

Seth D. Greenstein Responses to Questions from Sept. 23, 2020 DMCA Hearing

Thank you for the opportunity to address your specific concerns. As I noted in my written and oral testimony, the views presented are my own, but are informed by my experience over the last 22 years representing both entities that have benefited from the proper application of Section 1201 and entities that have been unfairly subject to lawsuits and threats of suit based on lawful conduct with legitimate non-infringing purposes.

Responses to Senator Tillis

1. The Copyright Office did not propose altering the basic framework of section 1201 but made numerous recommendations to improve it. Do you agree with the Copyright Office's conclusion that the basic structure of section 1201 has worked well and should be retained? What has been the greatest success of section 1201? What has been the biggest downside?

Response: Section 1201's basic structure reflects Congress' decision not to tie circumvention liability to infringing conduct. As I point out in my written testimony, that nexus was not required by the WIPO Copyright or Performances and Phonograms Treaties. But that decision has led to anomalous results, including attempts by equipment manufacturers to protect business models rather than copyrighted works; and to the current Triennial Process to provide relief for certain (but not all) non-infringing uses.

Given Congress' choice, Section 1201 has largely succeeded in protecting what Congress intended to be protected, and in stimulating, through the availability of legal protection for technological measures, the public performance and distribution of copyrighted works in digital form. The initial release of motion pictures on optical disc formats and the subsequent trend toward online streaming audio and audiovisual services owe a great deal to Section 1201.

The greatest casualties of Congress' decision, however, have fallen upon the public interest. Conduct that would benefit the public without harming the rights of copyright owners has been prohibited both directly and indirectly. The direct harm is obvious—circumvention for non-infringing purposes is nonetheless prohibited. But the resulting indirect harms are equally clear, and just as pernicious. Consumers (including individuals, educators, libraries, not-for-profit institutions, and small businesses) cannot exercise their fair use rights when needed. They must find a champion to participate in the Triennial Review process, and wait for the Librarian's decision in hopes it meets their needs. At times, this process has provided only partial relief; and by the time the decision issues, the users' needs may have changed such that the requested exemption may no longer be adequate. Moreover, as I will address in answers below, even the granted exemption is meaningless without access to the means to circumvent.

2. Fair use is not a defense to an act of circumvention in violation of section 1201, but the statute has mechanisms for allowing certain acts of circumvention, including several permanent exemptions. Do you think the statute currently has the right permanent exemptions – both in terms of the categories and their scope? Would you like to see any new permanent exemptions?

Response: As noted in my written testimony, Section 1201 unintentionally has prohibited and inhibited competition for the provision of services that would enable otherwise lawful diagnosis, repair, and modification of software-enabled products, and for the development, manufacture, and sale of replacement of software-enabled parts. In the absence of Section 1201, these activities would be considered lawful under common law, and patent and copyright law. During the last several Triennial Reviews, the Register granted exemptions for some repair services, and these exemptions received no serious opposition under the streamlined process.

At the September 23 Subcommittee hearing, both Ms. Bailey (representing Intel) and I suggested that Congress could give the Register the authority to make permanent any exemption that has been granted in two Triennial proceedings. That authority would ameliorate some of the adverse effects of Section 1201(a)(1) on the public interest, and could provide a more flexible solution than a fixed statutory exemption.

Alternatively, Congress could itself adopt a statutory exemption for repairs. If Congress determines to enact statutory exemptions, Congress should also clarify that the Librarian retains the ability to expand the exemption in the Triennial Review process so as to address further marketplace developments. This alternative would avoid the need for Congress to continually revisit the scope of exemptions by statutory amendment.

Whether adopted by Congress directly or by granting authority to the Librarian, an exemption for repairs would correct an unintended and unfair consequence of the DMCA. And it would inject a symmetrical note of fairness into the process: just as copyright owners wanted clarity as to what was to be proscribed as unlawful circumvention, the public interest in competition deserves clarity that ordinary repair activities are not subject to liability under Section 1201.

3. *How has the triennial rulemaking conducted by the Copyright Office and adopted by the Librarian of Congress benefited the public? How would a more streamlined process help?*

Response: The Triennial Review has alleviated some of the harms caused by Section 1201(a), but its effects have been limited by both concerns with the rulemaking process and with the limitations of Section 1201(a) itself. The Librarian's initial rulings were narrow and timid in scope, still tipping the balance in favor of anticircumvention liability rather than noninfringing uses. With time and experience, and with no evidence of harm to copyright owners from previously-granted exemptions, the rulemaking process has made room for additional noninfringing uses. Nevertheless, given that the process occurs every three years, that not every noninfringing use is applied for or exempted, and that most exemption beneficiaries lack access to the means of circumvention, the Triennial Rulemaking does not protect all noninfringing uses the way that a nexus to infringement would have done.

The streamlining procedures adopted by the Librarian have already reduced some of the costs and burdens of the process—in particular, the ability to renew existing exemptions where no opposition exists. Yet some cumbersome elements remain. Not all persons entitled to an exemption know the Triennial Rulemaking process exists. And if they do, the road for individuals not skilled in the DMCA or administrative law is challenging to navigate. Typically,

those who seek exemptions have to rely on others—such as public interest groups and law school clinics—to do the necessary legal and leg work.

As I suggested above and in my written testimony, granting the Librarian the authority to adopt permanent exemptions would help reduce the amount of work required, and would preserve stakeholder resources for new and expanded exemptions.

4. *Section 1201 does not permit third-party assistance for circumvention, even where circumvention is allowed. What are your thoughts on when third-party assistance should be permitted?*

Response: An exemption without the means to circumvent is an empty promise. Technological protection measures can be extremely sophisticated, requiring a high level of skill to identify, understand, and circumvent. In fact, they become increasingly complex in a cat-and-mouse game, as technologists seek to stay one step ahead of learned circumvention methods¹ As a consequence, while exemptions theoretically grant a right of circumvention to classes of persons and uses, *it is generally impossible for most exemption beneficiaries to exercise those rights themselves.*

The Copyright Office recognized this dilemma, and adopted a partial workaround by interpreting “persons who are *users* of a copyrighted work” in Section 1201(a)(1)(B) to include persons beyond owners or licensees. While this interpretation is clearly correct and consistent with congressional intent, it does not solve the problem at the heart of the dilemma: the lack of access to the means that make circumvention, and therefore the exemption, possible.

Certain exemptions have been made useful only because beneficiaries found online the software tools to circumvent, and copyright owners have tolerated this outcome, without any assurance they would continue to do so. While this has been moderately effective for certain types of TPMs (e.g., TPMs applied to a class of works or TPMs where there exists a sufficient market or strong sympathy for the users), reliance on unauthorized and often foreign sources of circumvention tools is a precarious and unreliable option inconsistent with sound copyright policy choices.

Moreover, this solution admittedly denies relief to tens of millions of beneficiaries entitled to exemptions. To give one example:

Most Americans prefer to take their car repairs to their local neighborhood repair shops rather than the more expensive and often less accessible dealerships. As Mr. Lowe (representing AutoCare Association) testified, cars are essentially computers on wheels, with hundreds of electronic modules embedded with software that controls functions for different makes and

¹ See HP Customer Support Knowledge Base, <https://support.hp.com/us-en/document/c02632486> (last visited Oct. 7, 2020); see also Cory Doctorow, HP once again caught sneaking code into printers to reject third-party ink, [boingboing.net](https://boingboing.net/2017/09/14/repeat-offenders.html) (Sept. 14, 2017), <https://boingboing.net/2017/09/14/repeat-offenders.html>. Brother Int'l. Corp. similarly updates printer firmware to lock out competitor cartridges. The Recycler, New Firmware updates affect aftermarket cartridges (Mar. 27, 2019), <https://www.therecycler.com/posts/new-firmware-updates-affect-aftermarket-cartridges/>.

individual models of vehicles. Many of these modules are protected by TPMs that prevent installation of replacement parts without circumvention—even merely re-loading the vehicle software that came with the repaired or replaced part.

Few local repair facilities have on-staff cryptography experts to circumvent the TPMs, and no expert manufacturing facilities and programmers capable of making the replacement parts or software, for the hundreds of make and model vehicles they repair. But if someone else made the part and provided installation instructions, those local repair shops are every bit as capable and substantially less expensive than the dealership.

Thus, the businesses that do make those replacement parts need the ability as a matter of law to circumvent the TPMs to make the replacement parts, to sell the parts to repair services, reload the software as necessary, and potentially to instruct the local repair shop how to circumvent TPMs in order to install the part and complete the repairs. But Section 1201 prevents those businesses from making these repairs and parts. Instead, local repair shops either must buy higher-priced replacement parts from the dealership, or send the customer to the dealership for the parts and repairs.

To solve this problem, the public beneficiaries of repair-based exemptions need an additional permanent exemption for the manufacture and distribution of circumvention tools and services. I address this need at pages 15-17 of my written testimony. There, I suggested that Congress adopt a limited permanent exemption to support repair exemptions granted by the Librarian or Congress, as follows:

Section 1201(a)(2) and (b) shall not preclude the manufacture, importation, offer, provision, or trafficking in a technology, product, service, device, component, or part thereof, with respect to its use to circumvent a technological measure in support of an exemption granted by statute or pursuant to Section 1201(a)(1)(D) for the purpose of enabling diagnosis, maintenance, repair, replacement or lawful modification of parts of products whose functions are controlled by embedded software.

This provision would benefit the public and small business, without diminishing the protections available to the intended targets of Section 1201. In that regard, as I noted in my testimony, this provision will not disturb the application of Section 1201 for the types of copyrighted works the DMCA intended to protect, since the tools to circumvent TPMs to repair the functions of physical products will not interfere with TPMs used to protect motion pictures, television programming, music, application or operating system software, and the other types of creative works that Section 1201 was designed to protect.

5. *You litigated the Lexmark v. Static Control Components case. Have we continued to see 1201 lawsuits like Lexmark, where the court found that the technological protection measure did not protect a copyrighted work? How much of a concern are they for consumers?*

Response: My written testimony at pp. 10-11 lists several suits where manufacturers and software developers continued to assert Section 1201, post-*Lexmark*, to protect non-

copyrightable material in a variety of commercial contexts—auto parts, marine engines, software, financial services, and ticket sales. It similarly identifies instances involving application of TPMs, and in some cases threats of Section 1201 liability, over tractors, inkjet printer cartridges, medical devices, and coffee makers.

These abuses of Section 1201 and TPMs typically target lower-priced competition for repair services, repair parts, and consumable supplies, costing consumers hundreds of millions of dollars annually in unnecessary supracompetitive overcharges. Moreover, these abuses can deny consumers the benefits of innovation. Many replacement parts are not only less expensive than the OEM parts; they are better, and include new or improved functionality. For example, the Static Control “All Page” replacement cartridges increase the number of pages printed from a toner cartridge by 15-30% (*see* <https://www.scc-inc.com/allpage/index.html>); and its chips improve the quality of print as the cartridge nears empty. Replacement vehicle and aircraft parts can be more robust and reliable than the original OEM parts. Upgraded software often can better tune engine performance to improve performance and reduce emissions. As one farmer wrote, in a declaration supporting a 2018 repair petition:

I replaced the software on my 2630 John Deere monitor with a competitor’s brand SMS. The new software is superior to John Deere’s APEX as it has less problems while allowing me to run regression analysis on variables collected in the harvest, planting and soil data. In this data-driven era, correlation of variables are used to reduce costs and increase yield while producing more with less inputs.

See Initial Comments of the American Farm Bureau Federation, National Corn Growers Association, and National Farmers Union in the last Triennial Rulemaking proceeding, <https://cdn.loc.gov/copyright/1201/2018/comments-121817/class7/class-07-initialcomments-afbf-ncga-nfu.pdf>, at p. 14.

The threat of lawsuits poses greater concerns for consumers than lawsuits do. Consumers are unlikely to be sued for circumvention as a practical and political matter, but they generally must rely on others to perform the necessary circumventions and repairs. Accordingly, any business considering investing in repair services and parts manufacture must first assess its resilience against cease and desist letters and the threat of litigation.

Few businesses have the backbone and wherewithal to defend against Section 1201 claims. As I noted in my testimony at pp. 18-20, *even the threat* of litigation disrupts market competition and secures the OEM a monopoly. Claims under the DMCA and for copyright infringement) carry stiff remedies: elimination from the market by preliminary and permanent injunction, and statutory damages liability of \$2500 per device or repair (under § 1203) and up to \$150,000 per work (under § 504). To defeat these claims, the repair or manufacturing facility needs to spend hundreds of thousands of dollars on discovery, summary judgment, trial or appeal—often more than the profits from these repairs could justify. Many businesses considering these potential outcomes simply decide not to enter the market at all.

Thus, even though the OEM would lose in court, it still wins in the market by abusing Section 1201.

Accordingly, Congress should consider putting teeth behind this concern for DMCA abuse, by making the “Actual damages” provision of Section 1201 reciprocal. That would provide legitimate competitors with compensation for losses unjustly inflicted upon them by the improper invocation of Section 1201(a) to stifle competition rather than to protect copyrighted works.

Responses to Senator Blumenthal

1. In creating Section 1201’s anti-circumvention measures, Congress recognized the need for exemptions. For example, Congress codified permanent exemptions to allow reverse engineering for the purposes of achieving interoperability of computer programs, and to allow for encryption research. Congress also acknowledged that the need for exemptions may evolve, and tasked the Library of Congress with granting temporary exemptions in accordance with the triennial rulemaking process proscribed in the statute.

a. Has the triennial rulemaking process proven to be an effective mechanism for dealing with the new and developing impacts Section 1201 is having on consumers, particularly as it relates to the expansion of the Internet of Things?

Response: The Triennial Review process provides an incomplete response to consumer needs. As noted in response to question b below, there are structural and practical limitations on the process that impede consumer input and access to the rulemaking process.

The Librarian’s initial rulings were narrow and timid in scope, with the balance still tipping in favor of anticircumvention rather than noninfringing uses. With time and experience, and with no evidence of harm to copyright owners from previously-granted exemptions, the Librarian’s rulings have achieved a better balance with consumer rights.

At the heart of your question lies recognition that Congress did not intend Section 1201 to prevent technological innovation or to preclude the public from engaging in the types of activities they have always had the right to do with respect to the products they own—including repairing and upgrading their property. These rights always have been guaranteed to consumers under common law, patent law, and copyright law. They should not be taken away through the back door of anticircumvention legislation.

The Register’s 2016 Report on Software-Enabled Consumer Products recognized the importance of exemptions for circumvention of TPMs to repair or upgrade the products consumers own, and the Librarian has continued to grant exemptions for certain repair conduct but not others. For example, under prior Rulemakings, it is permissible to repair your car or tractor, but not a broken video game player. These incursions on consumer rights will only become exacerbated as software integration into ordinary consumer products progresses from commonplace to ubiquitous in the Internet of Things.

To promote innovation and to protect consumer rights with respect to products whose functions are controlled by embedded software, Congress should adopt both an exemption to circumvention undertaken for the purpose of diagnosis, repair, replacement, modification, and

upgrade of such products; *and* an exemption to Section 1201(a)(2) and (b) for the manufacture and distribution of means that would enable such circumvention and repair. As I stated in my oral and written testimony, such an exemption would not threaten the integrity of Section 1201 with respect to other types of software or copyrighted works, since the tools to circumvent TPMs on an automobile will not circumvent TPMs that protect the types of works that Congress intended to protect (e.g., audio and audiovisual works and software applications delivered via optical discs or online and streaming services).

b. Is the rulemaking process accessible to those who have a need for an exemption? What hurdles might the current process pose to particular parties seeking an exemption, including consumers seeking to repair or otherwise legitimately use a product?

Response: The process itself has several limitations that do not fully serve the public interest. First, the Librarian's rulemaking occurs every three years, so does little to alleviate the impact on noninfringing public uses in the interim term. Second, the procedure is not readily available to all who have been harmed by Section 1201(a). Typically, petitioners need assistance from legal clinics and public interest groups who can research the necessary underlying facts to support the petition, and who understand the procedures involved, the underlying legal requirements, and prior decisions by the Librarian that indicate how and whether a petition may succeed. Considerable time and expense are involved. Ultimately, given that not every noninfringing use is applied for or exempted, the Triennial Rulemaking does not protect all noninfringing uses the way that a nexus to infringement would have done.

The streamlining procedures adopted by the Librarian have already reduced some of the costs and burdens of the process—in particular, the ability to renew existing exemptions where no opposition exists. But as I suggested in my written testimony, granting the Librarian the authority to adopt permanent exemptions would help reduce the amount of work required, and would preserve stakeholder resources for new and expanded exemptions.

Responses to Senator Grassley

1. Section 1201's prohibition on circumvention has several permanent exemptions set out in the statute. How well have these worked over the past 22 years? Do you believe that there should be fewer or more exemptions to Section 1201? What are they?

Response: The permanent statutory exemptions adopted by Congress in 1998 (and thereafter by the Unlocking Consumer Choice and Wireless Competition Act) established a baseline for exemptions. Each was designed with certain restrictions that reduced their utility. Over time, petitioners have sought to expand beyond the literal statutory exemption through the Triennial Rulemaking process, and in recent years have been more successful in restoring some measure of balance to an inherently skewed statutory scheme. Therefore, it would be helpful for Congress to clarify for the Librarian and the public interest that affected persons can petition in the Triennial Rulemaking process to expand the contours of a statutory exemption to conform to current and anticipated technological and marketplace conditions.

Almost since the enactment of the DMCA through the present, original equipment manufacturers have attempted to abuse Section 1201 to prevent otherwise lawful diagnosis, repair, replacement, and upgrade of parts whose functions and operations are controlled by software. Their conduct flouts the intention of the DMCA to protect copyrighted works. Instead, their threats and lawsuits are designed to stymie otherwise lawful marketplace competition for the provision of repair services and alternative sources of replacement and upgraded parts. In the last several Rulemaking proceedings, there has been strong support from the Librarian and stakeholders for an exemption covering repair, including for common business and consumer products and automotive products such as cars, tractors, and trucks. Congress therefore should consider adopting a specific exemption ensuring that the addition of a technological protection measure will not deny consumers and businesses the right to repair guaranteed them under common law, patent law, and copyright law.

Congress also can enable the Librarian to make existing exemptions permanent. As suggested in my testimony, and as also recommended by Ms. Bailey at the hearing, the Librarian should be granted authority to make permanent any exemption that has twice been approved in the Rulemaking process. An exemption that has been in force for six years is highly unlikely to threaten a legitimate market for copyrighted works thereafter. And Congress can and should provide that such presumptive permanent exemptions can thereafter be expanded upon or revised in the course of the petitioning process.

Alternatively, Congress could itself adopt a statutory exemption for repairs. If Congress determines to enact statutory exemptions, the amending bill should also clarify that the Librarian retains the ability to expand the exemption in the Triennial Review process so as to address further marketplace developments. This alternative would avoid the need for Congress to continually revisit the scope of exemptions.

Whether adopted by Congress directly or by granting authority to the Librarian, an exemption for repairs would correct an unintended and unfair consequence of the DMCA. And it would inject a symmetrical note of fairness into the process: just as copyright owners wanted clarity as to what was to be proscribed as unlawful circumvention, an exemption for repair would clarify that circumvention in support of lawful repair does not violate Section 1201.

2. *Does Section 1201 permit third-party assistance for circumvention where circumvention is allowed? Is the rule clear? What are your thoughts on whether and when third-party assistance should be permitted?*

Response: Third party assistance should always be permitted in support of a granted exemption. Technological protection measures can be extremely sophisticated, requiring a high level of skill to identify, understand, and circumvent. In fact, they become increasingly complex in a cat-and-mouse game, as technologists seek to stay one step ahead of known circumvention methods.² As a consequence, while exemptions theoretically grant a right of circumvention to classes of persons and uses, it is generally impossible for most to exercise those rights themselves.

² See footnote 1, *supra*.

The Copyright Office recognized this dilemma, and adopted a partial workaround by interpreting “persons who are *users* of a copyrighted work” in Section 1201(a)(1)(B) to include persons beyond owners or licensees. While this interpretation is clearly correct and consistent with congressional intent, it does not solve the problem at the heart of the dilemma: the lack of access to the means that make circumvention, and therefore the exemption, possible.

Certain exemptions have been made useful only because beneficiaries found online the software tools to circumvent, and copyright owners have looked the other way. While this has been moderately effective for certain types of TPMs (e.g., TPMs applied to a class of works or TPMs where there exists a sufficient market or strong sympathy for the users), reliance on unauthorized and often foreign sources of circumvention tools is precarious and unreliable, and inconsistent with sound copyright policy.

Moreover, this solution admittedly denies relief to tens of millions of beneficiaries entitled to exemptions. In my responses to questions from Subcommittee Chairman Tillis, I referenced the example of automobile repair. Let me amplify those responses with another example affecting farmers across America and in your state—points taken from Comments submitted on behalf of the American Farm Bureau Federation, National Corn Growers Association, and National Farmers Union in the last Triennial Rulemaking proceeding, <https://cdn.loc.gov/copyright/1201/2018/comments-121817/class7/class-07-initialcomments-afbf-ncga-nfu.pdf>.

Crops need to be planted and harvested within the narrow window nature dictates. When farm equipment breaks, farmers cannot wait days or weeks for repairs. Historically, farmers repaired their equipment themselves, or relied on local repair shops they knew well for fast repairs and spare parts at lower prices. Today’s farm equipment is loaded with electronic control modules whose functions and operations are controlled by embedded software, and protected by TPMs. Today’s farmers are often at the mercy of dealerships hundreds of miles away, that charge exorbitant prices and cannot accommodate urgent repair needs. Or, as the Comments observed, many farmers are doing their best to keep functioning their old, less efficient equipment, simply because they can repair it.

These farmers and local repair facilities need the ability as a matter of law to circumvent those TPMs. Replacement part manufacturers need the legal right to make the replacement parts, re-load the software, and instruct local repair shops and their customers how to circumvent the TPMs to install the parts and complete the repairs.

But Section 1201 prevents those businesses from making these repairs and parts, and instructing users what to do—even where those acts would be wholly permissible in the absence of the DMCA. Instead, local repair shops either must buy higher-priced replacement parts from the dealership, or send their customers to the dealership because they cannot circumvent TPMs as necessary to install those parts in customers’ vehicles.

To solve this problem, the beneficiaries of repair-based exemptions need an additional permanent exemption for the manufacture and distribution of circumvention tools and services. I address this need at pages 15-17 of my written testimony. There, I suggested that Congress adopt

a limited permanent exemption for circumvention means as necessary to support repair exemptions granted by the Librarian or Congress, as follows:

Section 1201(a)(2) and (b) shall not preclude the manufacture, importation, offer, provision, or trafficking in a technology, product, service, device, component, or part thereof, with respect to its use to circumvent a technological measure in support of an exemption granted by statute or pursuant to Section 1201(a)(1)(D) for the purpose of enabling diagnosis, maintenance, repair, replacement or lawful modification of parts of products whose functions are controlled by embedded software.

3. *In 2018, the Copyright Office streamlined the Section 1201 triennial rulemaking process. In your opinion, did the changes improve the process? Do you believe that other changes/improvements are still needed? Is legislation necessary?*

Response: The Triennial Review has alleviated some of the harms caused by Section 1201(a), but its effects have been limited by both concerns with the rulemaking process itself and with the limitations of Section 1201(a) itself. The Librarian's initial rulings were narrow and timid in scope, with the balance still tipping in favor of anticircumvention rather than noninfringing uses. With time and experience, and with no evidence of harm to copyright owners from previously-granted exemptions, the rulemaking process has been approaching a more balanced scope. Nevertheless, given that the process occurs every three years, and given that not every noninfringing use is applied for or exempted, the Triennial Rulemaking does not protect all noninfringing uses the way that a nexus to infringement would have done.

The streamlining procedures adopted by the Librarian have already reduced some of the costs and burdens of the process—in particular, the ability to renew existing exemptions where no opposition exists. Yet some cumbersome elements remain. Not all persons entitled to an exemption know the Triennial Rulemaking process exists. And if they do, it is not a simple process for individuals not skilled in the DMCA or administrative law to navigate. Typically, those who seek exemptions have to rely on others—often public interest groups and law school clinics—do much of the necessary legwork and legal work.

As I suggested above and in my written testimony, granting the Librarian the authority to adopt permanent exemptions would help reduce the amount of work required, and would preserve stakeholder resources for new and expanded exemptions.

4. *Do you believe that stakeholders are able to easily participate in the Section 1201 proceedings? How has the Copyright Office ensured that users and their positions are adequately represented at the proceedings? In what ways can the process be made less burdensome for rulemaking participants?*

Response: The process itself has several limitations that impede potential public participation in the process. Despite best efforts from the Librarian, the procedure is not readily available to all who have been harmed by Section 1201(a). Typically, petitioners need assistance from legal clinics and public interest groups who can research the necessary underlying facts to support the

petition, and who understand the procedures involved, the underlying legal requirements, and prior decisions by the Librarian that indicate how and whether a petition may succeed. Considerable time and expense are involved. Ultimately, given that not every noninfringing use is applied for or exempted, the Triennial Rulemaking does not exempt all noninfringing uses. A link to infringement would have better addressed this need.

The streamlining procedures adopted by the Librarian have already reduced some of the costs and burdens of the process—in particular, the ability to renew existing exemptions where no opposition exists. But as I suggested in my written testimony, granting the Librarian the authority to adopt permanent exemptions would help reduce the amount of work required, and would preserve stakeholder resources for new and expanded exemptions.

5. *What is your understanding of how Section 1201 specifically handles TPM circumvention for repairs of vehicles, farm equipment, machinery and other products? Do you think that it is adequate? In your opinion, should the way Section 1201 exemptions handle repairs be modified? If you believe Section 1201 exemptions should be modified with respect to the ability to repair products, how would you like to see them modified?*

Response: I address these questions at some greater length in response to Questions 1-3, above, and again commend to you the Comments of the American Farm Bureau Federation, et al., at <https://cdn.loc.gov/copyright/1201/2018/comments-121817/class7/class-07-initialcomments-afbf-ncga-nfu.pdf>.

In brief, Section 1201 as currently written could prohibit circumvention of TPMs in vehicles, farm equipment, machinery, and other products, even where circumvention facilitates noninfringing repair. The Librarian in 2015 and 2018 has granted Rulemaking exemptions for certain types of repairs to such equipment, but this exemption has not fully achieved its purpose. It also has neither stopped the abuse of TPMs to preclude repair nor deterred companies like John Deere from issuing threats against those who make such repair possible.

A partial solution would entail Congress enacting a specific exemption permitting circumvention to facilitate the diagnosis, maintenance, repair, replacement, modification, and upgrade of products whose functions are controlled by embedded software. Or, alternatively, Congress can authorize the Librarian to make the existing exemptions permanent, and to extend those exemptions as necessary to permit noninfringing uses of the control software.

But that solution remains incomplete absent the means to circumvent and perform repairs. Thus, as noted in response to Question 2, Congress should enact an exemption permitting the manufacture and distribution of the means of circumvention in support of a granted repair exemption. Without the availability of such tools, an exemption for repair without the means to circumvent is an empty, useless promise.