June 4, 2021

via e-mail to regans@copyright.gov and achau@copyright.gov

Regan A. Smith, General Counsel and Associate Register of Copyrights
Anna Chauvet, Associate General Counsel
U.S. Copyright Office

Re: Docket No. 2020–11
Exemptions to Prohibition Against Circumvention of Technological Measures Protecting Copyrighted Works
Class 17 Post-Hearing Question Response

Dear Ms. Smith and Ms. Chauvet,

The below-signed proponents of the proposed Class 17 exemption in the above-referenced proceeding and participants in the April 5, 2021 hearing on Class 17 respectfully respond to your May 6, 2021 post-hearing letter.[1]

Although the Office's inquiry is narrowly focused on specific examples of technological protection measures (TPMs),[2] the issues raised in the proposed Class 17 exemption speak more broadly to the barriers that people with disabilities face—and will continue to face—in exercising their civil and human rights to access copyrighted works on equal terms. We urge the Office to reconsider taking the same piecemeal approach that underpins other accessibility-related exemptions from Section 1201's anticircumvention measures and grant the exemption as proposed. Nevertheless, we answer each of the Office's questions about specific TPMs, followed by a survey of the numerous needs for accessibility across a wide range of copyrighted works and disabilities that illustrates why the piecemeal approach is unworkable. We also address the Office's question about qualifications, clarifications, and conditions,[3] which we hope will form a basis for a productive dialogue with opponents of the exemption. Finally, we urge the Office to undertake a series of stakeholder roundtables at a more regular cadence than the triennial review to explore barriers to accessing copyrighted works in further depth.

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[1] Post-Hearing Letter from Regan A. Smith to Jonathan Band, et al. at 2-3, https://www.copyright.gov/1201/2021/post-hearing/letters/Class-17-Post-Hearing-Letter-05-06-2021.pdf .

[2] *See id.* at 2.

[3] *See id.* at 3.

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I. The Office should avoid a piecemeal approach to accessibility exemptions and grant the generalized exemption as proposed.

Against that backdrop, we turn to the Office's post-hearing inquiry, which focuses on narrow categories of copyrighted works and specific examples of technological protection measures (TPMs).[4] Specifically, the Office asks about traditional categories of works enumerated under Section 102 of the Copyright or subsets or hybrids thereof—audiovisual works, video games, literary works, and computer programs.[5] Additionally, the Office asks for further elaborations on technical details of problematic TPMs within each category and for identification of other TPMs in audiovisual works, video games, and literary works.[6]

We are concerned that the Office is contemplating reframing the proposed Class 17 exemption into a narrow, piecemeal exemption or set of exemptions focused on those particular TPMs and works and not the broader and more generalized exemption proposed in the petition. We urge the Office to reconsider this piecemeal approach and grant the exemption as proposed because the piecemeal approach is inconsistent with the purpose of the proposed exemption and goes beyond the bounds of the inquiry required by Section 1201.

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[4] *Id.* at 2 (inquiring about TPMs for audiovisual works, video games, literary works, and computer programs).

[5] *Id.* at 2–3.

[6] *Id.*

More specifically, this piecemeal approach to classes of works and TPMs is inconsistent with the purpose of the proposed exemption and would fail to fully address the adverse effects identified in the petition[7] and supporting long comment[8] and reply comment.[9] Our goal in proposing Class 17 was simple: to secure a "comprehensive exemption" that would flexibly enable "equitable access to copyrighted works for people [with] disabilities" across the full array of inaccessible copyrighted works.[10] that allows for people with disabilities and those who work with them to flexibly access copyrighted works on equitable terms. As the long comment explains, a wide range of technological protection measures pose a series of significant and cognizable adverse effects on equitable access across the full array of copyrighted works.[11]

In particular, the adverse effects of Section 1201 center on innovative modes of access that would be developed across ever-evolving ecosystems of copyrighted works absent the statutory prohibition on circumvention.[12] These effects are not isolated to a narrow set of discrete TPMs or accessibility remediation techniques for which deployment plans can be described to the Office in painstaking detail in advance of undertaking them. Rather, the effects chill responsive efforts to make works accessible in the face of changing circumstances, such as the Covid-19 pandemic, and changing technology, by precluding would-be remediators from responding until they have created detailed, prospective plans and waited for the requisite triennial rulemaking window to arrive.

In the sometimes years-long period between an accessibility need arising and the triennial review's eventual arrival and completion, many efforts simply never get off the ground. Even for those efforts that do get off the ground—including

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[7] Petition of ACB, et al. (Sept. 8, 2020), https://www.copyright.gov/1201/2021/petitions/proposed/New%20Pet.%20-%20Accessibility%20Petitioners.pdf.

[8] Long Comment of ACB, et al. (Dec. 14, 2020), https://www.copyright.gov/1201/2021/comments/Class%2017_InitialComments_Accessibility%20Petitioners%20III.pdf

[9] Reply Comment of ACB, et al. (Sept. 8, 2020), https://www.copyright.gov/1201/2021/comments/reply/Class%2017_Reply_Accessibility%20Petitioners%20IV.pdf.

[10] *See* Petition at 4.

[11] Long Comment at 10–14 (citing illustrative examples of TPMs), 14–33 (describing in detail the range of adverse effects); Reply Comment at 10–14 (same).

[12] Long Comment at 15-17.

those that *must* take flight because they are compelled by the United States' entry into international treaties such as the Marrakesh Treaty or disability laws such as the Americans with Disabilities Act—the civil and human rights of access are frequently delayed on the order of years.

The Office has ample evidence of this dynamic in the form of the existing accessibility exemptions for e-books[13] and video,[14] which are currently pending another set of essential modifications in this proceeding.[15] Despite the obligation of the United States to update the e-book exemption under the Marrakesh Treaty,[16] nearly three years will have passed since the January 2019 ratification of the Treaty[17] by the time the Office completes this rulemaking in late 2021. Likewise, numerous urgent pandemic-related priorities at issue in the disability services exemption[18] will have taken nearly two years to address. And new needs continue to arise adjacent to the narrow scope of the existing exemptions—for example, educational disability services professionals have recently identified a need for a new exemption to allow circumvention for the purpose of captioning and describing prerecorded materials performed as part of public lectures and presentations hosted by universities pursuant to their obligations under the ADA and other disability laws.[19]

The proposed Class 17 exemption would obviate this dynamic altogether. It would provide the breadth and flexibility necessary for people with disabilities and those they work with to overcome accessibility barriers caused by TPMs and

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[13] *See* 37 C.F.R. § 201.40(b)(3).

[14] *See* 37 C.F.R. § 201.40(b)(2).

[15] *See Exemptions to Permit Circumvention of Access Controls on Copyrighted Works*, Notice of Proposed Rulemaking, Docket No. 2020-11, 85 Fed. Reg. 65,293, 65,303–04 (Class 3 for video), 65,305–06 (Class 8 for e-books) (Oct. 15, 2020) ("2020 NPRM"), https://www.govinfo.gov/content/pkg/FR-2020-10-15/pdf/2020-22893.pdf.

[16] *See* Marrakesh Treaty, art. 7.

[17] *See* USPTO, *U.S. Ratification of the Marrakesh Treaty* (Jan. 30, 2019), https://www.uspto.gov/about-us/news-updates/us-ratification-marrakesh-treaty.

[18] *See* Comments of ATSP, et al., Class 3 at 12, 23, 30, 31, 32 (Dec. 14, 2020), https://www.copyright.gov/1201/2021/comments/Class%2003_InitialComments_Association%20of%20Transcribers%20and%20Speech-to-Text%20Providers,%20Association%20on%20Higher%20Education%20and%20Disability,%20and%20Library%20Copyright%20Alliance.pdf.

[19] ATSP would like discuss the details of this issue with the Office during the ex parte cycle.

engage in the undeniably fair remediative uses necessary to vindicate their civil and human rights.

On the other hand, a piecemeal approach to an exception or exceptions focused only on the illustrative examples raised in our comments and at the hearing that isolates narrow categories of works and specific TPMs for permissible circumvention will necessarily fail to foresee the inevitable changes in the creation, distribution, and remediation of copyrighted works that will occur over the coming three years and into the future. Taking this approach will perennially lock the Office and stakeholders in an inevitable cycle of detailing the picayune details of an endless array of evolving TPMs and remediative processes and negotiating the contours and limitations of a complex permission structure to allow circumvention for accessibility uses that are undeniably lawful and which impose no substantial countervailing harms on rightsholders.

Moreover, a piecemeal result is not compelled by Section 1201. As our long comment and reply comment explain, the DMCA vests the Office with the authority to interpret the definition of "class of works" under the statute to grant broad fair use exemptions for attribute-based classes of works that do not hew neatly to the enumerated classes listed in Section 102 of the Copyright Act.[20] This approach recognizes a class of works where there is a need for an exemption for a common group of users and circumvention is undertaken for a common uses.

Because the accessibility uses here are undeniably fair, the 102(a) categories are subordinate to the common uses and users. The exemption would enable a user to circumvent a TPM on an inaccessible work so long as the user is circumventing for non-infringing accessibility purposes.[21] A class of works comprising copyrighted works that are inaccessible is fully consistent with Section 1201 and the Office's past practice, as is recommending an exemption that allows for non-infringing remediative uses of works within that class.

Section 1201 also does not require the Office to engage in detailed examination of the endless array of TPMs that may apply across a class of works when it is sufficiently clear that a proposed class of works may be protected by a set of TPMs such that an exemption to the prohibition on circumvention is warranted to avoid adverse affects on a set of non-infringing uses. Indeed, most of the existing exemptions recommended by the Office contain no qualifications of or limitations on the types of TPMs that can be circumvented.[22] The few that do

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[20] Long Comment at 27–33; Reply Comment at 15-19.

[21] See discussion *infra*, Part IV.

[22] *See* 37 C.F.R. § 201.40(a)(4), (5), (6), (7), (8), (9), (10), (11), (12), (13), (14).

contain qualifications still allow circumvention of TPMs on a broad, categorical basis, such as any TPM that "protect[s] a digital transmission" of a motion picture[23] or any TPM that "prevent[s] the enabling of read-aloud functionality or interfere[s] with screen reader or other applications or assistive technologies."[24] Much like the security research exemption, which covers a broad range of TPMs that can be circumvented for the purpose of good-faith security research, the proposed exemption simply would cover a wide range of TPMs that must be circumvented for accessibility purposes.[25]

Simply allowing circumvention of TPMs that control access to the class of inaccessible works would be consistent with both Section 1201 and the Office's past practice. Conversely, imposing a higher standard for accessibility-related exemptions than what has been required for other categories of exemptions is unwarranted and unnecessary for the Office to comply with its statutory obligations. The record sufficiently demonstrates both the types of TPMs and adverse effects that are at issue and the Office should grant the exemption as proposed accordingly.

II. The TPMs addressed in the post-hearing letter exemplify the need for the proposed exemption.

Nevertheless, we turn to the specific TPMs raised by the Office's post-hearing letter. As is always the case in discussing specific TPMs, we offer this information with the caveat that the purpose of the proposed exemption is to mitigate uncertainty around legal liability for remediative activities, not to opine on the scope of Section 1201(a). More specifically, the case law on what kinds of TPMs constitute "effectiv[e] access control[s]" and what activities constitutes "circumvention" for the purpose of Section 1201(a)[26] remain sparse, and in specific situations questions may arise about the copyrightability of underlying works to which the TPMs apply. Nothing that follows should be construed as a concession that the specific TPMs being discussed are definitively effective access controls nor that the activities necessary to work around them for the purpose of remediating a copyrighted work definitively constitute circumvention for the

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[23] 37 C.F.R. § 201.40(a)(1), (2). These examples also allow circumvention of specific TPMs for DVDs and Blu-ray discs. *See id.*

[24] 37 C.F.R. § 201.40(a)(3).

[25] *See generally* Long Comment of Dr. Matthew D. Green, Docket No. 2015-07 at 5–11 (Feb. 6, 2015), https://www.copyright.gov/1201/2015/comments-020615/ (taxonomizing the different types of TPMs that security researchers interact with).

[26] *See* 17 U.S.C. § 1201(a)(1)(A), (3)(A) & (B).

purposes of Section 1201. Nevertheless, Section 1201(a) raises a sufficiently significant concern that these TPMs and their interaction with remediative activity fall within its ambit that the proposed exemption is necessary to mitigate the chilling effect of potential liability.

Audiovisual Works and Encrypted Media Extensions (EMEs). Audiovisual Works. The Office requests an explanation of "how EMEs function at a technical level to prevent modification of audiovisual works to create accessible versions for individuals with disabilities (e.g., colorblindness or photosensitive epilepsy)."[27] The Office also asks that we identify any other types of TPMs employed on audiovisual content online that inhibit making that content accessible to individuals with disabilities.[28]

As we noted in our long comment, EMEs can function at a technical level to prevent the modification of audiovisual works to create accessible versions for individuals with disabilities by prohibiting "any unauthorized alterations to videos, including color-shifting."[29] EMEs can block applications that modify video streams for accessibility purposes, which can be interpreted as unauthorized alterations.[30] Our long comment explained how EMEs can block the use of digital video analysis applications like DanKam, which shifts the colors displayed on devices for people who are colorblind, replacing the colors that they are unable to perceive with colors that they can actually see.[31] We also explained how EMEs can block applications utilized to provide access to video content for people with extreme adverse reactions to a video stream that "flickers, flashes, or blinks," such as people with photosensitive epilepsy.[32] These applications can be used to 'identify and skip past strobing effects in videos."[33]

A single explanation of "how EMEs function at a technical level" is not possible because EME is a standardized application programming interface (API) that is

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[27] Post-Hearing Letter at 2.

[28] *See id.*

[29] Long Comment at 11 (quoting Cory Doctorow, *Disabilities vs DRM: the World Cup Edition*, Electronic Frontier Foundation (June 22, 2018), https://www.eff.org/deeplinks/2018/06/disabilities-vs-drm-world-cup-edition).

[30] *Id*.

[31] *Id.* (internal citations omitted)

[32] *Id.* at 12.

[33] Cory Doctorow, Human Rights and TPMs: Lessons from 22 Years of the U.S. DMCA (Sep. 9, 2020), https://www.eff.org/deeplinks/2020/09/human-rights-and-tpms-lessons-22-years-us-dmca.

designed to facilitate the playback of video content on web browsers using a variety of different DRM technologies.[34] As the EME specification explains, it supports "a range of content decryption and protection technologies" from "simple clear key decryption" to more advanced schemes for "high value video."[35] Nevertheless, the Office may wish to consult the detailed documentation available in the working version of the EME specification, which includes a detailed technical diagram of a generic digital rights management (DRM) stack implemented using EME,[36] as well as the baseline "Clear Key" system that must be implemented by all browsers that comply with the specification.[37]

A detailed review of the EME specification should illustrate to the Office why a detailed explanation of how EMEs work at a technical level and what other TPMs pose barriers is not possible because EME is part of a broader TPM architecture that works with an open-ended range of DRM schemes. While many resources are available to better understand how EMEs fit into the broader architecture of DRM schemes,[38] a detailed explanation of each of those schemes and their technical function is not necessary for the Office to grant the proposed exemption. Indeed, we remind the Office that it has already recommended multiple exemptions that cover circumvention of "digital transmission[s] protected by [any] technological measure," which broadly cover the many DRM architectures enabled by EME and a range of other related technology.[39]

Video Games. The Office requests "identification of any other TPMs [than Game Guard] that prevent the desired modification of video games for accessibility purposes" as well as "specific TPMs in video games that limit the

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[34] *See* W3C, *Information About W3C and Encrypted Media Extensions (EME)* (Mar. 2016), https://www.w3.org/2016/03/EME-factsheet.html.

[35] W3C, *Encrypted Media Extensions*, (W3C Editor's Draft, May 12, 2021), https://w3c.github.io/encrypted-media/.

[36] *See id.*

[37] *See id.* § 9, https://w3c.github.io/encrypted-media/#clear-key

[38] *See generally* Krishna Rao Vijayanger, *EME, CDM, AES, CENC, and Keys—The Essential Building Blocks of DRM*, OTTVERSE (Aug. 28, 2020), https://ottverse.com/eme-cenc-cdm-aes-keys-drm-digital-rights-management/#EME_or_Encrypted_Media_Extensions (describing how EME fits in a broader DRM architecture.

[39] *See* 37 C.F.R. § 201.40(b)(1), (2).

ability of players to connect accessible game controllers" and an explanation of "how they work."[40]

As we explained in our long comment, TPMs preventing the modification of video games for accessibility purpose may be employed by the video game developers to protect components of client video game software, console operating systems, and by platforms that intermediate user access to games.[41] A full survey of the TPMs that can interfere with accessibility remediation is beyond the scope of this comment in part because DRM is so ubiquitous in the video game industry. Indeed, nearly "[e]very major gaming platform today relies on DRM," including Valve, Epic, Microsoft, Sony, and Nintendo.[42] Some platforms, such as Ubisoft's uPlay and EA's Origin, integrate DRM at the platform level, requiring all games to utilize proprietary DRM solutions provided by the platform, while others such as Valve and Epic allow developers to choose between proprietary platform schemes and their own DRM solutions.[43] One popular DRM technology among developers and publishers is Denuvo, a successor technology to SecuROM,[44] the subject of a previous exemption in 2010.[45] But dozens of modes and vendors of game DRM persist.[46]

A full recount of how each of these technologies interface with specific modes of making games accessible is also beyond the scope of this response because accessibility problems with games are so wide-ranging. For example, games may need to be modified to allow remappable keys, macro button presses, adjust camera and joystick sensitivity, and bypass "mandatory quick time events" for

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[40] Post-Hearing Letter at 2

[41] Long Comment at 12.

[42] J. Conditt, *We're all kinda fine with DRM now*, Engadget (Feb. 12, 2020), https://www.engadget.com/2020-02-12-drm-geforce-now-steam-xbox-playstation-subscription-streaming.html.

[43] Rick Lane, *What's the state of DRM in 2020?*, Rock Paper Shotgun (May 28, 2020), https://www.rockpapershotgun.com/whats-the-state-of-drm-in-2020.

[44] *Id.*

[45] *See generally* Recommendation of the Register of Copyrights in RM 2008–08 at 180 (June 11, 2010), https://cdn.loc.gov/copyright/1201/2010/initialed-registers-recommendation-june-11-2010.pdf.

[46] *See generally* PCGamingWiki, *Digital Rights Management: Types of DRM*, https://www.pcgamingwiki.com/wiki/Digital_rights_management_(DRM)#Types_of_DRM (last visited May 28, 2021) (taxonomizing different modes and vendors of gaming TPMs).

gamers with mobility disabilities.[47] Colorblind gamers may need to modify the visual output of the game, while blind and visually impaired gamers may need to modify the size of in-game text or add audio description.[48] Gamers who are deaf or hard of hearing may need to modify games to add captions for voices and sound effects or alter challenges that rely on audio cues.[49]

Nevertheless, we note here that some DRM schemes specifically interfere with the use of accessible controllers and user interfaces by blocking the interoperability of unauthorized third-party hardware or applications with games.[50] Some DRM schemes block the use of head-tracking mechanisms and on-screen keyboards used by gamers who cannot use their limbs or macros that gamers with muscular dystrophy, cerebral palsy, limb loss, and other disabilities that effect physical function use to overcome repetitive tasks in gaming that cause physical stress and fatigue.[51]

Literary Works and Cognitive, Intellectual, and Hearing Disabilities. The Office requests identification of "the TPMs at issue" in circumstances related to "changing content to an 'easy-to-read' or plain format text" or otherwise "effectively rendering content in accessible formats and changing the primary mode of interaction."[52] The Office also requests identification of "any assistive technologies or proposed uses of e-books" that are "not covered by the existing exemption" for e-book accessibility.[53]

The same range of TPMs used to protect e-books that interfere with assistive technologies for people with print disabilities, described in detail in the context of the Office's consideration of the Class 8 exemption,[54] may interfere with assistive

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[47] *See* the ablegamers foundation, *Includification* at 6 (Nov. 2018), https://accessible.games/wp-content/uploads/2018/11/AbleGamers_Includification.pdf.

[48] *See id.*

[49] *See id.*; *see also* Morgan Baker, *Deaf Accessibility in Video Games*, Gamasutra (July 20, 2020), https://www.gamasutra.com/blogs/MorganBaker/20200720/366615/Deaf_Accessibility_in_Video_Games.php.

[50] *See Includification*, *supra* note 47 at 15–16.

[51] *Id.*

[52] *See Post-Hearing Letter* at 2.

[53] *See id.* at 2–3.

[54] *See generally* Long Comment of ACB, et al. at 11–12 (Dec. 14, 2020) ("Class 8 Long Comment"),

technologies designed to transform literary works into plain format versions for people with intellectual and cognitive disabilities. These transformations are potentially wide-ranging, from interoperation with text-to-speech engines to significant transformations of the content of the work to plain format versions.[55] TPMs may also interfere with the addition of American Sign Language interpretation to e-books for native ASL speakers who are deaf or hard of hearing.

It is not clear that the existing e-book exemption nor the modifications proposed in Class 8 would fully address the needs of people with cognitive, intellectual, and hearing disabilities. The provisions of the e-book exemption focus on people with print disabilities in an effort to comport with the contours of the Chafee Amendment and the Marrakesh Treaty.

Of course, as ACB and many of the other below-signed organizations explained in the long comment on Class 8 exemption, the Marrakesh Treaty Implementation Act (MTIA) significantly expanded the scope of disabilities covered by the Chafee Amendment.[56] That expansion is incorporated by reference into the authorized entity prong of the existing exemption,[57] and will likewise extend to the personal use prong of the exemption if the Office extends the Class 8 exemption to appropriately reference the terminology of the post-MTIA version of the Chafee Amendment as proposed.[58]

The scope of the Marrakesh Treaty and the post-MTIA version of the Chafee Amendment, however, is focused on access for people who are blind,[59] have

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https://www.copyright.gov/1201/2021/comments/Class%2008_InitialComments_Accessibility%20Petitioners%20II.pdf

[55] *See generally* Caroline B. Ncube, Blake E. Reid, and Desmond Oriakhogba, *Beyond the Marrakesh VIP Treaty: Typology of copyright access - enabling provisions for persons with disabilities*, J. World. Intellect. Prop. 1, 4 (2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3546848 (describing the needs of cognitive and intellectual disabilities and citing additional references).

[56] Class 8 Long Comment at 15-16.

[57] *See* 37 C.F.R. § 207.40(b)(3)(ii) (allowing circumvention by authorized entities consistent with the scope of the Chafee Amendment).

[58] *See* Class 8 Long Comment at 15-16; Joint Letter of ACB, LCA, and JCCO at 1-2 (May 14, 2021) (including the Class 8 proponents' suggested revisions to 37 C.F.R. § 201.40(b)(3)(i) to reference the scope of eligible persons covered under the post-MTIA Chafee Amendemnt).

[59] *See* 17 U.S.C. § 121(d)(3)(A).

visual impairments or perceptual or reading disabilities,[60] or have physical disabilities that affect their ability to physically manipulate a book or move their eyes.[61] While the second prong of Chafee's "eligible person" definition broadly includes "perceptual or reading disabilities" and should be read broadly to include cognitive, intellectual, and hearing disabilities that can be understood as perceptual or reading disabilities,[62] Chafee's reference to "visual function"[63] leaves some lack of clarity about the extent to which the scope of "eligible person[s]" is coextensive with the full range of cognitive, intellectual,[64] and hearing disabilities.

While there is no doubt that remediative measures to make literary works accessible to people with cognitive, intellectual, and hearing disabilities are noninfringing fair uses that in many—or perhaps all—circumstances will be specifically covered by the Chafee Amendment, the proposed Class 17 exemption would help eliminate any uncertainty at the boundary of Chafee's "eligible persons" definition by ensuring that all categories of disability are covered. Though the Office could accomplish this by extending the scope of the Class 8 exemption to cover all disabilities, we also note that people with cognitive, intellectual, and hearing disabilities should be able to access copyrighted works other than literary works, as discussed in detail in the next section.

Computer Software and Medical Devices. Finally, the Office requests an explanation of "how an exemption permitting circumvention 'for the purpose of creating an accessible version of the work for people with disabilities' would apply to . . . a use of medical device software" in the context of "software in a glucose monitor.[65]

As our long comment explains, the proposed Class 17 exemption would allow for circumvention necessary to modify medical software as necessary to serve the

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[60] *See* 17 U.S.C. § 121(d)(3)(B).

[61] *See* 17 U.S.C. § 121(d)(3)(C).

[62] *See* 17 U.S.C. § 121(d)(3)(B).

[63] *Id.*

[64] Cognitive and intellectual disabilities include autism, developmental disabilities, cerebral palsy, traumatic brain injury, aging-related brain injuries, post-traumatic stress disorder, Alzheimer's, and various learning disabilities, all of which may coexist with mental health conditions, "affected separately and in combination by individual characteristics, environmental demands, and social supports." *See generally* Peter Blanck, *eQuality: The Struggle for Web Accessibility by Persons with Cognitive Disabilities* at 27–29 (2014).

[65] Post-Hearing Letter at 3 (internal citation omitted).

needs of people with disabilities.[66] TPMs can impede the accessibility of medical device software when a user with a disability needs the device to interoperate with other independent software to meet their needs.[67] In those circumstances, a user with a disability would need to circumvent the TPM of medical device software in order to facilitate interoperation with other devices or intermediary application. The proposed exemption would allow users with a disability to do so for accessibility purposes—for example, for the purpose of modifying software used in glucose monitors and insulin pumps to link them together to create an "artificial pancreas," as described in the long comment.[68]

It may assist the Office's inquiry to consider that medical devices are often used for accessibility purposes, including managing chronic illnesses. Under Section 504 of the Rehabilitation Act and the ADA, a person is disabled when they have a physical or mental impairment that substantially limits a major life activity.[69] As a result of various court holdings and the ADA's 2008 amendments, chronic illnesses are often considered disabilities.[70]

III. The TPMs addressed in the post-hearing letter are emblematic of the wider array of TPMs posing adverse effects addressed by the proposed class.

The foregoing discussion alone justifies an exemption or exemptions focused the specific categories of disabilities, copyrighted works and TPMs, and

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[66] Long Comment at 12–13.

[67] *See id.* at 13 (citing *Patching LibreLink for Libre2 – Clearing the FUD*, Diabettech (July 19, 2019), https://www.diabettech.com/wearenotwaiting/patching-librelink-for-libre2-clearing-the-fud/)).

[68] *See id.* at 12-13. We note that depending on the details, some of these activities may be allowed by the existing exemption for medical devices; however, the proposed exemption is necessary for accessibility related activities that cannot be accomplished merely by accessing data or via (a) passive wireless monitoring of (b) implantable devices. *See* 37 C.F.R. § 201.40; 2020 NPRM, 85 Fed. Reg. at 65,306 (describing pending proposed modifications for the exemption).

[69] *See* 29 U.S.C. § 705(20)(A),(B); 42 U.S.C. § 12102(1).

[70] *See e.g.*, Bragdon v. Abbott, 524 U.S. 624, 631 (1998) (HIV qualifies as a disability under the ADA); Sch. Bd. of Nassau Cty. v. Arline, 480 U.S. 273 (1987) (tuberculosis is a qualifying disability under the Rehab Act); 42 U.S.C. § 12102(4)(A) ("The definition of disability in this chapter shall be construed in favor of broad coverage of individuals under this chapter, to the maximum extent permitted by the terms of this chapter.").

approaches to remediation referenced by the Office's post-hearing letter. However, the level of detail required to provide a basic explanation of just those works and TPMs, disabilities, and approaches to remediation underscores that it is effectively impossible for the Office and for stakeholders to explore every combination of disability, copyrighted work and TPM, and approach to remediation in the level of detail contemplated by the Office's piecemeal inquiry.

To further illustrate the difficulty of this piecemeal approach and underscore the need for the broad proposed exemption, we provide below a non-exhaustive list of copyrighted works and disabilities and a set of exemplary remediative actions.[71] Again, we urge the Office to grant the proposed exemption to avoid deferring to future triennial reviews individualized consideration of every potential remediation at the intersection of a category of digital copyrighted works and a category of disability.

Categories of Disability The breadth of inaccessibility across digital copyrighted works is rooted in the extensive ranges of both disabilities and copyrighted works. Though policymakers often attempt to reduce disabilities to broadly defined categories, disabilities are inherently unique. For example, the stars of *Breaking Bad* and *Speechless* both have cerebral palsy (CP), but *Breaking Bad* actor RJ Mitte's CP has only a minor impact on his speech,[72] while *Speechless* actor Micah Fowler's CP has a significant impact on his speech and mobility.[73] Moreover, multiple disabilities are common; for example, a person with Down syndrome can also have autism, and a person may identify as DeafBlind or otherwise have multiple sensory disabilities.

The ADA specifically recognizes the mutability, multiplicity, and often difficult-to-qualify and individualized nature of disabilities.[74] The Rehab Act's regulations likewise define a disability as a "physical or mental impairment that substantially

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[71] *See* Ncube, Reid, and Oriakhogba, *supra* note 55 at 3-5 (offering a related analysis).

[72] Linda Childers, *RJ Mitte of 'Breaking Bad' is Busting Stereotypes About Cerebral Palsy*, Brain & Life (Feb./Mar. 2015), https://www.brainandlife.org/articles/after-the-role-of-a-lifetime-breaking-bads-rj-mitte/.

[73] E. Alex Jung, *Micah Fowler on Booking His Speechless Role and Playing a Character With More Severe Cerebral Palsy Than Himself*, NY Vulture (Dec. 7, 2016), https://www.vulture.com/2016/12/speechless-micah-fowler-interview.html.

[74] *See e.g.*, 42 U.S.C. 12102(4)(A) ("The definition of disability in this chapter shall be construed in favor of broad coverage of individuals under this chapter, to the maximum extent permitted by the terms of this chapter.").

limits one or more of the major life activities of such individual,"[75] and explains that "[a]n impairment need not prevent, or significantly or severely restrict, the individual from performing a major life activity in order to be considered substantially limiting."[76] In further recognition of a disability's fluid nature, the Act does not list specific disabilities but instead defines "physical or mental impairment" as:

> Any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more body systems, such as neurological, musculoskeletal, special sense organs, respiratory (including speech organs), cardiovascular, reproductive, digestive, genitourinary, immune, circulatory, hemic, lymphatic, skin, and endocrine; or
>
> Any mental or psychological disorder, such as an intellectual disability . . . , organic brain syndrome, emotional or mental illness, and specific learning disabilities.[77]

These definitions of disability not only cover a vast array of named disabilities, but leave space for disabilities not yet known or understood or that themselves are unnamed but include aspects of several named disabilities.

Categories of Copyrighted Works and TPMs. Likewise, copyrighted works are constantly evolving, intersecting, and present numerous categorization challenges. While Section 102(a) of the Copyright Act lists eight illustrative categories of copyrighted works, it also makes clear that the list is not static and offers the familiar refrain that "copyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression, now known or later developed . . . ."[78] Even the enumerated categories are not static and have been amended by Congress, for example, to recognize new categories of protection.[79] As the Office has recognized in this proceeding, the scope of protection extends to a wide array of works that do not neatly fit into the 102(a) categories, such as

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[75] 29 C.F.R. § 1630.2(g)(1)(i).

[76] 29 C.F.R. § 1630.2(j)(1)(ii).

[77] 29 C.F.R. § 1630.2(h)(1)–(2).

[78] *See* 17 U.S.C. § 102(a).

[79] For example, the 1990 Architectural Works Copyright Protection Act, Pub. L. No 101-650 § 703, 104 Stat. 5089 (1990) expanded Section 102(a) to include the new category of "architectural works." 17 U.S.C. § 102(a)(8)

video games[80] and multimedia e-books [81] And as we explained in our long comment, the legislative history of the Copyright Act also echoes the categories' intended evolution, intersection, and fluctuation.[82]

Likewise, TPMs continue to evolve. As the House Committee Report on the DMCA recognized, "[m]any such technological protection measures are in effect today" and "[m]ore such measures can be expected to be introduced in the near future."[83] As digitized copyrighted works become more intricately designed, so too will the TPMs utilized to protect these works from unlawful uses.

Remediative Actions. At the intersections of these evolving and numerous categories of disability, copyrighted works, and TPMs are an equally evolving and numerous set of remediative activities that must be covered by an exemption. To illustrate this point, we have compiled numerous examples of how common types of digitized copyrighted works may be inaccessible to people with disabilities that may require circumvention to remediate. This list is not exhaustive, and focuses on examples of common modes of inaccessibility likely to recur over the next three years, and copyrighted works either listed in Section 102(a) or covered by the Office's prior recommendations.

In particular, we considered the accessibility of copyrighted works to people with the following categories of disabilities:

- **Visual:** Blind, visually impaired, vision loss, or colorblindness;
- **Aural:** Deaf, hard of hearing, late-deafened;
- **Amputation and Paralysis**: Limb loss, paraplegia, quadriplegia
- **Motor**: Muscular dystrophy, spina bifida, ALS, stroke, cerebral palsy, aphasia, multiple sclerosis, united spinal, perpetual crossover
- **Learning**: ADHD, dyslexia
- **Autism Spectrum**: autism, Asperger syndrome
- **Epilepsy;**
- **Intellectual Disabilities**: Down syndrome, traumatic brain injury;
- **Mental Illness**: schizophrenia spectrum and other psychotic disorders; depression, bipolar and related disorders;
- **Chronic Illness:** Diabetes, HIV, cancer;
- **Multiple Disabilities**: e.g., DeafBlind, deaf and cerebral palsy.

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[80] *See* 37 C.F.R. § 201.40(b)(12)

[81] *See* 37 C.F.R. § 201.40(b)(1)(i)(C).

[82] *See* Long Comment at 31–32 (internal citations omitted).

[83] H. Rept. 105-551(II) at 37.

We considered the following types of copyrighted works:

- **Literary works**
- **Musical works**
- **Dramatic works**
- **Pantomimes**
- **Choreographic works**
- **Pictorial works**
- **Graphic works**
- **Sculptural works**
- **Motion pictures and audiovisual works**
- **Sound recordings**
- **Architectural works**
- **Computer software**
- **Video games**

Across the intersection of these disabilities and copyrighted works, we identified the following examples, in addition to the examples discussed in the previous section:

Literary Works

- **Hearing:** A multimedia e-book featuring embedded music and videos that lack transcripts or closed captions and is inaccessible to a person who is deaf or hard of hearing. Section 1201 chills the use of automated captioning technologies by a deaf or hard of hearing viewer.
- **Epilepsy:** A multimedia e-book includes strobing effects in embedded videos or images, or a web browser hosting a literary work has images or advertisements with strobing effect. Section 1201 chills the use of software that identifies and skips over the strobing effects.
- **Intellectual:** A reader with an intellectual disability would like to use software that alters the language of an e-book to summarize its key points, identifies key components of a text by highlighting and underlining them, defines challenging words, and tracks the reader's eye movement to alter the text as the reader reads. Section 1201 chills the use of the software.
- **Autism Spectrum:** A reader with autism would like to use automated program to assist in their comprehension of the emotions being identified in an e-book. Section 1201 chills the use of the program.
- **Motor:** a person with fine motor skill impairments, such as someone with cerebral palsy, would like to use an application that identifies and remediates

small links and buttons on e-books by magnifying these tools and responding to voice commands. Section 1201 chills the use of this application.

Musical Works

- **Hearing:** A person who is deaf, hard of hearing, or DeafBlind or an online music platform would like to use software that automatically detects the lyrics or musical composition of a sound recording and converts them into captions, musical notation, American Sign Language, or color displays. Section 1201 chills the use of the software.
- **Visual:** A digital sound recording of a song includes an associated audiovisual display. Section 1201 chills the use of automated technology to generate descriptions of the display.
- **Epilepsy:** A digital sound recording of a song includes an associated audiovisual display with strobing effects. Section 1201 chills the use of software that identifies and skips over the strobing effects.
- **Mental Illness***:* An application algorithmically identifies musical works in a digital collection that may be appropriate for therapeutic purposes. Section 1201 chills the use of the application.

Dramatic and Choreographic Works and Pantomimes

- **Hearing:** A person who is deaf or hard of hearing would like to use an application that automatically generates captions for a digital recording of a performance of a dramatic or choreographic work or pantomime using the script. Section 1201 chills the use of the application.
- **Visual:** A person who is blind or visually impaired would like to use an application that generates audio descriptions of digital recording of a performance of a dramatic or choreographic work using stage directions, movements, gestures, or facial expressions in the work. Section 1201 chills the use of the application.

Pictorial and Graphical Works

- **Visual**: A person who is blind or visually impaired would like to use an application that automatically tags images, improves the image's color contrast, and/or automatically generates audio or textual descriptions of an image. Section 1201 chills the use of the application.
- **Multiple Disabilities:** A person who is DeafBlind would like to use an application that identifies and remedies unlabeled or unclearly described

graphics so that their screen reader can convert the images into refreshable braille. Section 1201 chills the use of the application.

- **Motor:** a person with amyotrophic lateral sclerosis (ALS) would like to use an application that identifies and remediates small buttons so that they can access pictorial and graphical buttons. Section 1201 chills the use of the application.

Sculptural Works

- **Visual:** A person who is blind or visually impaired would like to use an application that allows them to use tactile gloves or a tactile display to feel a digitized version of a sculpture in a museum. Section 1201 chills the use of the application.

Motion Pictures and Audiovisual Works

- **Hearing:** A person who is deaf or hard of hearing would like to use an application to automatically add captions to an audiovisual work that is not eligible for remediation under the Class 3 exemption. Section 1201 chills the use of the application.
- **Visual:** A person who is blind or visually would like to use an application to automatically add descriptions to an audiovisual work that is not eligible for remediation under the Class 3 exemption. Section 1201 chills the use of the application.
- **Multiple Disabilities:** A person who is DeafBlind would like to use an application to extract captions from a video for display on a refreshable Braille display. A person who is deaf and has a cognitive disability would like to extract captions from a video for conversion into a plain language format. Section 1201 chills the use of the application.
- **Autism Spectrum:** A person who is autistic would like to use an application that manipulates videoconferencing phone calls to limit stimulation, including pausing, recording, and limiting sounds. Section 1201 chills the use of the application.

Sound Recordings

- **Hearing:** A person who is deaf or hard of hearing would like to use an application that translates sound recordings into haptic vibrations, or performs digital signal processing to make a recording more perceptible with a cochlear implant. Section 1201 chills the use of the application.
- **Autism Spectrum**: a person on the autism spectrum with auditory sensitivities would like to use an application that alters sound recordings to reduce auditory stimulation. Section 1201 chills the use of this application.

Architectural works

- **Visual:** An architecture student who is blind or visually impaired would like to use an application that translates digital blueprints into audio descriptions or a tactile display. Section 1201 chills the use of the application.
- **Hearing:** An architecture student would like to use an application that visualizes digital audio profiles associated with an architectural work. Section 1201 chills the use of the application.

Computer Software and Video Games

- **Hearing:** A person who is deaf or hard of hearing would like to use an application to automatically caption dialogue in a video game or sound effects in computer software. Section 1201 chills the use of the application.
- **Visual:** An application that fails to use with the accessibility API of the operating system must be modified so a blind or visually impaired user can access the interface, or an operating system must be modified to accommodate a particular refreshable Braille display. A colorblind gamer needs to modify the display of in-game group chat to make it readable. Section 1201 chills the modifications.
- **Intellectual Disabilities:** An user with an intellectual disability needs to modify a complex interface to a simpler format. A gamer with a learning disability needs to modify a game to bypass a challenge that is overly complex. A person with Down syndrome wants modify their dictation software to use an application that records and alters their speech. Section 1201 chills these modifications.
- **Motor:** An application or operating system fails to properly interoperate with a sip-and-puff device, eye gaze monitor, or other specialized controller needed by a person with motor disabilities and must be modified to interoperate. Section 1201 chills the modification.
- **Multiple Disabilities:** A gamer with muscular dystrophy, cerebral palsy, multiple sclerosis, or another disability that impacts their hands must modify a game to allow the remapping of keys, adjustment of the sensitivity of mouse or joystick, use of an onscreen keyboard, programming of macros, or the addition of algorithmic assistance. Section 1201 chills the modification.

The foregoing examples highlight just a few of the many ways by which people with disabilities may be excluded from gaining lawful access to copyrighted works; these scenarios are neither exhaustive nor hypothetical. [84] If the Office

[84] *See, e.g.*, Includification, *supra* note 47; Sarah Katz, *The Coronavirus Pandemic Reveals Gaps in Digital Accessibility*, Slate (May 22, 2020),

proceeds with a piecemeal approach to the exemption process, dozens of distinct exemption classes likely will need to be proposed in future triennial reviews. Instead, the Office can take an essential step toward ensuring that copyrighted works are accessible to people with disabilities by granting the proposed exemption to ensure that these and other uses will be covered over the forthcoming three-year period.

IV. Any qualifications, clarifications, or conditions to the exemption can be covered by fair use or a lawful access requirement.

The Office notes in its post-hearing letter that "[a]t the hearing, proponents suggested that an equitable remuneration requirement was implicit in their exemption request, despite not being identified in written submissions."[85] The Office also requests identification of "any and all other qualifications, clarifications, or conditions" that would be "appropriate" for Class 17, requesting that "[t]o the extent a clarification may be appropriate with respect to a certain use of a particular class of works identified in one section (or sub-section) of section 102 of the Copyright Act," we "specify the use or class of works."[86]

As a matter of clarification of the brief discussion of remuneration at the hearing, our long comment explains concerns about remuneration and payment can be handled by the contours of fair use.[87] If the Office believes it necessary, it

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https://slate.com/technology/2020/05/disabled-digital-accessibility-pandemic.html; S.E. Smith, *Why Is So Much of the Internet Inaccessible to Disabled People*, Week (Jul. 27, 2015), https://theweek.com/articles/567908/why-much-internet-still-inaccessible-disabled-people; Arielle Pardes, *The Internet Is for Everyone, Right? Not with a Screen Reader*, Wired (Oct. 24, 2019 at 8:00 AM), https://www.wired.com/story/web-accessibility-blind-users-dominos/; Nicholette Zeliadt, *Scientists Sound Warning About Use of Autism Speech Detectori,* Spectrum News (Feb. 27, 2019), https://www.spectrumnews.org/news/scientists-sound-warning-use-autism-speech-detector/; Sharon Saylor et. al., *Effects of Three Types of Noncontingent Auditory Stimulation on Vocal Stereotypy in Children with Autism*, 45 J. Applied Behavior Analysis 185 (2012), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3297341/; Raed Al-Musawi & Adam Wojciechowski, *Assisstive* [sic] *Technology Application for Enhancing Social and Language Skills of Young Children with Autism*, 76 Multimedia Tools Applications 5419 (2017), https://doi.org/10.1007/s11042-016-3995-9.

[85] Post-Hearing Letter at 3.

[86] *Id.*

[87] Reply Comment at 20.

could also impose a requirement of lawful access to a copy or phonorecord of the underlying inaccessible work that is the subject of the necessary remediative use.

To be clear, our request is not intended to seek free copies or phonorecords of works that ordinarily require remuneration to a rightsholder; it is merely intended to ensure that a person with a disability who has lawfully acquired or licensed a copy or phonorecord of a work can access it on equitable terms. With that in mind, we would object to a specific remuneration requirement because some works are made freely available and do not ordinarily require remuneration to a rightsholder to acquire or license a copy or phonorecord;[88] in our view, a lawful access requirement—or simply relying on the contours of fair use—would be adequate to address this concern.

In terms of additional qualifications, clarifications, or conditions that would be appropriate, we believe that simply requiring an underlying, noninfringing, accessibility-directed use would adequately address any potential impacts on rightsholders of the exemption. Indeed, any unanticipated set of circumstances involving circumvention could always be challenged if a rightsholder genuinely identified circumstances under which fair use was in doubt. Because opponents of the exemption have not identified any such circumstances in their comments, we do not believe any further elaboration on this point is necessary, appropriate, or consistent with the requirements of Section 1201. However, we stand ready to discuss specific concerns that the Office or opponents of the exemption may have.

V. The Office should conduct regular roundtable conversations with stakeholders at the intersection of copyright and disability to better understand the barriers that people with disabilities face in accessing copyrighted works.

Finally, we note that the copyright law's role in intermediating access to copyrighted works places the Office in a position of significant power and responsibility in ensuring the civil and human rights of people with disabilities are met. We urge the Office to actively promote these civil and human rights, foster innovation and imagination, and pave the way for the social integration, economic activity, and democratic participation that comes from equitable access to copyrighted works for people with disabilities—and to the tools and platforms to create them for creators with disabilities.[89]

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[88] *See, e.g.*, Creative Commons, *About CC Licenses* (providing a set of widely used licenses that do not require remuneration under certain other conditions, such as attribution).

[89] *See e.g.*, Katz, *supra* note 84 ("'We [disabled people] stand to benefit greatly, alongside everyone else in this economy, if we make digital accessibility a

The Office's actions will only become more impactful as copyrighted works become increasingly digitized and access is increasingly intermediated by TPMs. This century's fight for an accessible digital world is as critical to disability rights as last century's fight for an accessible physical world.[90] The first "generation of Americans with disabilities" to "gr[o]w up in a world where their basic rights were protected by the law" was only thirty years ago, thanks to the long battles for Section 504 of the Rehab Act and the ADA by disability rights activists.[91] Passage of these laws transformed much of the "physical environment of the country by mandating accessibility in public spaces."[92] While enacting the ADA was an unparalleled achievement for the movement, its passage came at the beginning of a transition from physical spaces to virtual ones. The Office now holds a critical role at the gates to those virtual spaces and the wide array of copyrighted works they contain.

Accordingly, we urge the Office not only to grant the Class 17 exemption, but to affirmatively and regularly engage with people with disabilities and copyright holders on the issues at the intersection of copyright and disability through the hosting of at least annual roundtables.[93] Revisiting these issues every three years in the high-stakes context of the triennial review is a less-than-ideal way to

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priority,' said former Rep. Tony Coelho, who has epilepsy and was the ADA's primary sponsor").

[90] *See e.g.*, *id*. ("Elizabeth Ellcessor, an assistant professor of media studies at the University of Virginia who studies the accessibility of technology, said that technology that restricts access to those who fit bodily norms is itself disabling."); Smith, *supra* note 84 (The inaccessibility of the Internet "is a huge problem, not just because the disabled community deserves the same accessibility as everyone else, but because they otherwise have so much to gain by the web's lack of physical barriers. . . . Disabled people need to be active participants on the web now more than ever. Cuts to social services, disability benefits, and other government supports have hit disabled communities especially hard, and the internet could be a powerful tool for self-advocacy.")

[91] *See generally* Nora McGreevy, *The ADA Was a Monumental Achievement 30 Years Ago, but the Fight for Equal Rights Continues*, Smithsonian Magazine, https://www.smithsonianmag.com/history/history-30-years-since-signing-americans-disabilities-act-180975409/.

[92] *See generally id.*

[93] *See e.g.*, Katz, *supra* note 84 ("My recommendation for leaders who are trying to figure out what to do and how to do it is to build relationships with disability leaders in their communities." (quoting former Rep. Tony Coelho)).

unearth the evolving issues in this space or for the Office to learn about the barriers, both new and old, facing people with disabilities. As the Librarian of Congress noted in 2010, the triennial review "is a regulatory process that is at best ill-suited to address the larger challenges of access" for people with disabilities[94]—a reality that has not changed in the past decade.

Please don't hesitate to contact us if you have any questions.

Respectfully submitted,

/s/

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[94] *Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies*, Final Rule, Docket No. RM 2008–8, 75 Fed. Reg. 43,825, 43,839 (July 27, 2010), https://www.govinfo.gov/content/pkg/FR-2010-07-27/pdf/2010-18339.pdf.

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