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Comments on Topic 8: The Role of Intellectual Property and Competition Policy in Promoting Innovation

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Submitted by:
Electronic Frontier Foundation
Corynne McSherry
Alex Moss
815 Eddy St
San Francisco, CA 94109
(415) 436-9333
corynne@eff.org
alex@eff.org

The Electronic Frontier Foundation is the leading nonprofit organization defending civil liberties in the digital world. Founded in 1990, EFF champions user privacy, free expression, and innovation through impact litigation, policy analysis, grassroots activism, and technology development. We work to ensure that rights and freedoms are enhanced and protected as our use of technology grows. EFF represents over 40,000 dues-paying members, including consumers, hobbyists, artists, computer programmers, entrepreneurs, students, teachers, and researchers.

Increasing market concentration and structural barriers to competition for Internet-related businesses threaten the values of free expression, privacy, and the innovation that has made the Internet a powerful force in daily life. It is imperative that policymakers and industry address competition issues actively and thoughtfully, avoiding approaches that will themselves harm the rights and freedoms of Internet users, or impede innovation.

Thoughtful, balanced approaches to patent and copyright policy are vital to advancing all of the societal values that digital technology should embody. The FTC has an important role to play in ensuring that intellectual property rights are enforced and licensed in ways that promote innovation, including by creating incentives and opportunities for access to emerging markets and technologies. Too often, the core principles of intellectual property and antitrust are depicted as inherently in tension. In fact, both areas of law serve the same goal of promoting innovation and thus economic growth and consumer welfare. The FTC's vigilant enforcement of antitrust laws, including against abuses of intellectual property rights, is crucial to ensuring those goals are served. Otherwise, the power to exclude—the power that patents and copyrights confer—will be misused in ways that imperil what they exist to ensure: the future of innovation in this country.

These comments address several ways in which intellectual property laws and related uses of contract law act to inhibit competition and innovation: the assertion of patents that cover essential aspects of standards, the abuse of licensing terms attached to copyrighted software and other digital products, Section 1201 of the Digital Millennium Copyright Act, and expansive applications of copyright law to software.

A. Antitrust Enforcement Regarding Standards-Essential Patents

EFF wishes to emphasize the potential for harmful business conduct, and thus the need for vigilant and active FTC enforcement of antitrust laws, in connection with intellectual property rights covering technology essential to industry standards. Standards are industry conventions that allow for compatibility and interoperability between different suppliers' products and services. For example, the protocols that allow users to communicate over the Internet are standards. Because of the interoperability these standards allow, more people can communicate with each other than at any time in history.

Because standards facilitate interoperability, they enhance competition, innovation, and consumer choice. Companies don't need to compete over their ability to implement a standard because the same information is available to all who wish to implement the standard, allowing them all to achieve the same level of technical efficiency through implementation. This removes barriers to entry for new implementers, thus ensuring that consumers' preferences on other features drives market behavior, which in turn promotes new developments and further innovation.

At the same time, the power that comes from standardization creates the possibility for abuse when combined with the power to exclude that comes from patents. Standards-essential patents (or "SEPs") are patents that cover technically or commercially necessary ("essential") aspects of an industry standard. SEP owners are thus able to charge anyone who makes, sells, or uses a standards-compliant device with infringement on the ground that these activities practice the standard and thus necessarily infringe the SEPs relevant to that standard. Small businesses are particularly vulnerable to these charges because of the exorbitant costs of mounting a successful litigation defense, especially when the infringement charges implicate a huge number of patents because so many are considered "essential" to the standard.

EFF urges the FTC to undertake active and vigilant enforcement efforts to prevent and minimize the harm from of abusive business practices involving standards-essential patents.

1. Standard Setting and RAND Obligations

Standard setting is crucial for innovation in the networked world. The Internet, as a network of networks operated by many thousands of entities, could not exist without standards. There is, nonetheless, the potential for harm to occur as a result of the standard-setting process because it requires a high degree of cooperation and collaboration between industry participants who generally compete with each other in downstream markets.

Standard-setting organizations ("SSOs") have the ability to mitigate these harms by imposing requirements on those participating in the standard-setting process. Importantly, SSOs generally require participants to commit to licensing any SEPs on terms that are fair, reasonable

and non-discriminatory ("FRAND" or "RAND" obligations). Because RAND obligations commit SEP owners to making their patents available to licensees, they prevent them from using the right to exclude that they would otherwise have. RAND obligations ensure market access to third parties, including competitors of those directly involved in standard-setting processes.

EFF urges the FTC to recognize the benefits of standard-setting processes to innovation, but also to ensure obligations are imposed on licensors that require the standardized technologies to be accessible to all implementers at fair, reasonable, and non-discriminatory rates vis a vis similarly-situated licensees.

2. SEP Pooling Arrangements

Industry standards are often highly complex and multifaceted, incorporating many distinct technologies that implicate hundreds or thousands of individual patents. For both licensor and licensee, the time and money it would take to negotiate individual licenses is prohibitive. SEPs are thus often licensed together with one entity or administrator licensing many different rightsholders' SEPs. Bundled licenses for SEPs are pro-innovation to the extent that these licenses reduce transaction costs while providing certainty and freedom to operate.

These bundles also create the potential for substantial harm because of the power that SEP owners have once the relevant standard has been adopted. Consumers and suppliers can find themselves effectively "locked in" to a particular standard, and thus to the SEPs it implicates.

Pool licenses may harm innovation and competition alike if they include SEPs relevant to different standards that compete against each other for adoption. In that case, having the same entity or entities license both sets of SEPs could harm innovation by favoring one standard over the other for reasons that have nothing to do with technology, functionality, or consumer choice. While SEP pool licenses should be considered potentially beneficial, the FTC should ensure that pool licenses are limited to SEPs relevant to a particular standard or to standards that complete rather than compete against each other.

As a corollary, pool licenses also give rightsholders the ability to distort downstream product markets, where they may compete with other implementers who were not involved in the standard-setting process, and who possess no SEPs. Implementers must not be disadvantaged by their direct competitors through control of SEPs. Pool licensing activities that have the intent or effect of disadvantaging rivals of pool licensors (or their privies) should be viewed as anticompetitive and harmful to innovation.

EFF urges the FTC to recognize the benefits of pool SEP licenses as well as the potential for harm from the pooling of SEPs relevant to competing standards or extraction of unfair advantages in downstream product markets.

3. SEP Licensing and Licensee Obligations

Whether or not SEPs are licensed together as a package, SEP licenses can include terms that distort markets and corrode the benefits that flow from standardization. As discussed above, RAND obligations are crucial to ensuring that standards which implicate SEPs are accessible to

similarly situated implementers regardless of involvement in SSOs. Unfortunately, it is difficult, if not impossible, to determine *ex ante* during the process of standard-setting what reasonable and non-discriminatory rates will be once the standard is actually put to use and adopted by the market. As such, licensors and licensees are often left to negotiate for themselves what the obligation will actually require, and to do so after the lock-in effects of standardization have set in.

Recently, courts have begun to give teeth to RAND obligations in judicial decisions assessing licensors' fidelity with their RAND obligations and determining in numerical terms what RAND rates should be.[1] However, undertaking such defensive litigation is extremely expensive, time-consuming, and uncertain. As a result, companies without deep pockets may face practical constraints that limit their ability to challenge offers for SEP licenses as violating the licensor's RAND obligations.

One of the most effective ways to ensure that SEP licenses qualify as RAND is by disclosing the terms of those licenses, at least with respect to non-proprietary information such as the duration of the license and royalty rate or lump sum which the licensee has paid. Transparency for those license terms will help give implementers the information necessary to determine if the offer provided to them is actually reasonable and non-discriminatory in comparison to the license terms of similarly-situated implementers of the standard.

The FTC should also ensure that SEP licensors, whether acting alone or in concert, make clear to licensees which patents are included in a license and which aspects of the standard those patents cover. That way, licensees can assess meaningfully whether an SEP license offer is reasonable and non-discriminatory based on the value of the patented technology rather than the standard into which suppliers and consumers have already been locked in. This approach also promotes innovation by ensuring developers have the information they need to, if possible, design around existing patents to make new technological advances.

Despite the importance of transparency, many SEP licensors choose to keep their license terms secret, and conceal any disputes that arise over their rights by requiring binding arbitration. As a result, the public has far too little knowledge as to the actual terms of SEP licenses. EFF is particularly concerned that these licenses include terms that are harmful to innovation and abusive of the powers the federal patent grant confers. For example, licenses may impose draconian penalties on licensees who challenge the substantive patentability of the SEPs included in the license—or provide assistance to challenges that others raise. The FTC should view such terms as antithetical to innovation, competition, and the First Amendment's guarantee of access to the courts. Patent owners must not be able to use their power to exclude people from using of an industry standard to silence those who wish to challenge the substantive merits of SEPs relevant

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[1] *See, e.g., TCL Commc'n Tech. Holdings, Ltd. v. Telefonaktiebolaget LM Ericsson*, No. CV 15-2370 JVS(DFMX), 2017 WL 6611635, at *49 (C.D. Cal. Dec. 21, 2017); *In re Innovatio IP Ventures, LLC Patent Litig.*, No. 11 C 9308, 2013 WL 5593609, at *2 (N.D. Ill. Oct. 3, 2013); *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 2111217, at *37 (W.D. Wash. Apr. 25, 2013).

to that standard. When weak patents are permitted to stand, the result is a tax on the kind of innovation and productivity that is necessary for continued technological and economic growth.

B. Abuse of License Agreements and Terms of Service on Digital Goods

While the Commission is rightly concerned with the effect of patents on competition, given the nature of online expression and commerce, the Commission should be equally if not more concerned with another IP doctrine: copyright. Copyrighted content, including software, is generally licensed, and those licenses can come with onerous terms. Traditionally, once a person has purchased a product, she is free to use it however she sees fit without oversight or control from the copyright owner. Purchasers have also been free to use competitors' add-on software and hardware that interoperate with the goods they buy, because innovators have been able to develop and distribute such technologies.

That expectation is upended when it comes to products that come with embedded software, from tractors[2] to refrigerators to toasters[3] and children's toys.[4] That software is supposed to make our stuff smarter, but it also makes our stuff not really ours. We own the hardware, but we only *license* the software in it. And those licensing agreements not only limit consumers ability to repair, test, and reuse consumer products, they also inhibit add-on innovation.

Those limits generally take two forms. First, they force customers to waive statutory rights like fair use, the right to reverse engineer (to understand non-copyrightable elements or to create interoperable software and hardware); to perform security or other research[5] involving the software; or to perform otherwise lawful acts of circumvention,[6] such as device jailbreaking. Second, they impose conditions on use of the product, including forbidding use of "unauthorized" hardware or software[7] in conjunction with the device (such as third-party replacement parts for repair, competing peripherals, or privacy-protecting software on mobile phones).

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[2] *See* Kit Walsh, "John Deere Really Doesn't Want You to Own That Tractor", EFF Deeplinks (December 20, 2016), https://www.eff.org/deeplinks/2016/12/john-deere-really-doesnt-want-you-own-tractor.

[3] *See* Violet Blue, "That time your toaster broke the internet", Engadget, (October 28, 2016) https://www.engadget.com/2016/10/28/that-time-your-smart-toaster-broke-the-internet/.

[4] *See* Cory Doctorow, "The latest generation of chatbot toys listen to your kids 24/7 and send their speech to a military contractor", boingboing (December 7, 2016), https://boingboing.net/2016/12/07/the-latest-generation-of-chatb.html.

[5] *See* Cory Doctorow, "Oracle's CSO demands an end to customers checking Oracle products for defects", boingboing (August 11, 2015), https://boingboing.net/2015/08/11/oracles-cso-demands-an-end-t.html.

[6] *See* PLAYSTATION®4 SYSTEM SOFTWARE LICENSE AGREEMENT (Version 2.0), https://doc.dl.playstation.net/doc/ps4-eula/ps4_eula_en.html.

[7] *See* "Microsoft's EULA Allows Them to Disable Pirated Games", GameRant, https://gamerant.com/microsoft-pirate-game-disable-110/.

Users who violate these terms can find themselves threatened with a copyright lawsuit, but that is relatively rare. A more common tactic is to threaten third parties who want to offer add-on products or services (including repair) that might conflict with the EULA terms.

C. Section 1201 of the Digital Millennium Copyright Act

Section 1201 of the Digital Millennium Copyright Act was ostensibly intended to stop copyright infringers from defeating anti-piracy protections added to copyrighted works. In practice, however, the anti-circumvention provisions have been used to stifle a wide array of legitimate activities.

Traditionally, once a consumer has purchased a product, she has been free to use it however she sees fit. Legitimate consumers of electronic goods have been free to customize their products to better fit their needs; just as car enthusiasts might wish to soup up their engines, consumers may wish to write their own software for their robot pet, install a larger hard drive on their computer, etc. Consumers have also traditionally been free to choose competitive add-on or alternative technologies that interoperate with the goods they buy, because innovators were able to develop and distribute such technologies. But in its current form, the DMCA threatens those freedoms.

The anti-competitive effect of Section 1201 became evident early on with respect to DVDs. The encryption on DVDs was broken almost immediately, as were updated versions. Yet movie studios continued to embrace encryption, using it on every commercial DVD release. Why? One reason is that the movie studios (acting through their agent, the DVD Copy Control Association) could force innovators to sign a license agreement for that encryption software before they built anything that could decrypt a DVD. That, in turn, gave the movie studios unprecedented power to influence the pace and nature of innovation in the world of DVDs. Any new feature (like copying to a hard drive) had to get approved by the 3-way "inter-industry" negotiation (movie studios, incumbent consumer electronics companies, and major computer manufacturers) that is DVD-CCA. In other words, businesses had to get permission (from their adversaries and competitors!) before they could innovate. If these systems had been in place earlier, there would never have been a Betamax videocassette recorder, much less an iPod.

But the problem did not stop with DVD technologies. Most modern durable goods—including household appliances, power tools, calculators, cameras, stereos, printer cartridges, garage door openers, as well as video game controllers, headsets, and memory cards—contain some element of copyrightable software code. In order for replacement parts and compatible accessories to function, they must "access" the code inside. If unauthorized access amounts to circumvention of an access control and is therefore prohibited, the manufacturer can use the DMCA to assert exclusive control over the market for those goods.

The detrimental effects on consumers are well documented. For instance, cell phone manufacturers sell phones equipped with technological protection measures that lock consumers to a particular service provider, forcing them to pay artificially inflated service charges and crippling the market for used phones. According to the claims of major U.S. wireless carriers, unlocking a phone without your carrier's permission violates the DMCA. But a prohibition on unlocking has nothing to do with preventing infringement. Camera makers have similarly installed

technological protection measures that render pictures unreadable in competitors' photo-editing programs, preventing consumers from editing their own photographs with their preferred software.

Similarly, Apple uses technical measures backed by the DMCA to lock iPhone owners into obtaining software ("apps") exclusively from Apple's own iTunes App Store, where Apple must approve every app and retains 30% of revenues generated by app sales. This business practice had significant consequences for both competition and speech, as Apple regularly rejects apps that might compete with Apple's own offerings or that are deemed "potentially offensive."

Responding to intensive efforts, the Librarian of Congress granted an exemption allowing iPhone users to "jailbreak" their phones and install "unapproved" apps, but that exemption is narrow, temporary, and contingent on the Librarian's willingness to renew it every three years.

And that's just the beginning. The DMCA has been used to block aftermarket competition in laser printer toner cartridges, garage door openers, videogame console accessories, and computer maintenance services. For example, StorageTek sells data storage hardware to large enterprise clients. It also sells maintenance services for its products. Custom Hardware is an independent business that repairs StorageTek hardware. In an effort to eliminate this competitor in the maintenance services market, StorageTek sued under the DMCA, arguing that Custom Hardware had circumvented certain passwords designed to block independent service providers from using maintenance software included in the StorageTek hardware systems. In other words, StorageTek was using the DMCA to ensure that its customers had only one place to turn for repair services.

The infamous Lexmark litigation is another case-in-point. Lexmark, the second-largest laser printer maker in the U.S., added authentication routines between its printers and cartridges explicitly to hinder aftermarket toner vendors. Static Control Components (SCC) reverse-engineered these measures and sold "Smartek" chips that enabled refilled cartridges to work in Lexmark printers. Lexmark then used the DMCA to obtain an injunction banning SCC from selling its chips to cartridge remanufacturers. SCC ultimately succeeded in getting the injunction overturned, but only after nineteen months of expensive litigation while its product was held off the market. The litigation alone sent a chilling message to those in the secondary market for Lexmark cartridges.

More recently, Microsoft used the DMCA to try to shut down competition for gaming accessories. Datel, Inc. produces third-party accessories for every major videogame console, including Microsoft's Xbox 360. As with all third-party manufacturers, Datel must engineer its accessories so that they will be compatible with the customer's console; this frequently requires reverse engineering or other work-arounds. In 2009, Microsoft issued a mandatory firmware update for all Xbox 360 consoles connected to the Internet. This update had no effect on Microsoft's own memory cards, but rendered Datel's less expensive memory cards completely unusable. When Datel sued Microsoft for antitrust violations, Microsoft counterclaimed by accusing Datel of violating the DMCA. In a nutshell, Microsoft forced consumers to purchase its own memory cards and then used the DMCA to attack legitimate competitors.

Moreover, manufacturers of ordinary consumer products have sought to extend the DMCA to police any consumer behavior or innovation that is contrary to their preferences. For example,

calculator manufacturers have brought circumvention claims against hobbyists who reverse-engineered their personal graphing calculators to develop alternative operating systems for personal use.

D. Expansions of Copyright Scope in Software

In recent years, technology companies have sought to expand copyright to cover functional software elements and data formats that are needed to create interoperable products.

The most prominent recent example is the Federal Circuit's mistaken decision in *Oracle v. Google*. For decades, computer scientists have relied on the open nature of application programming interfaces (APIs) to enable rapid innovation in computer technology. For decades, circuit courts have supported that reliance, concluding that Section 102(b) of the Copyright Act protects a programmer's source code as creative expression, but does not cover the processes, systems, and methods of operation that code may employ to interface with other software. The district court correctly followed that precedent and rejected Oracle's claim that the Java APIs could be copyrightable. Sadly, the Federal Circuit chose to split with the other circuits and reverse the district court. That decision upended decades of industry practice and threatens the basic principles upon which our technology sector was built.

Compounding the problem, a second decision by the Federal Circuit in the same case held that Google's use of the Java APIs were not fair use, again breaking with precedent from other circuits and overruling a jury determination on a highly fact-specific issue.

Not surprisingly, these Federal Circuit decisions have been harshly criticized. As many commentators have noted, if the Federal Circuit view had been accepted at the birth of modern computing, many important technologies would never have entered the market. For example, the widespread availability of diverse, cheap, and customizable personal computers owes its existence to the lack of copyright on the specification for IBM's Basic Input/Output System (BIOS) for the PC. And open APIs were essential to many modern computing developments, including those of operating systems such as UNIX, programming languages such as C, the Internet's network protocols, and cloud computing.

When programmers can freely reimplement or reverse engineer an API without obtaining a costly license or risking a lawsuit, they can create compatible software that the interface's original creator might never have envisioned or had the resources to develop. Moreover, compatible APIs enable people to switch platforms and services freely, and to find software that meets their needs regardless of what browser or operating system they use. Without the compatibility enabled by the open nature of APIs, consumers could be forced to leave their data and programs behind when they switch to a new service.

The freedom to reimplement APIs also helps developers rescue "orphan" software or data—systems that are no longer supported by their creators. When a popular computer platform or service shuts down, the ability to freely reimplement APIs protects the communities that rely on that software. Government entities and nonprofits are especially susceptible to the orphan programs problem as they often cannot afford to upgrade and are left using legacy technologies for years or decades.

Thus, the Federal Circuit's decision poses a significant threat to the technology sector and to the public. Thanks to that decision, API creators may have veto rights over any developer who wants to create a compatible program—regardless of whether she copies any literal code from the original API implementation.

But the problem is not confined to APIs. Creating drop-down menus that use a similar layout for commands was the subject of copyright litigation (lotus), as was the functional input and output behavior of its interpreter/compiler (SAS) and a standardized collection of software commands (Cisco). And these examples reflect only the pool of technologies that reached actual litigation. The number of technologies threatened with litigation, or chilled out of existence, is far greater.

CONCLUSION

EFF appreciates the Commission's efforts to consider competition policy holistically. Intellectual property laws, along with contract enforcement for digital goods, have an undeniable impact on competition. Future policy recommendations and enforcement actions should account for this impact.