

AOL Time Warner Inc.

June 30, 2003

David O. Carson, Esq.
General Counsel
United States Copyright Office
Madison Building
Washington D.C.

Re: Docket No. RM 2002-4: Exemption to Prohibition on Circumvention
Of Copyright Protection Systems for Access Control Technologies

Dear Mr. Carson:

On behalf of AOL Time Warner Inc. (including its affiliates) we would like to thank you for the opportunity to testify at the Copyright Office's recent hearings on possible exemptions to the prohibition on circumvention of technological protection measures that control access to copyrighted works. This letter provides our responses to the additional written questions you posed to us in your letters addressed to Shira Perlmutter and to Dean Marks, dated June 5, 2003. We note at the outset, that several of the questions you posed seek information which AOL Time Warner does not collect in the ordinary course of its business, or which relates to issues or practices which AOL Time Warner does not engage in. We have answered these questions to the best of our ability, in some instances directing your attention to other potential sources of information. Please also refer to the response of Steven J. Metalitz, Esq., Smith & Metalitz LLP on behalf of Joint Reply Commentors, and of Bruce H. Turnbull, Esq., on behalf of DVD Copy Control Association (DVD CCA), to which responses we have contributed. For ease of reference, and because the questions posed to Ms. Perlmutter overlap with those posed to Mr. Marks, we have set forth our collective responses to your questions in the order in which they were posed to Mr. Marks.

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

Yes. In order to implement region coding, DVDs are coded with a code indicating the region or regions in which the DVD is meant to be distributed. These codes are contained in the unencrypted lead-in area of the disc and are typically read and responded to by licensed DVD players before the audiovisual materials contained on the disc are decrypted. With respect to region coding on the DVD disc itself, we are not currently aware of any circumventions of region coding which entail the alteration or removal of the region code encoded on the DVD disc.

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

In the circumventions of region coding with which we are familiar, the region code of a DVD player (which is set during manufacturing to a single region number) is modified to reflect a different region setting (e.g., a DVD player code is changed from Region 2 to Region 1) or multiple settings (e.g., by setting the DVD player's region code to be "all-region" by modifying the setting in the system parameter register number from, e.g., "1" to "1,2,3,4,5,6,7,8"), thus allowing for any DVD disc (regardless of its region code) to be played. In all such cases, the modification can be and to our knowledge is done without decrypting or otherwise technically interfering with the CSS cryptographic algorithm. Note, however, that DVD CCA licensed DVD players are required, as part of the license for CSS technology, to implement region coding, and to do so in a robust manner. The CSS license and procedural specifications do not, however, require player manufacturers to implement region coding in any one specified fashion. Thus implementations of the region coding response may vary from manufacturer to manufacturer.

- ***If region coding 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? In other words, is it possible to place the region coding outside of the CSS shell?***

Please see responses above.

Additional reference information on region coding is attached here: [Exhibit A.pdf](#)

- ***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?***

AOL Time Warner does not disable fast forward functionality with respect to promotional material and/or trailers it includes on its DVD releases. It is our understanding, however, that UOPs, including UOPs designed to prevent the use of a fast forward function, can be disabled without decrypting CSS.

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- ***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?***

Please see response above.

- ***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.)***

To the best of our knowledge, AOL Time Warner has not released any compilations of works on CSS encrypted DVDs that include both audiovisual works in the public domain and audiovisual works protected by copyright.

- ***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?***

Yes. The DVD Read-Only Disk File System Specifications allow for audio/video assets to be placed in different video title sets (VTS's), with a maximum of 99 VTS's allowed on any single DVD disc. Each VTS is allocated into a separate set of files (.ifo, .vob, and bup files) that are independent from any other VTS. Each individual file within a VTS file set has flags which indicate whether CSS encryption is ON or OFF. For example, VTS number 1 can be encrypted while VTS number 2 is unencrypted.

In the ECMA Technical Report TR/71 (February 1998) setting forth the DVD Read-Only Disk File System Specifications, pp. 47-49, illustrate the "Protection System Type" where the value of this field is defined as follows:

- | | |
|--|--------------|
| 0 : This file has no specific data structure for protection system | (CSS is OFF) |
| 1 : This file has a specific data structure for protection system | (CSS is ON) |

Pages 47-49 are attached here for your reference: [Exhibit_B.pdf](#)

In conclusion, it is possible to create a DVD disc in which the copyrightable works are encrypted with CSS and the separate public domain works contained on the same DVD disc are unencrypted.

Additional reference information on CSS is attached here: [Exhibit_C.pdf](#)

- ***What is the estimated failure rate of DVDs? What is the average life span of a DVD?***

AOL Time Warner does not collect or maintain statistics on the estimated failure rate of DVDs and the average life span of a DVD. We note, however, that the life span of DVDs is generally believed to be quite lengthy. Furthermore, DVDs are considered: far less likely to fail than analog media, such as VHS tapes; more reliable than CD-ROMs; and to have a longer life span than digital tape. With respect to pre-recorded (replicated) DVD-ROM discs, commentators have estimated the life span to be between 50-300 years, provided that the discs are treated appropriately by the user:

“DVDs are quite stable, and if they are treated well, they usually will last longer than the person who buys them. Estimating the lifetime of a storage medium is a very complex process that relies on simulated aging and statistical extrapolations. Based on accelerated aging tests and past experience with optical media, the general consensus is that replicated discs will last anywhere from 50 to 300 years.” DVD Demystified, p. 222

Additional reference information is provided here from two separate sources:

[Exhibit D.pdf](#), [Exhibit E.pdf](#)

- ***What is DVD “rot”?***

DVD “rot” refers to the corrosion of the reflective layer of the DVD disc, which can result in problems such as skipping, audio/video distortion, or freezing. DVD “rot” may occur if abnormally high levels of chlorine and phosphorous exist in the materials used in manufacturing a DVD disc and/or if that DVD disc is improperly handled (e.g., if it is stored in an unusually and extremely hot and humid environment).

DVD “rot” is a rare occurrence, particularly given the use of improved bonding materials and techniques. Reference information is provided here: [Exhibit F.pdf](#)

According to the DVD Entertainment Group, as of May, 2003 there have been 1.6 billion pre-recorded DVD discs shipped in the United States ([Exhibit G.pdf](#)). Although no exact numbers are available regarding discs returned due to DVD "rot", it is thought to be no more than a few thousand industry-wide (< 0.0002 %). Moreover, pursuant to our company's standard returns policy, we replace discs that exhibit problems on playback (whether caused by DVD rot, or for some other reason) at no charge to the consumer or issue a refund.

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- ***What are the specific marketing claims for works distributed on DVDs in terms of life span and are these claims different from the reality, if at all?***

To the best of our knowledge neither AOL Time Warner nor its agents have made any specific marketing claims with respect to the life span of DVDs.

- ***What are the differences between region coding and the newer “enhanced” region coding?***

As described in our response to your first question, region coding entails placing a region code or codes on a DVD disc corresponding to the region(s) in which the disc is distributed. Likewise, a single region number is placed in a system parameter register of the DVD player during manufacturing which corresponds to the region in which the player is distributed. When a player encounters a DVD which has the region code of the disc set as “playable” for the region number of the player, the disc is played. If the player encounters a disc with a foreign region code, the disc is not played.

Traffickers in modified “multi-region” or “all-region” DVD players typically reset the region codes for DVD players to “1, 2, 3, 4, 5, 6, 7, 8” – making the player capable of playing discs from any region. As a result, some content providers have added enhancements to the region coding of their DVD discs to combat the effect of “multi-region” players by improving the logical codes used to determine whether a given disc and player have matching region codes.

If the value of the region number of the player does not match the region(s) that the content provider intends the disc to be distributed in, or if the query reveals that the player is a multi-region player, the logical code stops playback of the disc and/or displays an error message to the user.

Additional reference information on enhanced region coding is attached here:

[Exhibit H.pdf](#)

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

AOL Time Warner does not currently use enhanced region coding in distributing DVDs and has no plans to use enhanced region coding over the next three years. Although we engaged in limited testing of enhanced region coding by releasing five (5) titles using the

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technology, such coding has not been used in additional pressings of those titles (after the initial test). The test titles released and numbers of discs distributed were as follows:

"How the Grinch Stole Christmas"	125,000
"TNT's: A Christmas Carol"	15,000
"The Year Without A Santa Claus"	50,000
"South Park - Volume 7"	30,000
"South Park - Volume 8"	50,000

- ***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?***

AOL Time Warner does not collect or maintain records of devices on the market which use the Linux operating system and which can play DVDs in compliance with the DVD CCA license. We note that the DVD CCA license does not impose any restrictions on the nature of the operating system that can be used to play back DVDs protected by the CSS technology. Moreover, licenses to the CSS technology are made available royalty free and on reasonable and non-discriminatory terms to all hardware and software player manufacturers. Accordingly, whether or not licensed products are developed for particular operating systems is a function of the marketplace and the decisions of the proponents/users of those operating systems.

We are aware of two suppliers of CSS licensed devices that support playback of DVDs on Linux operating systems. They are Intervideo and Sigma Designs. Intervideo's LinDVD product is a DVD CCA licensed software-based DVD player that is currently distributed on an Original Equipment Manufacturer (OEM) basis. According to a recent S-1 filing with the SEC, page 49, Intervideo states:

“We have also developed versions of our DVD software for Linux-based PCs and for Linux-based CE devices. This product, LinDVD, shares a substantial amount of code with WinDVD, but adds special driver and video support for the Linux operating system. LinDVD has shipped on PCs sold by IBM, Legend and other companies.”

The relevant portions of the S-1 form are attached here: [Exhibit I.pdf](#)

In addition, Sigma Designs has been producing and selling its Netstream 2000 product, which is compatible with Linux operating systems, since March 2000. As indicated in the attached documentation, over 50,000 Netstream 2000 units have been sold.

Netstream 2000 is available today via 25 retailers/distributors and directly from Sigma

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Designs via its website. Additional reference information on the Sigma Designs Netstream 2000 is attached here: [Exhibit J.pdf](#)

We refer to the response of Bruce Turnbull, on behalf of DVD Copy, for further details.

- ***Is CSS a “computer program”?***

The core component of the CSS technology can best be described as a set of cryptographic algorithms. We refer to the responses of Steven Metalitz on behalf of the Joint Reply Commentors and of Bruce Turnbull on behalf of the DVD CCA for more detailed answers to this question.

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

The CSS License and Procedural Specifications are available for immediate download by visiting www.dvdcca.org and completing a registration form.

We hope that our responses to your questions are helpful. We would be grateful for the opportunity to provide additional clarifying information and/or to respond to the comments of other hearing participants, should you find that helpful.

Sincerely,

Shira Perlmutter

Vice President and Associate General Counsel, Intellectual Property Policy,
AOL Time Warner Inc.

Dean Marks

Senior Counsel, Intellectual Property,
AOL Time Warner Inc.