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Gregory Poucher

1 Pheasant Run

Freehold, NJ 07728

(732) 431-4442

No fax number.

Email: gregp01@email.com

A. Technological Measures

1. The two most well-known and widely used measures that effectively control access to copyrighted works are the CSS, or Content Scrambling System, used on current DVDs, and Macrovision, currently used on DVDs and some VHS video cassettes.

The CSS algorithm uses 40-bit 'keys' to code the data on a DVD so that it can only be played by hardware or software which has a key that is compatible with that used to make the DVD. This algorithm was recently broken in an attempt to create a new, 'free' DVD player for the Linux operating system; this will be discussed further in the response to question 28.

Macrovision is a technology which introduces false information into the self-configuration portion of a video signal. By constantly altering the information telling a video display device which color is 'white,' Macrovision tricks VCRs into creating videocassette copies of DVDs and other videocassettes which have severe quality degradation.

2. Different technological measures do indeed have different effects on the ability of users to make noninfringing uses.

The CSS algorithm discussed above prevents owners of computers with DVD-ROM drives from viewing their purchased DVD movies under any computer operating system other than Microsoft Windows or the Apple Mac OS. This is not an oversight: DVD player software has been available for nearly as long as DVD-ROM drives, but software for other operating systems has remained unavailable.

The Macrovision protection technology does not prevent as large a problem for the users of copyrighted works as the CSS algorithm does. The use of Macrovision in a DVD or VHS videocassette prevents the work from being copied, but does not prevent its viewing.

The Librarian should take these differences into account when determining whether to exempt any classes of works from the anticircumvention provisions. Namely, measures which discriminate against a certain class of users should be exempt, while measures which merely prevent illegal copying should not be exempt.

B. Availability of Works

3. The effects on availability of copyrighted works on persons who are or desire to be lawful users of such works have already been discussed above. The CSS algorithm prevents certain classes of persons from using certain copyrighted works, while the

Macrovision technology merely prevents the illegal reproduction of copyrighted works.

4. There are specific classes of works which have become unavailable to certain persons because of the implementation of certain technological measures. Specifically, persons who wish to view DVD movies on their personal computers running operating systems other than Microsoft Windows or Apple's Mac OS cannot do so because no software has been written for these other operating systems. It is unlikely that any software will be written, as obtaining a license for the CSS decryption keys is exorbitantly expensive.

C. Availability of Works for Nonprofit Archival, Preservation, and Educational Purposes

10. The protection of various DVDs has affected their availability to nonprofit educational institutions. An average DVD already costs \$10-\$20, each. A computer, to allow for full use of a DVD's capabilities, can be anywhere from \$500 to \$5000. Add to that \$200 for a Microsoft Windows license and \$100-\$200 for a commercial DVD player license, and many nonprofit schools in the less economically fortunate areas of this country may not be able to afford the necessary equipment at all. As such, these institutions should be permitted to use free methods of viewing these DVDs; they should be allowed to circumvent the technological measures.

E. Effect of Circumvention on the Market for or Value of Copyrighted Works

18. Technological measures can be circumvented by either a brute-force attack on their basic algorithms, or acquisition of the private 'keys' normally used to access copyrighted material. Both methods have been successfully implemented, but the spread of neither method is known.

19. While the various commercial interests want you to think that the availability of methods of circumvention will ruin their interests financially, this is simply not true. The price of copyrighted works has not changed significantly over the last 20 years, despite the advent of the cassette tape, CD, VCR, DAT audio tape, and the DVD. Each of these formats has 'threatened' the various industries which sell them, but no appreciable change has been observed.

F. Other Factors and Questions

24. There is no other viable explanation for the adverse affect other than these technological measures. It is only these measures which prevent certain groups of people from accessing their lawfully purchased copyrighted material.

26. There is no indication that the use of technological preventative methods has resulted in facilitating lawful use of copyrighted materials. Consumers, on average, are not more inclined to buy a product because it protects the creator from possible theft; they buy a product because they want it.

28. The DMCA does not help consumers in any way. (It only exists because certain corporate interests made generous campaign donations to members of Congress:

lawmaking is always in your favor if you own the most Congressmen.) The sole purpose of the DMCA is to control access to information, not the copying of this information. By refusing to allow certain groups of people rightful access to lawfully acquired materials in their possession, the DMCA is, at its core, unconstitutional. I strongly encourage whomever reads this to also read the article at the following address: <http://www2.linuxjournal.com/articles/currents/016.html> Additionally, it should be noted that, by only accepting these comments in Microsoft Word and Adobe PDF formats, you are excluding certain groups of people who cannot afford licenses to the software which creates these proprietary formats. Microsoft's Word format also tends to be inconsistent in formatting; hence the variations in tabs and indents in this file.