Notice of Inquiry

In re **Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies**

Docket No. RM 2002-4

Post-Hearing comments of

The Electronic Frontier Foundation

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In re Exemption to Prohibition on	)
Circumvention of Copyright	) Docket No. RM 2002-4
Protection Systems for Access	)
Control Technologies	)

Post-Hearing Comments of the Electronic Frontier Foundation

The Electronic Frontier Foundation (EFF) is pleased to provide these comments in response to specific questions posed in the letter from Mr. David Carson, General Counsel of the Copyright Office, dated June 5, 2003.

> 1.   Introduction

EFF supports the Copyright Office's initiative in seeking further clarification about the operation and impact on the public of DVD technologies and welcomes the opportunity to provide further information to assist in this inquiry. At the same time, EFF considers that the decision of the Copyright Register and the Librarian of Congress as to whether to grant the four exemptions proposed by EFF does not turn on resolution of these technical issues.

Many of the technologies at issue in the requested exemptions are extremely complex. The technical details are not fully understood even by many members of the technology community. In the case of DVD (Digital Versatile Disc – Video) technology, trade secret protection is claimed for most of the technical implementation specifications and the multi-tiered set of licenses required to use the technology are subject to confidentiality agreements, thereby preventing the public from gaining full understanding of the technologies and their uses and limitations.

The interaction of law and technology in 17 U.S.C. §1201 is even more complex. Determination whether particular uses of technology are lawful, or instead unlawful "circumvention" under §1201(a)(1) frequently hinges on a characterization of what activities can be considered to be done with the "authority of the copyright owner" for the purpose of 17 U.S.C. §1201(a)(3). While there has been no satisfactory explanation of how users' authority relates to technology licenses to which the users are not parties (between the DVD Copy Control Association (DVD-CCA) and DVD player manufacturers), that argument has been at the heart of copyright holders' claims in litigation over §§1201(a)(2) and 1201(b).   Needless to say, consumers do not know the confidential terms of these licenses.

It is precisely because the technological and legal uncertainties at issue are not easily resolvable that EFF has sought the proposed exemptions. Members of the public should not be required to investigate and understand the technical intricacies of these technologies, then apply a complex set of statutory provisions, simply to determine

whether it is lawful for them to make common, non-infringing uses of copyrighted works. The Register and Librarian can surmount these issues for consumers by recognizing that uncertainty compounds substantial adverse impact on consumers' non-infringing uses as a result of the prohibition in §1201(a)(1). As evident in the Commerce Committee Report at the time that the Digital Millennium Copyright Act was enacted, Congress intended for this triennial inquiry and rule-making to provide a "fail-safe" mechanism to protect consumers' non-infringing uses of copyrighted works.[1] By granting the exemptions sought, the Copyright Register and Librarian of Congress can provide consumers with guidance about the lawfulness of their non-infringing uses of technologically-protected works.

Finally, EFF notes that most of the information sought by the Copyright Office in this supplemental inquiry is in the possession of the copyright owners and technology licensors, and has been specifically denied to the public through confidentiality agreements and trade secrecy claims. If these matters are indeed necessary to the demonstration of the "substantial adverse impact" threshold for harm in this proceeding, EFF respectfully suggests that in the interests of procedural fairness, the burden of production should now shift to the motion picture and associated technology copyright owners, who are better placed to provide the information being sought by the Copyright Office. In particular, EFF notes that for much of the technical information about the interoperation between Region Playback Control, UOP blocking, and Content Scramble System in DVD technology and the details of public domain motion pictures released on DVD format, the only parties likely to possess comprehensive information are the motion picture industry and associated technology copyright owners opposing the requested exemptions. EFF has made its best endeavors to obtain the information requested by the Copyright Office, but is not in a position to provide comprehensive information on various issues for these reasons.

2.   Region-coding Questions:

1. *Can region-coding on DVDs embodying audiovisual works be changed or turned off without decrypting CSS?*

As Digital Versatile Discs ("DVDs") contain read-only content, nothing on a DVD, including region-code information, can be changed or turned off. Therefore, even if the CSS encryption on a DVD were decrypted, it would not be possible to change the region-coding information on that particular DVD.

It is only possible to avoid region-coding by disabling or modifying the region-code responsiveness on a licensed DVD player. It would also be possible to play foreign region-coded material on a DVD player that does not respond to region-coding. However, since region-code responsiveness is a requirement of the DVD-CCA CSS License and the CSS Procedural Specifications, any such player would not be licensed by the DVD-CCA.

Region playback control (RPC) involves an interaction between region-coding information stored on a DVD and the DVD player's responsiveness to that information. Region playback information on a DVD is stored in two specially-designated bytes. Each

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[1] H.R. Rep. No.105-551, Pt.2, (1998) at 36.

byte is comprised of 8 bits. The 8 bits of data in the first designated byte correspond to the eight geographic regions currently utilized by motion picture distributors.[2]

To allow a DVD to play back in a player from a particular region, the flag for that region must be "cleared" on the DVD.[3] If a particular region flag is "set", the DVD will not play on a player from that region. In the process of manufacturing or "authoring" the DVD, the region-code flag for one or more regions are cleared, permitting playback in players from those regions. Once the region-code bit or bits are written to the DVD media in the manufacturing process, it is not possible for a consumer to change the settings of the region flags.

>   2. *Can a licensed player be modified by an owner of that player to circumvent region coding without also circumventing CSS?*

It is difficult to answer this question as phrased. Any determination about "circumvention" under 17 U.S.C. §1201(a)(1) requires an analysis of the interaction of law and DVD technology. Consumers cannot obtain a full understanding of the technology's operation because details of the technological implementation of CSS and Regional Playback Control are subject to confidentiality agreements and claims of trade secrecy. "Circumvention" is a legal conclusion about the operation of technology. It requires an interpretation of several complex statutory definitions in 17 U.S.C. §1201, and frequently turns on the construction of the scope of "authority" granted by a copyright owner under 17 U.S.C. §1201(a)(3). The DVD-CCA and various motion picture copyright owners have previously sought to tie the scope of authority to confidential CSS technology licenses between DVD-CCA and DVD player manufacturers, to which consumers are not a party. Whether confidential third-party licenses can be used to determine the lawfulness of a consumer's behavior is currently an unresolved legal question.[4] Accordingly, EFF has attempted to provide the Copyright Office with an explanation of our understanding of the technology involved, based on publicly available information, but we have refrained from forming any legal conclusion about whether the activities described would constitute "circumvention" for the purposes of section 1201(a)(3) and 1201(a)(1).[5]

The DVD-CCA and motion picture copyright owners have argued that playback of a

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[2] See Jim Taylor, *DVD Demystified*, 2nd edition, 2001, pp.187-8. Currently, only the first of the two designated bytes is used for region-coding control.

[3] Ibid.

[4] EFF does not accept the "authority" argument made by the DVD-CCA and motion picture parties in *Universal City Studios, Inc. v. Reimerdes*, 111 F. Supp. 2d 346 (S.D.N.Y., 2000). That case concerned an alleged violation of the "tools" provisions in §1201(a)(2) and §1201(b), and not a prohibition on the act of circumvention in 1201(a)(1).

[5] For the purpose of §1201(a)(1), §1201(a)(3) defines "circumvent a technological measure" to mean "to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure, without the authority of the copyright owner," and that a technological measure "effectively controls access to a work" to mean that the measure "in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work."

DVD on a modified or region-free DVD player is circumvention under section 1201(a)(1). EFF has requested an exemption that would permit consumers to play (but not copy) lawfully acquired foreign region movies not otherwise available in the United States and, if that requires "circumvention", an exemption to permit that use.

A licensed DVD player can be modified by its owner to either not respond to a particular disc's region-code flag or to play a disc from any region. The process for making this modification is slightly different for software and hardware DVD players. Depending on the type of DVD playback device, modification may involve a prior decryption of CSS. To the best of our knowledge based on the information available to us, it appears that RPC and CSS are technologically independent measures but are contractually tied by the terms of the DVD-CCA's CSS License. From a legal perspective, the question of whether a modification of a player involves "circumvention" prohibited by section 1201(a)(1) then turns on an analysis of the scope of authority granted by technology owners for the purposes of §1201(a)(3).

Further, an answer to this question involves an analysis of the three different types of region-code checks currently in use, and how different types of DVD players control region-coding.

First, DVDs may be played on either stand-alone DVD players, or in DVD-ROM drives in a computer. DVD players may be either hardware players or software players. Stand-alone DVD players are hardware players. A computer-based DVD drive may conduct a region check using a hardware component in the drive itself or may be controlled by a software player.

Second, there are three types of region-code checks:

(1) RPC-1: In DVD drives sold before January 1, 2000 (Region Playback Control Phase 1 drives) the region-code check is done solely by the software player. RPC-1 drives do not contain any hardware that checks and enforces region-specific playback.[6] In essence, the software player retains information about the player's region and plays the disc if the player's region-code matches the region-code information stored on the disc.

 (2) RPC-2: In DVD drives sold after January 1, 2000 (Region Playback Control Phase II drives) and many stand-alone players, there are two region checks. First, as in RPC-1 drives, a software player conducts a check, and a second check is conducted by firmware (usually a Programmable Read Only Memory chip) in the DVD-ROM drive or player. RPC-2 drives allow owners to change a player's code up to 5 times.[7] In these drives, the player's region-code is stored in a register on the hardware. The firmware also maintains a counter for the number of region-code switches. The firmware checks the region-code information stored on a DVD and plays the disc if it matches the player region information stored in the hardware.

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[6] See http://www.dvdcca.org/rpc.html and clause 6.2.2.2 of the CSS Procedural Specifications, Version 2.0, downloadable from the DVD-CCA website (visited June 18, 2003) ("CSS Procedural Specifications".)

[7] See http://www.dvdcca.org/css.html. According to information on the DVD-CCA's website and clause 6.2.2.2 (2) of the CSS Procedural Specifications, the owner of an RPC-2 drive can return it to the manufacturer to have it reset for up to another 4 sets of changes.

(3) RCE or Region-code Enhancement: RCE was introduced in October 2000 on certain region 1 discs, apparently to prevent playback of RCE discs on multi-region DVD players.[8] In essence, software code on a RCE disc conducts a series of checks of the player's region-code. If it finds that the player has more than one region enabled, it displays a static error message and does not play the DVD content. If it finds that only the single relevant region is enabled, it displays the content.

We understand that there are various technological means of defeating region-coding. For example, an owner could attempt to disable or modify the region-code responsiveness of a DVD player, or play other region-specific content in the following ways:

1. by installing a software patch on the owner's licensed software player or software driver;

2. by physically modifying a hardware player (for instance by replacing a firmware chip);

3. by turning on an installed, but disabled feature, such as multi-region playback, by inputting a special activation code, by pressing buttons on a hardware player or remote control;

4. by purchasing an aftermarket-modified DVD-CCA licensed player or a non-compliant player that plays all regions; or

5. by creating or using an unlicensed software player that does not respond to region-coding information.

For the reasons set out below, each of these appears to involve either bypassing CSS or another type of potential access control, or to involve activities that motion picture copyright owners consider to be unauthorized and hence "circumvention" of an effective technological protection measure for the purposes of 17 U.S.C. §1201(a)(3). Hence, on the copyright owners' interpretation of 17 U.S.C.§1201(a), consumers would require an exemption from §1201(a)(1) in order to undertake these activities without fear of legal liability. It is also worth noting that none of these modifications necessarily enable copying of decrypted DVD content.

(A) Modification of a Software Player or Software Driver

An owner might be able to modify or disable region-coding by installing a software patch for a licensed software player or a licensed software driver[9] for a computer-based RPC-1 DVD drive. RPC-1 drives "lock" on one specific region on initial use, when a region-coded DVD is inserted into them. A software player's region-code

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[8] See the DVD Frequently Asked Questions, Question 1.10 at
http://www.dvddemystified.com/dvdfaq.html#1.10 and http://www.dvdtalk.com/rce.html

[9] A software driver is the program that communicates between a software DVD player and the RPC-1 DVD-ROM drive. It is apparently possible to install a software patch for the driver so that the driver provides inaccurate DVD region-code information to the software player, permitting playback.

might be changed, or set to play all regions, or set to not respond to region-coding by a software patch. Installing the patch would not modify the encryption behavior of CSS in any way. However, by design and licensing requirements, the CSS decryption implementation code in a RPC-1 drive player is closely intertwined with the software player code that controls region-coding, so modifying the code controlling RPC responsiveness may be interpreted as modifying "CSS".

The CSS license for DVD player manufacturers and the CSS Technical Specifications detailing the implementation of the CSS decryption function are not available for public inspection and only available by signing a non-disclosure agreement. However, clause 6.2.2.2 of the CSS Procedural Specifications (available from the DVD-CCA website) specifies the required level of interdependence between code that decrypts CSS and code that controls region playback. It states that for all RPC Phase 1 implementations:

> *"The regional code playback instructions contained on a DVD Disc shall be implemented for DVD Drives through Hardware or Software closely coupled with the Hardware and/or Software responsible for the authentication function and for the descrambling of the CSS Data. As used in the previous sentence, "closely coupled" shall mean that:*

> > *(a) the Hardware or Software that supports the regional playback control function does not support substitution of Hardware and/or Software modules that will circumvent the regional playback control capability, but continue to allow playback.*

> > *(b) in the case of operating system Software which fully supports regional playback control, "closely coupled" shall mean that the Software that supports the regional playback control will also perform critically necessary functions for the playback of regionalized movies and thus will be difficult to re-engineer, replace or modify in order to circumvent regional playback control.*

> > *(c) The regional playback control shall disallow playback unless the region setting of the DVD Disc is consistent with the single region setting of the regional playback control module.*

> *End users shall not be permitted to alter the region assignment of the regional playback control module once such region assignment has been set."*

Given the integrated nature of the software player code, it is not clear whether installing a software patch for a software player would be considered to involve avoiding, bypassing, removing, deactivating or impairing the CSS decryption module within the software player, for the purposes of section 1201(a)(3)(A), and hence whether this type of modification might be construed as a "circumvention" of "CSS".

(B) Physical Modification of Player Hardware

RPC-2 DVD drives store player region-code information in hardware, such as a chip in the drive. The player's firmware also stores a counter which keeps track of the number of region switches. After the five permitted region switches, the player will "lock" to the last region selected. Owners could modify these types of players by

replacing the chip, or by running a software patch that resets or disables the switch counter.[10] From the technical information that is publicly available, it is not clear whether this would necessitate bypassing CSS.

We understand that the DVD-CCA CSS license for DVD player manufacturers also includes various robustness rules, requiring that players' region-coding responsiveness be implemented in a way that is not susceptible to ready modification by end users. Copyright owners might argue that the existence of such tamper resistance in players constitutes a further technological measure effectively controlling access to copyrighted works. If so, bypassing those tamper resistant features in order to modify a player's region-code responsiveness might be considered a separate violation of section 1201(a)(1).

(C) Enabling installed but disabled multi-region playback support in a DVD player

It appears that a number of players contain an installed but disabled feature that supports playback of multiple regions, which can apparently be activated by inputting a secret code, often by pressing a sequence of buttons on a stand-alone player's remote control. It is not clear that this would involve bypassing or modifying CSS functionality on a player. However, the creation of players by DVD player manufacturers which could be modified in this way by end users would appear to violate the CSS license robustness requirements. Owners of these players are obviously not parties to the DVD player manufacturing CSS license. However, again, the existence of such tamper resistance features might be considered a separate access control measure, in which case bypassing them to activate a disabled feature might be interpreted to violate section 1201(a)(1).

(D) Multi-region players and other non-compliant players

A consumer could purchase and use a multi-region player. We understand that the DVD-CCA CSS license for DVD player manufacturers requires players to playback DVDs from only the one region where the player is available for purchase. Although the details of implementation of this requirement are not public because the DVD-CCA DVD player manufacturer CSS license and Technical Specifications are not public, clauses 6.2.1.4, and 6.2.2.2 of the publicly available CSS Procedural Specifications confirm the single region requirement. We understand that multi-region players are usually licensed players that have been modified aftermarket, and hence are considered unauthorized players by the motion picture copyright holders. Although EFF does not agree, the copyright owners have previously taken the view that playback of a legitimately purchased DVD on such an unlicensed player is not within the scope of authority granted to an end user on purchase of a DVD and therefore violates §1201(a)(1)(3). Playback of a DVD on a multi-region player necessarily involves decryption of CSS. Given the position taken by copyright owners, consumers require an exemption to use these players without fear of legal liability.

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[10] See: Jim Taylor, *DVD Demystified*, 2nd edition, pages 491-2. According to information available on the DVD-CCA's website, a consumer can also return the DVD player to the manufacturer to have a RPC-2 drive's region-code change counter reset for a further five changes, on up to four occasions. (See http://www.dvdcca.org/css.html).

Further, aside from the disputed legality of using a multi-region player, newer RCE discs are designed to preclude playback on all-region DVD players.

(E) Use of an unlicensed DVD player that does not respond to region-coding

Various existing free software players do not respond to region-coding. For instance, the Ogle, Mplayer, Xine and VideoLAN players developed for the Linux Operating System do not respond to region-coding and could play DVDs from any region. All of these players necessarily decrypt CSS on playback of a DVD.

Region-code Enhancement:

1. *What are the differences between region coding and the newer "enhanced" region coding?*

Enhanced region-coding (RCE) provides a further layer of region-code checking. It was apparently designed to prevent region 1 DVDs from playing on all-region DVD players. RCE was introduced in October 2000 and has been deployed only on region 1 discs thus far. Accordingly, RCE is not relevant to the exemption that EFF has requested, to permit consumers to play foreign audiovisual works on non region 1 discs, and not otherwise available in the United States. However, to assist the Copyright Office with its understanding of the technology at issue, EFF is providing what information it has about this technology.

As noted above, unlike "regular" region-code checking by a DVD player, an RCE disc initiates a region check. We understand that code stored on the RCE disc conducts a series of checks of the player's region-code register. If the player has multiple regions or all regions enabled, the disk will display a static image stored on the RCE disc, stating that the disc is intended for play on non-modified region 1 DVD players and will not display the movie content. If the check indicates only one flag is set, and the flag on the player matches the flag set on the disc (currently, region 1), then the disk will display the movie content.

RCE discs use DVD's branching feature to decide which image to display, depending on the outcome of its check of the DVD player's region-code memory register.

According to one information source,[11] this check might be represented as:

If player region = all, 6,5,4,3,or 2, then display RCE error message and stop.
If player region = 1, then go to main menu, and display movie content.

2. *How many DVDs embodying audiovisual works are currently using enhanced region-coding?*

The only entities able to provide an authoritative answer to this question are the motion picture copyright owners who have released audiovisual works on RCE DVDs, and the technology companies who have provided the RCE technology for the copyright owners' purposes.

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[11] See: http//www.michaeldvd.com.au/Articles/RegionCode Enhancement/RCE.asp

However, consumer websites have reported RCE error messages displayed on various titles. The most recent list we are aware of is available at:

http://www.dvdtalk.com/rce.html and when visited on June 18, 2003, listed the following titles:

• 6th Day (First Single Disc Release Only)

• All The Pretty Horses

• America's Sweethearts

• The Animal

• Auto Focus

• The Brothers

• Charlie's Angels

• Darkness Falls

• Dogtown and ZBoys

• Enough

• Final Fantasy: The Spirits Within (Disc 1 Only)

• Finding Forester

• Ghosts of Mars

• Glass House

• Glitter

• Hollow Man

• Joe Dirt

• A Knight's Tale

• The Master of Disguise

• Maid in Manhattan

• Men In Black II

• Mr. Deeds

• National Security

• The New Guy

• Panic Room Superbit

• Spiderman

• The Patriot

• Saving Silverman

• Snatch

• South Park: Chefs Experience

• South Park: Xmas in South Park

• Stealing Harvard

• Stuart Little 2

• The Sweetest Thing (Rated & Unrated Versions)

• Thomas Tank & Magic Railroad

• Tomcats

• Trapped

• Urban Legend Final Cut

• xXx

That website also states that the Japanese distributor of Metro Goldwyn Mayer has developed an RCE-like encoding system (although is not using RCE itself). The website lists the following first run titles produced by the Japanese MGM distributor as having RCE-like encoding:[12]

> Another Woman
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> Antitrust
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> Magnificent Seven
>
> Magnificent Seven Ride Again
>
> The Princess Bride
>
> Salvador

Please note that EFF has not independently verified any of this information.

3. *To what extent will the enhanced version be applied to DVDs embodying audiovisual works in the next three years? (Please provide any evidence you have to support that prediction.)*

EFF has no information on this issue. The only entities able to provide an authoritative answer to this question are the motion picture copyright owners who have been releasing audiovisual works on RCE discs[13] and the technology companies who have provided the RCE technology for the copyright owners' purposes.

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[12] Japan is located in region 2, but EFF is not aware if the MGM RCE-like encoding was applied only to these titles in region 2, or to region 1 versions of these titles.

[13] To date, Fox, Buena Vista Entertainment, Touchstone/ Miramax, MGM/Universal, Polygram, Columbia TriStar and Warner Home Video. See http://www.dvddemystified.com/dvdfaq.html#1.10

However, EFF is aware of two widely-reported documents, purporting to be company memos from Warner Home Video and Sony Corporation's Columbia TriStar Home Video to its region 1 DVD distributors, describing the use of RCE technology on discs. The purported WHV memo states that WHV was to start applying RCE to region 1 titles in October 2000, and stated that the scheme had two objectives: (1) to discourage the export of region 1 discs to other regions; and (2) to discourage the sale of DVD Video hardware that has been modified to "region free". The purported Columbia memo also states that RCE was to be applied to region 1 discs commencing in October 2000. These purported memoranda are available at various Internet websites, including at http;//www.dvdtalk.com/rce.html

3.   UOP blocking Questions:

3.1   Can the disabling of the fast-forward function or the UOP blocking commands of a DVD be reversed or altered, thus reactivating the fast-forward function, without decrypting CSS?

As far as we can determine based on publicly available information, UOP-blocking markers are stored in CSS-encrypted bits on a DVD. Even if CSS on a DVD were decrypted, it would not be possible to alter the unencrypted UOP-blocking markers because DVDs contain read-only data.

However, it is possible to disable the UOP blocking responsiveness of a DVD player, which would enable a consumer to fast forward through content marked with UOP-blocking markers stored on a DVD. Again, based on the information publicly available to us, we understand that there are three ways in which this may be achieved. Whether this requires "decryption" or "circumvention" of CSS is difficult to answer because it involves an analysis of those terms' statutory definitions applied to each of these scenarios.

1. A consumer could modify or disable UOP-blocking responsiveness on a DVD-CCA licensed software player;

2. A consumer could write his or her own unlicensed software player that does not respond to UOP-blocking commands; or

3. A consumer could use an existing unlicensed player, which does not respond to UOP-blocking commands, such as the Ogle, Mplayer, VideoLAN or Xine free software players.

In the first scenario, based on the publicly available information about how the DVD technology operates, it is not clear whether it would be necessary to "bypass" CSS in any relevant sense in order to access the part of the software player that contains the UOP-blocking responsiveness. DVD manufacturers are required to create DVD players that respond to UOP-blocking commands as a condition of obtaining a DVD Format Logo/Licensing Corporation license. DVD player manufacturers and reformatters must obtain this license to use the DVD trademark and to obtain access to the DVD Format

specifications.[14] EFF understands that the CSS license and CSS Technical Specifications contain robustness rules which require manufacturers to make DVD players difficult to be modified by end users. Trade secret protection is claimed for the relevant DVDFLLC and DVD-CCA CSS licenses and they are not available for public inspection. Accordingly, EFF is not able to determine whether it is necessary to bypass CSS in order to disable or modify UOP blocking responsiveness on a licensed player. EFF understands that the UOP-blocking responsiveness feature is closely integrated with the CSS implementation in a software DVD player. Accordingly, although the two systems are logically distinct, it is not clear as a matter of practical implementation, whether disabling UOP blocking responsiveness would be considered to involve "bypassing" or" altering" the CSS implementation code, for the purposes of section 1201(a)(1)(3) and 1201 (a)(1).[15]

The second and third scenarios both involve the use of unlicensed players. In order to play a disc on one of these players, by necessity the player would need to decrypt CSS. From the legal perspective, the relevant question is whether that would constitute a prohibited decryption under section 1201(a)(1). As a result of the statutory definition of the phrase "to circumvent a technological measure" in section 1201(a)(1)(3)(A), this turns on the interpretation of the scope of authority granted by copyright owners to a purchaser of a DVD. We understand that the DVD-CCA and some motion picture copyright owners consider that playback of a disc on a non-DVD-CCA licensed player is unauthorized activity,[16] and hence, on their view, playback of a disc on an unlicensed player would involve unlawful decryption in violation of section 1201(a)(1). To avoid any potential legal liability, consumers therefore require an exemption to create or use an unlicensed player for this purpose.

We also understand that it is possible to use software to copy certain portions of decrypted MPEG-2 content on a DVD (which would not incorporate the UOP markers). In this scenario, obtaining access to and copying of the MPEG-2 file would be possible only after decrypting CSS.

> 4. *If UOP blocking commands cannot be changed or turned off without circumventing CSS, is it technically possible to design the protection system in a way that would make this possible or does the nature of the DVD medium preclude this?*

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[14] See the DVD Format Logo/ Licensing Corporation's website, at http://www.dvdfllc.co.jp/. The terms of the license are not available for public inspection and licensees are required to sign a non-disclosure agreement. However, one of the DVD Video Player Test Specifications, Form 5A, Page 1, available for download from the Corporation's website lists UOP blocking responsiveness as one of the test criteria. See: http://www.dvdfllc.co.jp/forms/form_a.pdf

[15] In addition, the existence of such tamper resistance features in a DVD player may constitute a separate "access control measure", so that bypassing them in order to modify a player might be construed as a separate violation of section 1201, irrespective of any decryption of CSS.

[16] See Reply Brief for Plaintiffs-Appellees at 63, note 43, *Universal City Studios, Inc. v. Reimerdes*, No. 00-9185 (2d Cir. filed Feb. 28, 2001) ("[A]uthorization by the Studios [upon purchase of a DVD] has been limited to accessing DVD content via authorized equipment."), at http://www.eff.org/IP/Video/MPAA_DVD_cases/20010228_ny_op_reply_brief.html.

We understand that UOP blocking and CSS encryption are technically distinct mechanisms and that there is no necessary technical interdependence. However, this would require a redesign of the entire CSS protection scheme. Given the financial investment made by the motion picture copyright owners, and the large installed base of DVD players, which utilize the current CSS implementation, (and which might not interoperate with a different implementation), we would consider that the DVD-CCA and relevant copyright owners would be unlikely to consider redesigning the system, and would have no business incentive to do so. Accordingly, from consumers' perspective, only an exemption which permitted disabling of UOP-blocking on existing DVD players would protect consumers' ability to engage in the noninfringing use of fast-forwarding through content on DVDs they have purchased.

4.   DVD Licensing Questions:

Which, if any, DVD-CCA licenses are available for public inspection? What licenses or parts of licenses are not publicly available for inspection?

The DVD-CCA enters into licenses with nine groups or "membership classifications" of DVD Player or DVD Drive component manufacturers. The DVD-CCA website lists three types of application process (Processes A, B and C), which correspond to three different levels of information disclosure. The Process A Associate License for DVD Resellers and Assemblers, does not contain confidential information and appears to be available for download from the DVD-CCA website after completing and submitting a web form to DVD-CCA. The other types of CSS licenses, including those entered into with DVD player manufacturers, are claimed to contain confidential information and we understand, are subject to a non-disclosure agreement. The application to obtain these licenses can be completed via a web form on the DVD-CCA's website. Processes B and C involve confidential information and we understand, are subject to a non-disclosure agreement. The nine classes of entities required to obtain a DVD-CCA CSS license, and the relevant type of license and application process are as follows:

Type of Entity:	Process for obtaining license:
Assembler, Reseller	Process A – Associate License. Does not contain Technical Specifications. Requires submission of information to download.
Content Provider, Authoring Studio, Authorized DVD Replicator.	Process B. License information includes set of authorized CSS encryption keys for encrypting content. Contains confidential information. License subject to NDA.
CSS Disc Formatter Manufacturer, DVD Player Manufacturer, DVD Drive Manufacturer, CSS Decryption Module Manufacturer.	Process C. We understand that license provides authorization to use one of 400 authorized sets of DVD player keys. Contains highly confidential information. Subject to NDA.

The DVD-CCA website also refers to CSS Procedural Specifications and CSS Technical

Specifications. CSS Procedural Specifications are not available for public inspection on the DVD-CCA website, but an interested person can download them after submitting a web form. These specifications include the requirement for DVD players and drives to respond to region playback control (please see above), but do not contain the robustness rules governing the requirement to make players and drives tamper-resistant to end-users.

The CSS Technical Specifications are referenced in the Procedural Specifications. They appear to contain the technical implementation details for the CSS authentication and decryption modules and the various key transfer mechanisms. We understand, but have not been able to verify, that they contain the robustness or tamper resistance specifications, which are designed to make a player unmodifiable by end users. The Technical Specifications are not available for public inspection or download. However, the Procedural Specifications state that the relevant portions of those Specifications are provided to particular types of CSS licensees including DVD player manufacturers, and component authentication and decryption manufacturers under License Process C (see above) and therefore subject to a non-disclosure agreement.

The DVD-CCA administers the licensing scheme for the various patents governing the use of the CSS technology. However, there are other types of licenses that a DVD player or DVD drive manufacturer might need to obtain, from organizations other than the DVD-CCA. For instance, a DVD player or drive manufacturer might would need to obtain a DVD Format/ Logo License, from the DVD Format/ Logo Licensing Corporation, in order to obtain authorization to use the DVD trademark. The terms of this license are also not available for public inspection, but a checklist of required technical features (including the ability of a licensed player to respond to UOP blocking on a disc) is available from that organization's website at: http://www.dvdfllc.co.jp

> 5. CSS Technology Questions:

Is CSS a "computer program"?

Technically speaking, CSS or Content Scramble System, is the name of a particular data encryption and authentication system, comprising an encryption algorithm and a set of decryption keys (used by player manufacturers and DVD authors).[17]

However "CSS" is sometimes used to describe the computer code which implements the CSS algorithm, and the scheme of copy protection for audiovisual content stored on DVD more generally.

17 USC §101 defines a "computer program" as a set of statements or instructions to be used directly or indirectly in a computer to bring about a certain result." The first, technical, use of "CSS" would not meet this definition. However, the more colloquial use of "CSS" to describe computer code which implements the CSS authentication protocol and encryption algorithm, might meet this definition.

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[17] In the *Corley* case, the 2nd Circuit Court of Appeals also found that CSS was a security algorithm and not a computer program. See *Universal City Studios, Inc. v. Corley,* 273 F. 3d. 429, 436 (2nd Circ., 2001).

6.   Linux OS DVD Player Questions:

6.1   Are there currently any devices on the market which use the Linux-based operating system and which will play DVDs? How is the availability of such devices likely to change (if at all) in the next three years?

At present there is currently only one DVD-CCA licensed player that will allow DVDs to be played on the Linux operating system, InterVideo's LinDVD player. However, that is only available to manufacturers as a component for inclusion in a system. EFF is not aware of any Linux OS-based DVD-CCA licensed DVD player that is currently available to consumers for use with already installed DVD-ROM drives in consumers' computers.

There are a number of non DVD-CCA licensed free software players that users of the Linux operating system can use to play DVDs that they have purchased. These include the Ogle, Xine, Mplayer and VideoLAN players. At least some of these were created by reverse engineering of a licensed software DVD player. However, based on their position in various lawsuits, we understand that the DVD-CCA and various motion picture copyright owners consider that the development and use of these players involves a misappropriation of claimed trade secret protection for the CSS algorithm.[18]

In order to play DVDs, these players decrypt CSS on the disc. Based on their position in various lawsuits,[19] we understand that the DVD-CCA and various motion picture copyright owners would consider that use of such an unlicensed player to decrypt CSS and play DVDs would be a prohibited act of circumvention under section 1201(a)(1) either because using one of these players to decrypt CSS would be a prohibited decryption of CSS or because playback of a DVD on a non-licensed player is not authorized by the copyright owners for the purposes of section 1201(a)(3).

7.   Public Domain Motion Picture Questions:

7.1   How many DVDs which are encrypted using CSS contain a compilation of works including both audiovisual works in the public domain and audiovisual works protected by copyright? (Please provide the specific titles in each such case).

7.2   Please provide the details concerning any instances you are aware of in which one or more works in the public domain have been bundled with one or more works protected by copyright, and the bundled works have been protected by a technological measure that controls access to the works in a way that has adversely affected users' ability to make noninfringing uses of the public domain works.

EFF is not in a position to provide an authoritative statement as to the total number of public domain works available on DVD format. EFF would like to reiterate the points made in its testimony, that requiring a non-industry proponent to provide a complete list of public domain works available on DVD in order to meet the threshold burden in this

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[18] See *DVD-CCA v. Bunner*, Cal. App. 6, 2001 Cal. App. LEXIS 1179 (November 1, 2001).

[19] *See Universal City Studios v. Reimerdes,* Reply Brief for Plaintiffs-Appellees *at 63, note 43 (2nd Circuit, filed Feb 28, 2001: "*The authorization by the Studios has been limited to accessing DVD content via authorized equipment .."*,; 321 Studios v. MGM Studios et al,* Reply Memorandum of P & A in support of Motion for Partial Summary Judgment, filed March 28, 2003, p.7.

proceeding would raise very significant issues of procedural inequity. EFF believes that the motion picture industry participants in this proceeding are in a better position to obtain this information.

To prove definitively that a particular motion picture is in the public domain in the United States is a complex and time-consuming process, requiring significant resources. In particular, it requires a review of the records held at the Copyright Office to verify renewal information and that there are no claims to copyright in any ancillary material or works underlying a motion picture, such as screenplays, books or musical scores. EFF's assistants undertook that review in respect of the 9 public domain titles released on DVD that were identified in EFF's December 18, 2002 comments.

Of the 9 previously identified public domain motion pictures released as solo works on DVD, EFF has identified that the Laurel and Hardy public domain work, *Our Gang Follies of 1938* is available in a compilation on DVD called *Our Gang Festival* from http://www.facets.org. However, it is not clear from the information on the website whether any of the other works on that disc are copyrighted.

Two consumers filed comments with the Copyright Office in this proceeding in support of EFF's public domain works exemption request. EFF was able to locate the public domain work cited by Brian Degenhardt (Reply Comment No. 271), the Charlie Chaplin Marathon, at http://www.amazon.com. That DVD appears to contain four pre-1923, and therefore presumptively public domain motion pictures[20] and an "introduction" by Tony Curtis. Although we presume there may be a claim to copyright in the introduction, this was not clear from the information on the website. EFF was not able to locate the film cited by Fritz Swanson (Reply Comment No. 272), "To the Moon and Back" by the Lumiere Brothers, on a compilation called *Great Works of Film, Vol.1*. However, we believe that the commenter may have been confused about the title and was likely referring to the famous 1902 George Melies' film "A Trip to the Moon" (sometimes translated from the French as "A Voyage to the Moon"). This motion picture is available on a DVD compilation called *Landmarks of Early Film Vol.1,* available from http://www.facets.org among other places. That DVD compilation includes 15 films by the Lumiere Brothers.

In the timeframe provided for post-hearing comments, EFF has not been able to undertake that endeavor for the additional likely public domain motion pictures that we agreed to identify. However, we have conducted extensive searches of various databases and identified 17 titles of motion pictures released prior to 1923 that are presumptively in the public domain, and have been released in a compilation with apparently copyrighted audiovisual works on DVD. The presumptively public domain works in these compilations are *only* available on DVD format. These titles are:

1. Move On (1917)
2. The Original Movie (1922)
3. Blacksmithing Scene (1893)

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[20] The Rink (1916), The Immigrant (1917), Tillie's Punctured Romance (1914), and The Vagabond (1916).

4. Three American Beauties (1906)

5. Confederate Ironclad (1912)

6. Luis Martinetti, Contortionist (1894)

7. Caicedo, King of the Slack Wire (1894)

8. The Thieving Hand (1908)

9. Land Beyond the Sunset (1912)

10. Snow White (1916)

11. Demolishing and Building Up Star Theater (1901)

12. Move On (1903)

13. Dog Factory (1904)

14. White Fawn's Devotion (1911)

15. Interior New York Subway (1905)

16. Her Crowning Glory (1911)

17. The Insured (1916)[21]

Further details of the DVD compilations in which these works appear, and the sources for purchase are set out in the table in Annexure A.

We have also identified a further 10 presumptively public domain titles that have been released in DVD compilations together with apparently copyrighted works in the table in Annexure B. The presumptively public domain titles within these compilations are available on both DVD and VHS tape format. Further details of these works, the relevant compilations in which they appear and available formats are listed in Annexure B.

In addition, through inquiries, we have identified the following public domain works released in a compilation with copyrighted works on DVD:

1. *Carnival of Souls* - a feature film distributed by Criterion, contains "one hour of excerpts of films made by the Centron Corporation."

2. *The Educational Archives: Vol. 1, Sex and Drugs* - a compilation of archival short films distributed by Fantoma, contains at least one licensed copyrighted film ("Marijuana," starring Sonny Bono) and a substantial number of other titles in the public domain.

3. *The Educational Archives: Vol.3, Drivers' Ed.* - a compilation of archival short films distributed by Fantoma, contains at least one licensed copyrighted film ("The Last Prom") and a substantial number of other titles in the public domain.[22]

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[21] See *Treasures from American Film Archives*, also cited in the Joint Commenters' Reply Comments at page 21, note 21. Many of these titles have been released in this 4-disc box set, released by the National Film Preservation Foundation, Copyrighted and public domain titles are combined on each of the 4 discs.

[22] Two other DVD titles in this series may also combine copyrighted and public domain titles

In order to compile the attached tables, we conducted a search of motion picture titles released in the United States prior to 1923 and checked available formats for purchase for these titles at six specialist motion picture vendor websites. We also made inquiries of various persons in the motion picture and archivist communities. Since roughly 21,000 motion pictures were released in the United States prior to 1923, we have not been able to review all of these titles. In addition, in the interests of responding by the June 20 deadline, we narrowed our search for formats available for purchase to five specialist motion picture vendor websites, together with a search for the relevant titles on the Google search engine. However, we note that it is not feasible to search every possible location on the Internet where a DVD or VHS cassette might be sold, so it is not possible to provide a conclusive list of all public domain works available on DVD.

In addition, since our search was limited to presumptively public domain motion pictures released prior to 1923, we note that there may be other motion pictures in the public domain and available on DVD– for instance, films that were published during the 1923-1968 period, for which copyright has lapsed due to the failure to renew copyright.

In relation to the use of CSS encryption on these works, we note that our review of the hearing transcript from May 15 indicates that the Copyright Office suggested that the motion picture industry participants could provide verification of the use of CSS on the particular titles that EFF agreed to identify.[23]

> 5. *Can copyrightable works on a DVD be encrypted with CSS without also encrypting the public domain works contained on the same DVD? For example, if a public domain motion picture is placed on a DVD, can it be left unencrypted while the ancillary new works added, such as interviews, etc., are encrypted?*

EFF is not able to answer this question. We have not found any information that specifically addresses this issue in publicly available DVD technology materials. Further, EFF is not able to view the DVD-CCA CSS license granted to manufacturers and DVD authors which, we understand, contains the details of the CSS encryption implementation that might answer this question.

Thank you for the opportunity to provide comments on these issues. EFF would welcome the opportunity to supplement this response if further information is provided by other parties on these issues.

Gwen Hinze, Esq.
Staff Attorney
Electronic Frontier Foundation

June 20, 2003

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onto single discs.
[23] Transcript of May 15 hearing, page 197: ln. 23-25; page 198: ln. 1.