PREPARED STATEMENT FOR THE RECORD OF
INTEL CORPORATION

For the

SENATE COMMITTEE ON THE JUDICIARY
SUBCOMITTEE ON ANTITRUST, COMPETITION POLICY
AND CONSUMER RIGHTS

On

STANDARD ESSENTIAL PATENT DISPUTES AND ANTITRUST LAW

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Chairman Klobuchar, Ranking Member Lee, and distinguished members of the Subcommittee, thank you for the opportunity to testify on behalf of Intel Corporation. I am particularly grateful for the Subcommittee's interest in the role that antitrust law should play in the abuse of standard-essential patents ("SEPs"). The Subcommittee's interest in this topic reflects its strong commitment to maintaining competitive markets and ensuring that public policy meets public need in the context of our innovation industries.

The issue before this Subcommittee is of enormous importance to the technology industry, a business sector in which the United States is an undisputed world leader. This industry's ability to continue to innovate, create high-paying U.S. jobs, and give consumers better products at lower prices is now impeded—even threatened—by patent owners who commit to license their patents used in industry standards on fair, reasonable, and nondiscriminatory ("FRAND") terms but then renege on those commitments once their patented technology is incorporated into the standard.[1] In addressing the important antitrust issues presented by these patent abuses, I bring to bear not only the perspective of a general counsel of a leading technology company but also that of an antitrust lawyer who practiced in the private sector for nearly four decades and who was privileged to serve as the Acting Assistant Attorney General in charge of the Justice Department's Antitrust Division and, before that, as the Principle Deputy Assistant Attorney General in the Antitrust Division.

Abuses of FRAND commitments pose a significant risk to competition, innovation, and consumer welfare. Cooperative standard-setting has played a vital role in promoting innovation in the high-technology industry. Companies that make standard-compliant products, however,

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[1] The term "FRAND" is identical in meaning to "RAND," which is used by some standards organizations.

must be able rely on patent holders' commitments to license their SEPs (i.e., patents that must be practiced in order to comply with an industry standard) on FRAND terms. The continued success of the standard-setting system is threatened by some companies that have decided to flout their FRAND commitments in order to exploit the need of standard implementers to practice their SEPs.

When the participants in a standard-setting organization 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. Standard-setting organizations developed the FRAND commitment to maintain the benefits of the competition among different patent holders for inclusion of their technologies in a standard even after the standard is adopted and the patented technologies that are chosen no longer face competition. When SEP holders renege on their FRAND commitments, they acquire through exclusionary conduct the monopoly power that they voluntarily relinquished when they made their FRAND commitments. Such acquisition of monopoly power 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 the innovation that has given U.S. industry an undisputed leadership role in the technology field.

This submission discusses six different types of abuses by owners of FRAND-encumbered SEPs that harm competition and consumers: (1) selective, strategic refusals to license; (2) charging unreasonable royalties; (3) imposing royalties for SEPs that are used only by components, such as Wi-Fi chips, on complete systems, such as PCs, that incorporate such components; (4) seeking or threatening injunctions against willing licensees; (5) requiring

licensees to take licenses to patents that are not SEPs; and (6) transferring SEPs to entities that renounce the FRAND commitment made by the transferring SEP holder.

I. Intel and Innovation

Innovation has been a hallmark of Intel, which is the world's largest semiconductor company, ever since its founding 45 years ago. A quote from Robert Noyce, Intel's co-founder and the co-inventor of the integrated circuit, marks the entrance to Intel's global headquarters today: "Innovation is everything." That belief has defined the company's attitude for decades and has driven Intel to become a global technology leader. Intel's track record of product innovations includes, among others, the world's first commercial dynamic random access memory (DRAM) chips, first microprocessor (sometimes called a CPU), first electrically programmable read-only memory (EPROM) chips, the creation of the universal serial bus (USB), and many other products vital to the digital economy.

Although it is a global leader, with more than three-fourths of its revenues coming from outside the United States, Intel is a committed American manufacturer and makes roughly three-fourths of its microprocessors in its cutting-edge manufacturing facilities in Oregon, Arizona, New Mexico, and Massachusetts.[2] Intel invests billions of dollars every year in R&D to maintain its technical and manufacturing leadership; last year Intel spent more than $10 billion in R&D, more than any other publicly traded U.S. company.[3] A significant number of Intel's more than 50,000 employees in the United States are directly involved in designing new

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[2] Patrick Thibodeau, *Intel's $7 billion "Made in the USA" Investment*, ComputerWorld (Feb. 10, 2009), *available at* http://www.computerworld.com/s/article/9127745/Intel_s_7_billion_Made_in_the_USA_investment.

[3] Scott Thurm, *Behind the Big Profits: A Research Tax Break*, Wall Street Journal (June 13, 2013), *available* at http://online.wsj.com/article/SB10001424127887324049504578543324262064306.html.

semiconductor products, creating software, and advancing Intel's leading-edge manufacturing processes. Intel's innovation focus also prompted it to sponsor the Intel Science Talent Search, a national competition in which 1,700 seniors in American high schools compete for more than $1.25 million in awards and scholarships based on innovation in science, technology, engineering, and math.[4] That same focus has driven Intel to become the fifth largest capital investor in the United States.[5]

As a result of Intel's long-standing dedication to innovation, Intel holds nearly 40,000 global patents today. Intel has been a top ten recipient of U.S. patents for eight of the past ten years. When TIME named Andrew Grove, Intel's CEO at the time, as the 1997 Man of the Year, it cited Intel's "microchips [as] hav[ing] changed the world."[6] Intel's focus on using technology to change the world remains strong.[7] Importantly, for Intel, it is not so much about the products we make as it is about what our products make possible in the world. Intel's declared mission statement is to create and extend computing technology to connect and enrich the lives of every person on earth in this decade.[8]

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[4] *Inspiring Innovators of Tomorrow: Intel Science Talent Search 2013,* http://www.intel.com/content/www/us/en/education/competitions/science-talent-search.html.

[5] Diana Carew and Michael Mandel, *Investment Heroes: Who's Betting on America's Future,* (July 11, 2012), *available at* http://www.progressivepolicy.org/2012/07/investment-heroes-who%e2%80%99s-betting-on-america%e2%80%99s-future/.

[6] Andrew Grove: Man of the Year, Time (Dec. 29, 1997), *available at* http://www.time.com/time/magazine/article/0,9171,987587,00.html.

[7] Kyle Vanheme, *Intel Reader Offers High Tech Helpf for Dyslexics and Visually Impaired,* (Jan. 20, 2010), http://gizmodo.com/5453173/intel-reader-offers-high-tech-help-for-dyslexics-and-visually-impaired.

[8] *See* http://www.intel.com/content/www/us/en/company-overview/company-facts.html.

II. Intel's Interest in Industry Standards

Industry standards play a vital role in the technology industry, and virtually every electronic product in use today incorporates multiple industry standards. The standard-setting process permits companies to work together under the auspices of industry-wide standard-setting organizations to develop common standards that can be implemented by all industry members at a reasonable cost to ensure interoperability among products. For example, standards enable individuals using notebook computers from different manufacturers to connect to the Internet through Wi-Fi virtually wherever they go, as is evident to anyone who walks into a coffee shop these days. They also enable users to connect a host of devices, from printers to cameras to music players, to their computers with ease through standardized USB connections.

By making it possible for consumers to choose from a vast array of products that interoperate seamlessly, standards eliminate the costs of switching between different manufacturers' products, promote competition among manufacturers, and foster further innovation. Standards also accelerate the adoption of new technologies by reducing the risk for both technology companies and their customers that new technologies in which they invest may become obsolete. The opposite is true when a common standard does not exist. The adoption of a high definition replacement for the DVD, for example, was stalled for years because consumers were reluctant to buy, and companies were reluctant to invest in, products and technologies for which a uniform standard did not exist and whose future was therefore uncertain. When the industry finally settled on the Blu-ray format, manufacturing increased, consumer sales skyrocketed, and prices dropped. With a common standard and interoperability assured, companies could innovate beyond the standard, providing new features and services to distinguish their products from those of others.

As a leading innovator, Intel plays a prominent role in the development of technical standards. Intel participates in hundreds of standard-setting organizations across a range of technologies, including communications, security, graphics/video, and many others. The Wi-Fi standard, which is used for wireless networking, is one of many standards to which Intel has made significant contributions. Intel has spent nearly $2 billion in R&D in connection with the Wi-Fi standard. Before Wi-Fi gained commercial acceptance, Intel spent hundreds of millions of dollars subsidizing and promoting the creation of wireless hotspots at airports, hotels, restaurants, and coffee shops around the world to drive the adoption of the Wi-Fi standard.[9] It was not until Intel introduced its Centrino mobile technology that Wi-Fi became standard in laptops and developed into the success it has become today. Intel's Centrino technology has been called "one of the great technology inflection points" that "drove us from a largely wired computer world to a [wireless] one."[10] Today, of course, the Wi-Fi technology has spread to tablets, cellular phones, printers, cameras, medical devices, home appliances, and many other electronic devices.

Because of Intel's leadership role in the development of technologies that are used in industry standards, Intel owns numerous SEPs. Like many others in the industry, Intel has made commitments to standard-setting organizations to license Intel's SEPs under FRAND terms. As both the owner of numerous SEPs and a manufacturer of standard-compliant products, Intel favors a balanced approach to SEPs that respects intellectual property rights while preventing

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[9] Tom Foremski, *Intel's Centrino And How It Sparked the WiFi HotSpot Revolution*, (Apr. 5, 2011), http://www.siliconvalleywatcher.com/mt/archives/2011/04/intels_centrino.php ("WiFi was struggling in the market because it was relatively hard to set up, unreliable and little understood. It took Intel and a massive push behind Centrino to address these shortcomings and make it into the standard it has become today. . . . Every great technology advancement had an event tied to it that caused it to spread widely. For color it was Walt Disney's 'Wonderful World of Color.' For WiFi it was Intel's Centrino.").

[10] *Id.*

SEP holders from improperly using standards to harm end users and manufacturers that implement the standards.

III. SEPs and the Hold-Up Problem

Although the standard-setting system as a whole greatly benefits competition and innovation, it has one vulnerability that can be exploited to the great detriment of consumers, manufacturers, competition, and innovation. Before the adoption of a standard, alternative technological solutions generally exist for solving the technical problems for which the standard-setting process seeks a uniform market-wide solution.[11] Consequently, those who hold patents that they believe cover these alternative solutions compete for the inclusion of their preferred technical solutions into each standard. Once a technology is selected for inclusion, the widespread adoption of a standard has the potential to confer enormous market power upon SEP holders. That power does not derive from the intrinsic merits of the patented technology that is included within a standard, which is sometimes no better than the alternatives. Instead, the market power reflects the fact that, after the standard is adopted, the patented technology that is incorporated in the standard must be used by every company that wants its product to comply with and be compatible with the standard. At that point and thereafter, the SEP faces no competition from the alternative technologies with respect to that standard.

The incorporation of a patent into a standard that achieves commercial acceptance thus has an enormous potential to inflate the patent's value. Because a SEP must be practiced by any company that wants to make standard-compliant products, a SEP holder, unless otherwise constrained, can thereafter demand supracompetitive royalties that reflect, not the technological

[11] As the IEEE recently explained, "before a standard's adoption, a participating patent-holder typically faces competition from other available technologies (both patented and non-patented)." Amicus Curiae Br. of the IEEE in Support of No Party, *Apple, Inc. v. Motorola, Inc.*, at 19, Nos. 2012-1548, 2012-1549 (Fed. Cir. Dec. 19, 2012).

merit of the patent, but rather the standard's elimination of competing technologies. As a result, even a holder of a single, inconsequential SEP has the power to hold up every standard implementer and extract excessive royalties by threatening to enjoin the implementer's products. This is why the term "hold-up" is used by antitrust enforcers and academics alike to describe this problem.[12] This "hold-up" problem is greatly compounded by the fact that a single consumer product can incorporate hundreds of standards, and each individual standard can involve hundreds and even thousands of SEPs.[13] For example, a typical notebook computer incorporates more than 250 different standards.[14] An average smartphone incorporates an estimated 250,000 patents.[15]

Cognizant of the potential for such exploitation of unearned market power, standard-setting organizations require participants in standard-setting activities to license their SEPs on FRAND terms. And they require them to license their SEPs to all who wish to implement the standard. These organizations typically incorporate these requirements in rules that prohibit the inclusion of patented technologies in the standards unless the patent holder commits to license their SEPs on those terms.

Patent holders are not obligated to give FRAND commitments. FRAND commitments are entirely voluntary, and patent holders need give such commitments only if they wish to have

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[12] *See, e.g.*, U.S. Department of Justice and U.S. Patent & Trademark Office, *Policy Statement on Remedies for Standards-Essential Patents Subject to Voluntary F/RAND Commitments* 4 (Jan. 8, 2013), available at http://www.justice. gov/atr/public/guidelines/290994.pdf (DOJ-PTO Statement"); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 Tex. L. Rev. 1991 (2005) (Lemley and Shapiro").

[13] Lemley and Shapiro at 1992.

[14] Brad Biddle et al., *How Many Standards in a Laptop? (And Other Empirical Questions)* (2010), available at http://www.standardslaw.org/How_Many_Standards.pdf.

[15] *See, e.g.*, *RPX Corporation*, Amendment No. 3 to Form S-1, Apr. 11, 2011, at 59, available at http://www.sec.gov/Archives/edgar/data/1509432/000119312511101007/ds1a.htm.

their patented technologies included in the standard. In deciding whether to make a FRAND commitment, each company must determine for itself whether the benefit of having its technologies included in a specific standard is worth the tradeoff of restricting its ability to prevent others from using those technologies to implement the standard.

Most companies choose to make FRAND commitments because of the substantial benefit they get from having their patented technologies incorporated into the standard and thus converting their patents from ordinary patents to SEPs. When a standard is widely used, its technologies are widely used; and the SEP holders thus have vast commercial opportunities to license their patents, which otherwise might never be used by anyone. Wi-Fi SEP holders, for example, can collect royalties on billions of Wi-Fi chips, which are used in a variety of products, including notebook PCs, smartphones, printers, cameras, televisions, medical devices, home appliances, and a host of others.

The FRAND commitment is intended to ensure that the royalties collected by SEP holders are based on the value of the patented technology and not the value of the standard itself. As Judge Richard Posner has noted, "[t]he purpose of the FRAND requirements is to confine the patentee's royalty demand to the value conferred by the patent itself as distinct from the additional value—the hold-up value—conferred by the patent's being designated as standard-essential."[16] Without the protection afforded by FRAND commitments, SEP holders could behave in anti-competitive ways to hold-up multiple industries with excessive royalty demands, thereby undermining the entire goal of standard-setting organizations to promulgate affordable industry-wide standards.

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[16] *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 913 (N.D. Ill. June 22, 2012), *appeal pending*, Nos. 2012-1548, 2012-1549 (Fed. Cir.).

IV. The Competitive Harms Resulting from Breaches of FRAND Commitments

Both standards organizations and standard implementers have relied on commitments by standard-setting participants to license their SEPs on FRAND terms. Their reliance is entirely reasonable. Courts have held that FRAND commitments are binding contractual obligations toward every standard implementer.[17] The ability to rely on FRAND commitments has spurred large investments in standard-compliant products and has benefitted consumers greatly.

Recently, however, some SEP holders have reneged on their FRAND commitments and sought to exploit the power over locked-in implementers that they had agreed to forgo before the standard was finalized. This exercise of market power that the SEP holders had agreed to relinquish, and on which standard implementers relied in investing in standard-compliant products, has significant antitrust and public policy ramifications, as some courts and enforcement agencies have recognized.[18]

This is not an academic issue for Intel and other companies that make standard-compliant products. In some cases, these abuses are giving rise to litigation. In one recent case, for example, the royalty demanded by a SEP holder for its FRAND-encumbered Wi-Fi SEPs was 100 times the royalty level that the court ultimately determined to be reasonable.[19] In another

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[17] See, e.g., *Microsoft Corp. v. Motorola, Inc.*, 696 F.3d 872 (9th Cir. 2012).

[18] *See, e.g.*, *Broadcom Corp. v. Qualcomm Inc*., 501 F.3d 297 (3d Cir. 2007); Dell Corp., 121 FTC 616 (1996).

[19] *Microsoft Corp. v. Motorola, Inc*., No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233 (W.D. Wash., Apr. 25, 2013) (Microsoft F/RAND Rate Decision). There Motorola sought a royalty of $3.00–$4.50 per unit, *id*. at *212, but the court determined that the F/RAND rate was $0.03471 per unit, *id*. at *303.

case, the holder of only two FRAND-encumbered Wi-Fi SEPs demanded "a royalty that exceeds the selling price of [the chipmaker's] products."[20]

Intel has experienced such patent hold-ups first hand. We have had a SEP holder refuse to license us to its alleged Wi-Fi SEPs despite having made a commitment to "grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions." The SEP holder claimed that it was obligated to license only manufacturers of complete computer systems and not chipmakers like Intel—even though the patented technology was included entirely and only within the Wi-Fi chip.

The SEP holder admitted that it refused to license chipmakers so that it can extract higher royalties from downstream computer manufacturers, by basing royalties on the higher value of the end products in which the Wi-Fi chips were used. The SEP holder justified its demand for a 50-cent per unit royalty by referencing the price of PCs, which runs in the hundreds of dollars, rather than the price of the allegedly infringing chips, which sell for as little as $1-2. The SEP holder's asserted SEPs accounted for only 3% of all Wi-Fi SEPs, and testimony showed that they could have been easily replaced by other technologies at the time of the standard-setting.

The implication of this 50-cent royalty demand cannot be understated: If all other SEP holders were to follow suit, the cumulative royalty for Wi-Fi SEPs would be $16.50, or 1,650% of the price of the lowest priced Wi-Fi chips. With 250 standards in a notebook computer, the implications of a $16.50 for a single standard's SEPs are enormous. Imagine if the royalty burden for every standard was $16.50. The SEP burden on a $300 notebook computer that incorporates 250 standards would then amount to over $4,000. Even if we assume an aggregate SEP royalty burden of only a quarter of that, it would still amount to over $1,000.

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[20] *Realtek Semiconductor Corp. v. LSI Corp*., 2012 WL 4845628 at *2 (N.D. Cal. May 20, 2013).

These attempted hold-ups are publicly known because they became the subject of litigation. But many hold-ups are completed before litigation begins, often because the standard implementer cannot afford the risk of the fight. Because standard implementers are locked into a standard, SEP holders have the ability to threaten an injunction or an ITC exclusion order against a standard implementer that would effectively extract all of the profits from selling a standard-compliant product. The result often is a settlement at an inflated royalty level that reflects, not the value of the SEP, but rather the implementer's risk that it would be barred from selling its standard-compliant products. Instances of successful hold-up—where a standard implementer caves to demands for extortionate royalties because of that risk—go unreported. The financial terms of license agreements are seldom publicly disclosed.

Although companies like Intel have the financial means to defend themselves against FRAND violators, the costs of doing so are substantial, running in the millions of dollars for each case. Smaller standard implementers often do not have the resources to wage such a fight and thus are left with the choice between paying excessive royalties or ceasing to make their standard-compliant products. To make things worse, SEP holders that breach their FRAND commitments use the existence of licenses extracted from smaller entities that lack the means to challenge the SEP holders' FRAND violations as benchmarks and claim that they must charge the same extortionate rate to everyone else because FRAND requires them to license on nondiscriminatory terms.

If SEP holders are not effectively constrained by their FRAND commitments, at least some of them will continue impose a very substantial and increasing tax on the use of technologies incorporated into standards; and that will slow down or possibly even halt the longstanding pattern of ever declining prices for technology products. Manufacturers will be

forced to pass on increased royalty costs to consumers, and product innovators will face shrinking markets for their standardized products and face a far less favorable climate for making future investments in developing such products and further innovations based on them.

This is where antitrust law has an important role to play. This hold-up behavior reflects the acquisition of monopoly power by companies that had made a commitment to divest themselves of such power and that won the placement of their patented technologies within standards only by making such commitments. SEP holders that breach FRAND commitments acquire monopoly power through anticompetitive means. In effect, these SEP holders make a voluntary bargain to give up some licensing options they might otherwise have in exchange for the prospect of a vastly larger number of devices for which they can collect royalties; and, afterward, they continue to enjoy the benefits of the bargain while refusing to keep their end of the bargain. If such opportunistic behavior is allowed to continue, it is only natural to expect that the impact caused by a limited number of abusers today will expand as more SEP holders begin to employ such practices.

V. Six Solutions to Mitigate the Anticompetitive Effects of the SEP Hold-Up Problem

Breaches of FRAND commitments must be recognized for what they are: an abuse of an industry-wide collaboration by those seeking to maximize private profit at the expense of the public. Standard-setting organizations created FRAND commitments to prevent such abuses, but it falls to the courts and antitrust authorities to ensure that such commitments are vigorously enforced. There are six core elements of a FRAND commitment—elements that standard implementers have relied on and that must be enforced for the commitment to achieve its pro-competitive and innovation-enhancing purposes. These elements are:

1. A FRAND commitment is a commitment to license *everyone* who implements the standard.

A commitment to "grant a license to an unrestricted number of applicants" who wish to implement the standard means exactly that.[21] It does not mean "grant a license to computer manufacturers but not to chipmakers because I can get a larger royalty from the computer manufacturers" or "grant a license that does not allow a manufacturer to sell to *all* of its customers." As a Federal Court of Appeals has held, this language of the ITU's FRAND declaration "admits of no limitations as to who or how many applicants could receive a license" to the SEPs.[22] The same is true for formulations used by other standards organizations.

Companies breach their FRAND commitments by refusing to license companies that manufacture components that implement the standard. There is no mystery as to why some SEP holders prefer to selectively license only downstream entities in the supply chain—even though doing so requires them to seek licenses from many more entities and thus increases their licensing costs. Their selective refusals are designed to skirt the FRAND requirement of a reasonable royalty by enabling them to impose a royalty on the more expensive downstream system, such as a notebook computer, instead of the much cheaper component, such as a Wi-Fi chip, that actually practices the inventions claimed by the SEPs. Perhaps they believe that juries that wouldill reject a 50-cent royalty on a $1 chip as extortionate will fail to see its excessiveness when compared to a $700 computer.

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[21] This language, which is typical of the requirements of many standard-setting organizations, is used in the FRAND commitments of the IEEE and the International Telecommunications Union. *See* IEEE-SA Standards Board Bylaws § 6.2(b), *available at* http://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf; ITU, General Patent Statement and Licensing Declaration Form, *available at* http://www.itu.int/dms_pub/itu-t/oth/04/04/T04040000030003MSWE.docx.

[22] *Microsoft Corp. v. Motorola, Inc.*, 696 F.3d 872, 874 (9th Cir. 2012).

Refusals to license SEPs that are subject to FRAND commitments have a significant antitrust dimension. They are instruments of patent hold-up that enable SEP holders to exercise the monopoly power that they agreed to relinquish when they made their FRAND commitments.

2. The commitment to charge reasonable royalties must be enforced.

Modern technology products incorporate numerous patented technologies. Any assessment of a reasonable royalty must recognize the overall royalty burden that is inherent in the SEP holder's royalty demand. The imposition of excessive royalty burdens undermines the goal of cooperative standard-setting, which is to produce viable standards that will be widely adopted.

Before a patent is incorporated into a standard, its owner realistically can expect to obtain only a royalty that reflects the incremental value of its patent over the next best technology then available, which is often referred to as the *ex ante* value.[23] The IEEE, through which the Wi-Fi standard was developed, has stated that it requires standard-setting participants to make FRAND commitments as "part of an effort to preserve the competitive benefits of ex ante technology competition."[24] Accordingly, a royalty that reflects the competitive benefits of *ex ante* competition is all the SEP holder should be able to obtain after its patent becomes a SEP. As long as alternatives existed before the standard's adoption, as is generally the case, a SEP holder's breach of its FRAND commitment should have antitrust consequences.

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[23] *See* Joseph Farrell, John Hayes, Carl Shapiro & Theresa Sullivan, *Standard Setting, Patents, and Hold-Up*, 74 Antitrust L.J. 603 (2007); Federal Trade Commission, *The Evolving IP Marketplace: Aligning Patent Notice And Remedies With Competition*, at 194 (Mar. 7, 2011), *available a*t http://www.ftc.gov/os/2011/03/110307patentreport.pdf ("FTC Evolving IP Marketplace").

[24] Amicus Curiae Br. of the IEEE, VITA, OASIS Open, The Open Group, and PC Indus. Computer Mfrs. Group In Support of Neither Party, *Broadcom Corp. v. Qualcomm Inc.*, at 10, No. 06-4292 (3d Cir. 19 Dec. 2006).

3. Royalties may be imposed only on the basis of the smallest saleable component.

SEP holders are entitled to a royalty based only on the value of the smallest saleable component that infringes their patent, and not on the numerous other innovations that are incorporated into a larger system. When a Wi-Fi SEP holder imposes a royalty based on the value of a computer system as a whole, it is both appropriating value that is properly attributable to other components and imposing a tax on those components—the microprocessor, memory technology, storage technology (hard drive), video technology, power management technology, and numerous other technologies that reside within a computer, technologies to which its patents make no contribution.

It is only common sense that the royalty on a $1 or $2 chip that practices a set of SEPs should be calculated by reference to the price of that chip and not the $700 computer in which the chip is used. This is the position endorsed by the Federal Trade Commission, which has advocated that the royalty base should be the "smallest priceable component that incorporates the inventive feature."[25] Even outside the SEP area, the Federal Circuit has held that "in any case involving multi-component products, patentees may not calculate damages based on sales of the entire product, as opposed to the smallest salable patent-practicing unit, without showing that the demand for the entire product is attributable to the patented feature."[26]

Some holders of FRAND-encumbered SEPs nevertheless persist in demanding royalties based on the value of the final product that incorporate the component that actually uses the SEPs. By basing royalties on the final product—the product with the highest number of other patented and non-patented technologies included in it—SEP holders know they are more likely

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[25] FTC Evolving IP Marketplace at 212.

[26] *LaserDynamics, Inc. v. Quanta Computer, Inc*., 694 F.3d 51, 67 (Fed. Cir. 2012).

to obtain royalties that capture value attributable to those other technologies and not to their SEP(s). This end run around FRAND commitments is another way of improperly exercising market power that the SEP holder agreed to relinquish.

4. Holders of FRAND-encumbered SEPs may not seek or enforce injunctions or exclusion orders except in special circumstances.

SEP holders wield the threat of a judicial injunction or an International Trade Commission exclusion order to extract excessive royalties, knowing that companies threatened with the exclusion of their products from the market are more likely to succumb to unreasonable royalty demands than companies that are free to litigate the incompatibility of such demands with a FRAND commitment without facing that threat of exclusion. It is for this reason that the Justice Department's Antitrust Division and the Patent and Trademark Office have taken the position that "[a] decision maker could conclude" that use of an ITC exclusion order, which is the equivalent of an injunction for this purpose, is designed "to pressure an implementer of a standard to accept more onerous licensing terms than the patent holder would be entitled to receive consistent with the F/RAND commitment."[27] Similarly, the Federal Trade Commission has concluded that the threat of injunctions against willing licensees is incompatible with a FRAND commitment.[28]

There is no reason to allow SEP holders to wield the injunction weapon against willing licensees. A key purpose of an injunction, the prevention of copying, is wholly inapplicable in the FRAND context. The very purpose of the FRAND commitment is to facilitate the use of standards and, by necessity, the FRAND-encumbered SEPs. Moreover, by agreeing to license patents on FRAND terms, a SEP holder commits to license its SEPs to any standard implementer

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[27] DOJ/PTO Statement at 4.

[28] *See Motorola Mobility LLC*, Analysis of Proposed Consent Order to Aid Public Comment, *available at* http://ftc.gov/os/caselist/1210120/130103googlemotorolaanalysis.pdf.

who is willing to pay a FRAND-compliant royalty, and thereby acknowledges that monetary remuneration will constitute adequate compensation for its SEPs.[29] It therefore relinquishes its right to exclude willing prospective licensees from practicing its SEPs.

There may be circumstances in which seeking an injunction is appropriate. If a standard implementer is either unwilling or unable to pay a judicially-determined FRAND royalty, or is outside the court's jurisdiction such that monetary relief could not be enforced, monetary compensation may not be an adequate remedy, in which case an injunction should be available. Whenever the SEP holder is able to secure monetary compensation, however, the threat of injunctive relief serves no purpose other than to give the SEP holders leverage—market power—to extract royalties above the FRAND levels that they contractually agreed to accept.

5. Holders of FRAND-encumbered SEPs may not require prospective licensees to take licenses to patents that are not SEPs.

SEP holders and licensees will often find it in their mutual interest to enter into licenses that cover both SEPs and non-SEPs, and they should be free to do so. But SEP holders should not be permitted to *require* potential licensees to agree to a "package license" that includes non-SEPs, because such a requirement can be used to circumvent the FRAND commitment when the SEP holder demands excessive royalties for the non-SEPs. It is all too easy to demand an unreasonable 50-cent royalty on a $1 product by tying some non-SEPs to the FRAND-encumbered SEPs and then demanding a large royalty for the package license, even though the non-SEPs might have little or no value to the licensee and are included in the package principally in order to disguise excessive royalty demands for the SEPs.

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[29] *Microsoft Corp. v. Motorola Inc.*, 2012 WL 1669676, at *10 (W.D. Wash. May 14, 2012), *aff'd*, 696 F.3d 872 (9th Cir. 2012).

6. A FRAND commitment may not be circumvented by transferring a SEP.

It would seem elementary that a company that makes a FRAND commitment should not be able to avoid its contractual obligation by transferring the SEPs to another entity. If companies could circumvent the commitment so easily, they will find it profitable to do so because an acquirer of their SEPs would be all too happy to pay handsomely for the ability to exploit locked-in standard implementers by exercising monopoly power over them without the encumbrance of the FRAND commitment.

VI. Conclusion

Companies that abuse the standards process by asserting SEPs in contravention of their FRAND commitments argue that there is no need for government intervention because standard-setting organizations can handle all of the FRAND-related problems by revising their rules as necessary. This claim is wrong factually and mistaken as a matter of policy.

Standards organizations are large, industry-wide, consensus-based organizations. Their membership includes a broad cross-section of companies, including companies that profit greatly by exploiting locked-in standard implementers. In our experience, these companies will oppose any meaningful attempt to resolve alleged ambiguities in the rules that they have exploited to evade their FRAND obligations. These companies aggressively seek to thwart standard-setting organizations efforts to prevent patent holders from flouting even rules that are crystal clear, such as the requirement to license every willing implementer of the standard.

Sound public policy requires government intervention where the public interest is being harmed and private organizations and market competition cannot be counted on to solve the problem. The harm to the public from SEP abuse is not just theoretical. What is at stake is the threat of serious injury to the system of cooperative standard-setting, a system that has produced

enormous benefits to consumers and has been vital to the great innovations that the technology sector has produced in recent decades.

For this reason, it is important to require companies that make FRAND commitments to adhere to the six principles of FRAND licensing that I discussed earlier. The point of government intervention is not to displace the standard-setting organizations or to take from them their responsibility to the public. If a standards organization comes up with an effective way to solve the problem of hold-up and opportunism by SEP holders, such as by adopting different rules regarding patents or meaningful penalties for those who renege on their FRAND commitments, its solution should be welcomed, and the organization should be free to implement it, subject of course to otherwise applicable legal requirements. The purpose of government intervention is not to prevent private solutions to this serious problem. It is instead to establish a default baseline that protects the public and prevents inappropriate opportunism by SEP holders if, as experience shows is overwhelmingly likely, the standard setting organizations do not themselves solve the problem.

Intel thanks the Committee for holding today's hearing, which is an important milestone on the road to a healthier patent system that appropriately rewards and encourages innovation while preventing abuses in the standard-setting process that can create competitive harm. Intel is grateful for the opportunity to participate in this hearing.