAND royalties will be adequate compensation for infringement. As one specific example (and as outlined further in response to Question 1), Motorola's request for an injunction in Germany prompted Microsoft to move its distribution facility from Germany to the Netherlands at a cost of millions of Euros to Microsoft and also to the detriment of the German economy. Germany not only lost the jobs from the distribution centre closing, but the corporate tax revenues, the road tax for transportation, income tax from employees, housing and regional/local taxes, revenues from VAT; and the surrounding community lost a significant employer. Significantly, seeking injunctions not only impacts the direct target but has broader economic effects including "negative impact on consumer choice and prices."²⁵² Indeed, for this reason the U.S. Trade Representative overturned the exclusion order (similar in effect to an injunction) granted to Samsung against Apple by the International Trade Commission based on a declared-essential cellular SEP. He concluded that the exclusion order conflicted with "policy considerations . . . relat[ing] to the effect on competitive conditions in the U.S. economy and the effect on U.S. consumers."²⁵³

²⁵² See *Competition Policy Brief*, *supra* note 226.

²⁵³ Letter from Ambassador Michael B. G. Froman to the Honorable Irving A. Williamson, at 3, Aug. 3, 2013, available at http://www.ustr.gov/sites/default/files/08032013%20Letter_1.PDF.