



UNITED STATES COPYRIGHT OFFICE

Long Comment Regarding a Proposed Exemption Under 17 U.S.C. § 1201

Initial Comment of Andrew “bunnie” Huang Regarding Proposed Class 4

ITEM A. COMMENTER INFORMATION

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ITEM B. PROPOSED CLASS ADDRESSED

Proposed Class 4: Audiovisual Works—HDCP/HDMI

ITEM C. OVERVIEW

HDMI is a standard for video transport from one device to another. The signals are often encrypted using a version of HDCP. HDCP interferes with creative, noninfringing uses of the video being conveyed over HDMI, preventing remix, time-shifting, space-shifting, format-shifting, overlay of original imagery over a video signal, comparison of multiple video streams on a single display, and picture-in-picture display. An exemption is necessary to reduce the impact of Section 1201 on these protected forms of speech.

ITEM D. TECHNOLOGICAL PROTECTION MEASURE(S) AND METHOD(S) OF CIRCUMVENTION

High-bandwidth Digital Content Protection (“HDCP”) relies on secret cryptographic keys to prevent access to HDCP-restricted media.

A security researcher wrote that HDCP could be circumvented as early as 2001, but did not publish their work, citing fear of prosecution and civil litigation under Section 1201 of the DMCA.¹

¹ Niels Ferguson, “Censorship in action: why I don’t publish my HDCP results,” Aug. 15, 2001 (available at <https://web.archive.org/web/20120220014712/http://www.macfergus.com/niels/dmca/cia.html>).

In 2010, independent researchers calculated the “master key” for HDCP and anonymously uploaded it to the Internet.

Using the master key, it is possible to bypass HDCP restrictions without obtaining secret keys through authorized channels.

ITEM E. ASSERTED ADVERSE EFFECTS ON NONINFRINGEMENT USES

The Copyrighted Works

A variety of copyrighted works are subjected to HDCP. These include videos and portions of video games implicated in gameplay video. For instance, the Playstation 3 video game console uses HDCP that cannot be disabled through the user interface.²

Noninfringing Uses Adversely Affected by the Ban on Circumvention of Access Controls

Copyrighted works transmitted via HDCP-encumbered signals cannot be altered, remixed, or recorded without circumventing the access control of HDCP. As a consequence, it is impossible for a display device to show picture-in-picture or side-by-side views of multiple HDCP inputs, to remix the signal, to add an ‘alpha’ channel that blends transparently with the pixel data of the input signal, to rescale the work, or to time-shift the work.

Huang and others seek to engage in a variety of expression that is thwarted by the ban on circumvention. These noninfringing uses include:

Political expression, e.g., displaying a live political debate rescaled so that the text of a commentator’s live blog is presented alongside it without obscuring the image.

Educational expression, e.g., side-by-side comparison between two films, with the ability to draw notes over top of the image, or recording HDCP-encumbered signals to create a compilation of clips for media literacy education.

News expression, e.g., the simultaneous display of the coverage of a live event by more than one news source.

Safety expression, e.g., rescaling the display of a work so that text or visual overlay can appear alongside it to notify a home owner that a door has opened or remind a person that they need to take their medicine, or altering a work in real-time to block visual triggers of epilepsy or trauma.

Cultural expression, e.g., to record a video gamer’s gameplay and remix it with audio and visual commentary about the game or their performance.

Commercial expression, e.g., a business rescaling the video to display targeted advertisements in the margins, such as ads for local businesses or certain products.

² James Wood, “How to Disable HDCP on a PS3” (available at <https://ourpastimes.com/how-to-disable-hdcp-on-a-ps3-12612586.html>).

Circumvention of HDCP also enables scientific research to automatically generate subtitles, flag flashing imagery to protect viewers with epilepsy, analyze the proportions of lines spoken by different demographics, or identify content inappropriate for minors. These forms of research cannot be achieved without a corpus of video unencumbered by TPMs like HDCP. In addition, algorithmically analyzing content in order to flag, block, or alter given content in real-time requires access to the video stream traveling over HDMI and cannot be achieved without circumventing HDCP.

Further, circumvention of HDCP is necessary to recapture the functionality of VCR machines that once allowed for time, format, and space shifting of ephemeral signals.³

Fair Use

The uses above are transformative, fair uses that do not usurp the market for the original works, but achieve a new purpose. Indeed, many of the uses above fall within the preamble of Section 107, covering the entire range of favored purposes laid out in that provision. The first fair use factor favors the purposes behind the above activities.

The nature of the works does not weigh against fair use. While many of the works encumbered by HDCP are creative, that is generally true of transformative fair use, and as the Office has recognized, the creative nature of the initial work therefore has little weight.⁴ Moreover, the uses start with works that have been previously published and usually widely disseminated, favoring fair use.⁵

The uses above do not borrow an undue amount from the original. As the Second Circuit has reinforced, “the law does not require that the secondary artist may take no more than is necessary. . . . The secondary use “must be [permitted] to ‘conjure up’ at least enough of the original” to fulfill its transformative purpose.”⁶ In other cases, the work is only implicated tangentially by a desire to display entirely original information alongside it on the screen, necessitating rescaling (which requires use of the entire work and then reformats it) or the minimal use of the pixels to be blended when an overlay requires an ‘alpha,’ or partially transparent, channel. Blending does not affect any more of the work than is necessary.

³ See *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417 (1984) (holding time-shifting to be a fair use).

⁴ 2012 Rulemaking, Register’s Recommendation at 128; see also *Campbell*, 510 U.S. at 598 (concluding that the second factor “adds little to the first” when the use is transformative); *Blanch v. Koons*, 467 F.3d 244, 256 (2d Cir. 2006).

⁵ See, e.g., *Kelly v. Arriba Soft Corp.*, 336 F.3d 811, 820 (9th Cir. 2003); (“Published works are more likely to qualify as fair use because the first appearance of the artist’s expression has already occurred.”); *Arica Inst. v. Palmer*, 970 F.2d 1067, 1078 (2d Cir. 1992) (plaintiff’s work was “a published work available to the general public,” and the second factor thus favored the defendant).

⁶ *Cariou v. Prince*, 714 F.3d 694, 710 (2d Cir. 2013).

With respect to market harm, the transformativeness of the above uses also makes market harm unlikely.⁷ More generally, the presence of transformativeness establishes that the uses lie outside of any market that copyright owners may legitimately monopolize, even when there is some connection to financial benefit.⁸ Where the uses do create a copy or a new, transformed work, for the most part they do so for purposes that are at the core of fair use and have been protected in prior rulemaking.⁹ Even the most commercial of these uses, the presentation of advertisements, does not harm the market for the original works because the commercial use does not create any substitute that can usurp demand. Rather, it presents a new message alongside the original; the only use of the original is to rescale it so that both may fit on the screen at once, or to blend via an alpha channel.

In many cases, the uses do not even fix a new work in a tangible medium; the rescaled or modified image is displayed onscreen and then gone. There is no possibility of substitution because an authorized copy was used as the input and no lasting copy or derivative work results.

In regard to format- and space-shifting, the Register has previously rejected exemption requests to engage in these activities. However, in *Sony*, the technology at issue accomplished time-shifting *via* format- and space-shifting a television signal to a portable magnetic tape in a Betamax cartridge. *Id.* The comments of proponents of Class 8 in the 2015 Rulemaking provide an ample legal and factual basis to conclude that format- and space-shifting of audiovisual works are legitimate fair uses. In the HDCP context, the case becomes especially strong when signals are otherwise not available in a persistent format, for instance video game gameplay or live-streaming video. The lack of alternatives is even starker in these cases, which bolsters the already-strong justification for format- and space-shifting.

Statutory Factors

(i) *The availability for use of copyrighted works;*

Since many videos and video games are only available in formats subject to TPMs, the exemption is necessary to make them available for the uses authorized by copyright and other

⁷ 2012 Rulemaking, Register’s Recommendation, at 127-29.

⁸ *See, e.g., Authors’ Guild, Inc. v. HathiTrust*, 755 F.3d 87, 99 (2d Cir. 2014) (“any economic ‘harm’ caused by transformative uses does not count because such uses, by definition, do not serve as substitutes for the original work”); *see also id.* at 103 (even where use is nontransformative, market effect factor weighs in favor of fair use

where market is so minimal that potential licensors usually don’t bother to license or forego royalties when they do); *Arrow Prods., LTD. v. Weinstein Co. LLC*, 44 F.Supp.3d 359 (S.D.N.Y. Aug. 25, 2014) (copies of short portions of film *Debbie Does Dallas* were transformative fair use; alleged licensing market was not within copyright owner’s legitimate market because uses were transformative).

⁹ *See, e.g.,* 2015 Rulemaking, Register’s Recommendation at 99-104.

law.¹⁰ As discussed above, the exemption will not harm market incentives to make works available.

- (ii) *The availability for use of works for nonprofit archival, preservation, and educational purposes;*

The ability to record and time-shift works into a more long-lasting format would help to archive and preserve those works, including ephemera such as video game gameplay that otherwise is not recorded. As discussed above, the circumvention of HDCP allows for educational uses such as side-by-side comparison of films in a film studies class or educational overlays or real time commentary and analysis on a video feed

- (iii) *The impact that the prohibition on the circumvention of technological measures applied to copyrighted works has on criticism, comment, news reporting, teaching, scholarship, or research;*

The prohibition takes many forms of criticism, comment, and teaching off the table by preventing the real-time overlay of relevant information or commentary alongside the original. It impedes research and scholarship by preventing researchers from algorithmically analyzing the data used to convey digital media, research that **could** be used to, for instance, automatically generate subtitles, flag flashing imagery to protect viewers with epilepsy, analyze the proportions of lines spoken by different demographics, or identify content inappropriate for minors.

- (iv) *The effect of circumvention of technological measures on the market for or value of copyrighted works; and*

A user who is transmitting media over HDMI already has the ability to view it on an HDCP-enabled playback device. The copyright owner has already been compensated. Circumvention for the noninfringing uses discussed above does not harm the market for any copyrighted works. Circumvention would increase the value of copyrighted works by enabling new, important uses of those works.

- (v) *Such other factors as the Librarian considers appropriate.*

Given the statutory command to grant exemptions where there are adverse effects on noninfringing uses, the Librarian should exempt all noninfringing uses from the ban on circumventing HDCP. The examples above demonstrate the broad constellation of uses that are adversely effected, and attempting to craft a piecemeal exemption will inevitably leave numerous important and legitimate uses lost in the cracks.

¹⁰ E.g. James Wood, “How to Disable HDCP on a PS3” (available at <https://ourpastimes.com/how-to-disable-hdcp-on-a-ps3-12612586.html>). DVDs and Blu-ray Discs often contain content unavailable even on streaming platforms, such as audio commentary and deleted scenes. E.g., Broadway World, “2018 Golden Globe Nominee Game of Thrones Season Seven on Blu-ray and DVD Available Now!” Dec. 13, 2017 (available at <https://www.broadwayworld.com/bwwtv/article/2018-Golden-Globe-Nominee-Game-Of-Thrones-Season-Seven-on-Blu-ray-and-DVD-Available-Now-20171213>).