

circumventing such technological protection measures, will (1) reduce consumer choice by requiring the purchase of a particular manufacturer's goods, (2) subject consumers to higher, monopoly-based pricing for goods, and (3) deprive consumers of the benefits of industry innovation. In the forthcoming three years, it is more likely than not that the harm to consumers from these practices will continue to increase. An exemption is necessary to protect consumers from current and future harm and to preserve incentives for innovation and competition. EFF supports all three classes of works proposed by commenter Static Control Components, Inc. for these reasons.

3. Commenting Party

Based in San Francisco, the Electronic Frontier Foundation ("EFF") is a member-supported nonprofit organization devoted to protecting civil liberties and free expression in the digital world. With over 8,800 dues-paying members and over 30,000 mailing-list subscribers, EFF has for over a decade fought to ensure that fundamental liberties are respected and the public's rights protected in the digital environment. In addition to educating the public and policy-makers about the implications of the Digital Millennium Copyright Act ("DMCA"), EFF has been involved in virtually all of the leading cases testing the law's anti-circumvention provisions in court.

4. Factual and Legal Arguments in support of exemptions sought.

a) *Congress did not intend the DMCA to apply to this type of situation.*

EFF respectfully submits that an exemption for one or other of the three classes described above is appropriate because Congress did not intend the DMCA to apply to works such as embedded computer programs, in situations such as the case brought by Lemark International Inc. against Static Control Components, Inc. ("SCC")¹

When Congress enacted the DMCA in 1998, it stated that the anti-circumvention provisions in section 1201 were necessary to address digital copyright owners' concerns about piracy and to ensure that more digital content was made available online. The key congressional committees which reviewed the DMCA expressly stated that the chief harm that the anti-circumvention provisions were intended to address were so-called "black boxes", or purpose-built tools designed to remove technological protection measures and to facilitate unauthorized reproduction and distribution of economically valuable digital copyrighted works.²

¹ *Lexmark International, Inc. v. Static Control Components, Inc.*, Civil Action No. 02-571-KSF filed in Dist.Ct. E.D. Kentucky, Lexington, December 30, 2002.

² See Senate Judiciary Comm., S. Rep. 105-190 (1998) at 29 ("[Section 1201(a)(2)] is carefully drafted to target 'black boxes' and to ensure that legitimate multipurpose devices can continue to be made and sold."); House Judiciary Comm., H. Rep. 105-551 pt.1 (1998) at 18 (same); House Commerce Comm., H. Rep. 105-551 pt. 2 (1998) at 38 ("The Committee believes it is very important to emphasize that Section 102(a)(2) is aimed fundamentally at outlawing so-called 'black boxes' that are expressly intended to facilitate circumvention of technological protection measures for purposes of gaining access to a work. This

This stated purpose is far removed from the way in which 17 U.S.C. §1201 has been used in recent months to stifle competition in markets for non-copyrightable products. In the Lexmark/ SCC case and in another similar case described below,³ the real effect of the prohibition on circumventing a technological protection measure (“TPM”) is not protection of economically significant copyrighted works against piracy, but precluding development of a market in uncopyrightable products that compete with those of the copyright owner.

Although the potential harm to consumers from the use of a TPM in this manner is broader than the issues raised by the facts in the *Lexmark v. Static Control* case, that case is illustrative of this trend. As detailed in the comments submitted by SCC, that case involves Lexmark’s use of a TPM to control the interoperability of a Lexmark printer with a printer cartridge. It appears that the use of that TPM was designed to ensure that a consumer could use only a Lexmark manufactured cartridge with a Lexmark printer. Since the relevant Lexmark cartridges contain a special microchip that operates to prevent refilling of the cartridge, aftermarket vendors were not able to remanufacture these cartridges without circumventing the TPM.

SCC sells a reverse-engineered version of the Lexmark chip – the “Smartek chip” – to printer cartridge remanufacturers and recyclers who refill previously used Lexmark cartridges. Lexmark has recently invoked the DMCA and successfully sued for a preliminary injunction enjoining further sale of SCC’s reverse-engineered chip. Lexmark argued that SCC’s reverse-engineered chip circumvented a technological protection measure controlling access to two copyrighted computer programs – a small computer program resident on the chip that monitors the level of toner in a cartridge, and a program that controls the operation of the printer machine.⁴ Lexmark claimed the TPM was a cryptographic challenge authentication regime between Lexmark’s printer operation computer program, and data stored on the Lexmark chip. If the challenge is answered correctly (by the chip providing the right computed value to the printer), this triggers the printer program to “unlock”, and control the printer’s operations.

The effect of the use of this authentication sequence, together with 17 U.S.C. §1201(a)(1)’s ban on circumvention of a TPM, is very simple. Consumers are technologically prevented from using non-Lexmark- authorized printer cartridges with their printers. And from the industry perspective, unless an exemption is granted for the first of the above-mentioned classes of works, remanufactured toner cartridge distributors will be unable to sell refilled or remanufactured cartridges to consumers, and consequently will not be able to develop an aftermarket for remanufactured toner cartridges for Lexmark printers.

The main purpose of using a TPM in this situation, and the case described below, appears to be a desire to control or tie interoperability of a device with particular consumables and to preclude the development of a legitimate aftermarket in uncopyrightable consumer goods produced by a business competitor. At best, the protection of Lexmark’s computer programs from unauthorized reproduction appears to be only an ancillary concern.

provision is not aimed at products that are capable of commercially significant noninfringing uses....”).

³ see section (e).

⁴ Order of Chief Judge Forester, *Id.*, at paragraphs 70-71.

Irrespective of the facts in this particular case, it is clear that Congress did not intend that section 1201 would be used to interfere with the market for otherwise legitimate aftermarket products – whether refilled toner cartridges or something else.

b) *Anti-competitive effects and Copyright Misuse*

EFF respectfully submits that the Registrar and the Librarian should grant exemptions for the three classes described above, to protect consumers from the potential anti-competitive effects of uses of TPMs which control access to embedded computer programs which are not the focus of copyright protection.⁵ Such an exemption is also necessary to preclude the possibility of a copyright owner engaging in copyright misuse by the use of a technologically protected copyrighted work to leverage control or market influence over another, separate market.⁶

In the Lexmark/ SCC case, it appears that Lexmark is using its copyright in printer control software not to prevent unauthorized reproduction of its printer's copyrightable elements, nor even to prevent competitors from developing functionally comparable software to monitor the level of toner in their print cartridges, but to prevent competitors from developing any toner cartridges interoperable with Lexmark's software-containing printers. Through the joint hooks of copyright and anti-circumvention under section 1201(a)(1), Lexmark is attempting to leverage its copyright-granted limited monopoly in reproduction of a short computer program into a broad monopoly in the independent manufacture of compatible toner cartridges. Seen in this light, Lexmark's behavior is similar to that of the holder of a patent on canning machines who tries to monopolize the market for salt tablets used in the canning trade *see Morton Salt Co. v. G.S. Suppinger Co.*, 314 U.S. 488 (1942) (patent infringement suit dismissed for misuse).

The anticompetitive effects of such leveraging are clear. Customers who have bought an expensive piece of electronic machinery are locked in, by virtue of a bit of access-controlled software that the machinery contains, to buying only branded or licensed replacement parts -- even if there is no patent or copyright in those parts. As the sole licensor, the ostensible copyright holder is free to charge monopoly prices, unconstrained by possible competition. When the replacement is a consumable such as printer toner cartridges, customers face a substantial increased cost over the lifetime of the machine, rarely apparent at the time of purchase. Customers are also deprived of the innovation pressure that competition often spurs.

Machinery manufacturers may indeed prefer to control the market for replacement parts. Without a patent or copyright in the parts themselves, however, they have thus far been unable to do so -- with good reason; the competition that develops is good for consumers. Manufacturers should not now be able to maintain the fiction that "unauthorized"

⁵ EFF recognizes that the exemptions sought under section 1201(a)(1) may not be sufficient to provide consumers with complete relief against such behavior in the absence of a parallel exemption under section 1201(a)(2) and/or (b)(1). However, an exemption for such classes of works under section 1201(a)(1) would be useful in formulating the issues for possible future Congressional action.

⁶ EFF notes that the District Court found no anti-trust violation on the facts in issue in the *Lexmark v. Static Control Components, Inc* case because consumers were still able to purchase a range of cartridges that did not contain the relevant microchips. However, it is conceivable that the same sort of use of a TPM with a verification chip could be designed to apply to the entire range of a manufacturer's products.

replacement parts circumvent access control devices to work their own circumvention of healthy marketplace competition.

c) *The prohibition on circumvention in 17 USC 1201(a)(1) in relation to these classes of works has a substantial adverse effect on consumers.*

In relation to at least the first of the three classes above, the prohibition on circumvention has already resulted in substantial adverse harm to consumers, and if an exemption were not to be granted, is more likely than not to result in an increasing level of harm to consumers.

In the particular facts at issue in the SCC/ Lexmark case, consumers who own a Lexmark T520/T522 or T620/T622 printer have two options. First, they can purchase a Lexmark brand cartridge, or second, they can purchase a remanufactured cartridge produced by any of a number of remanufactured cartridge vendors, containing the SCC “Smartek” chip.

Consumers who purchase Lexmark printer cartridges have two options. First, they can choose a “Prebate” cartridge, which is usually supplied with a new printer and apparently constitute the majority of cartridges produced by Lexmark.⁷ The Prebate cartridge contains the special Lexmark microchip and toner-level monitoring program described above, and is designed to not be refilled by aftermarket vendors. The Prebate cartridge is made available to consumers on the basis of a shrink-wrap agreement that purports to advise the consumer of this limitation. Second, consumers can choose to purchase a non-technologically-limited cartridge from Lexmark.

Alternatively, consumers can choose to purchase a refilled or recycled (“remanufactured”) cartridge from a third party vendor. These are previously used Lexmark cartridges containing a non Lexmark manufactured microchip (SCC’s “Smartek” or another). Remanufactured cartridges can be purchased by consumers for considerably less than the cartridges available from Lexmark.

According to information available on Lexmark’s website,⁸ the price differential between a Lexmark Prebate cartridge and a Lexmark brand unlimited cartridge is \$50. The relevant retail prices for these cartridges is set out in the table below:

Cartridge Type:	Lexmark Regular Cartridge	Lexmark Prebate Cartridge	Lexmark High Yield Regular cartridge:	Lexmark High Yield Prebate cartridge:
Cost for T520/T522 model	\$192	\$144	\$373	\$325

⁷ The magazine of the remanufacturer industry, the Recharger, states that “Prebate” cartridges comprise approximately 90% of the cartridges produced by Lexmark. See:

<http://www.rechargermag.com/news.asp?id=200302500>, visited March 9, 2003.

⁸ <http://www.lexmark.com/US/products/supplies/0.1230.MtkwNnwx.00.html> and <http://www.lexmark.com/US/products/supplies/0.1230.MtgIN3wx.00.html>, visited March 6, 2003.

Cost for T620/ T622 model	\$214	\$164	\$414	\$364
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By comparison, third party aftermarket toner cartridges (containing SCC’s Smartek microchip or another chip) retail at a far lower cost to consumers. The figures below are illustrative:

Cartridge Type:	Third party remanufactured cartridge price:	Lexmark Price:	Saving to Customer:
Lexmark T520/T522 “Prebate” high yield cartridge (20,000 pages yield)	\$199 ⁹	\$325	\$126
Lexmark T620/T622 “Prebate” high yield cartridge (30,000 pages yield)	\$175 - \$249 ¹⁰	\$364	\$115 - \$189

d) Likelihood of Future Harm

The resulting harm to consumers is likely to increase, as more printer vendors incorporate such technology in their printers and proprietary toner cartridges. Lexmark is the second largest printer producer in the United States. According to information published by SCC, these types of chips were first used in toner cartridges in 1996, but have become widespread in the last 18 months.¹¹ In addition, a number of other printer vendor companies have also incorporated similar chips into their printer cartridges, to control the interoperability of a consumer’s printer with particular, vendor-authorized printer cartridges. For instance, Xerox and Hewlett Packard (the largest printer vendor in the

⁹ Prices as follows:

(1) 4 Any Printer, Inc.: <http://www.hewlett-packard-printers.com/12A6835.html> (visited March 9, 2003)- \$199;

(2) Shop 4 Tech: http://www.shop4tech.com/user.htm?mfrg=Lexmark&series=T&go=show_ink&model=520 (visited March 9, 2003) - \$199.

¹⁰ Prices as follows:

(1) Inkjet man: <http://www.inkjetman.com/YEW%20TML%20files%20copy/cat13.html> (visited March 9, 2003) - \$175;

(2) Shop 4 Tech: http://www.shop4tech.com/user.htm?mfrg=Lexmark&series=T&go=show_ink&moedl=620 (visited March 9, 2003) - \$249.

¹¹ Static Control Components, Inc. White Paper

Computer Chip Usage and Impact on the Aftermarket – Past, Present and Future, located at:

<http://www.scc-inc.com/special/oemwarfare/whitepaper/default.htm>

(visited March 6, 2003).

United States) both sell printer cartridges containing these types of chips.¹²

e) *The Harm is not limited to the Aftermarket in Printer Toner Cartridges*

The potential harm resulting from the prohibition on circumventing a TPM controlling access to embedded computer programs that control the operation of a machine or device, but do not otherwise control reproduction, distribution or use of an economically significant copyrighted work, extends well beyond the adverse impact on development of an aftermarket in printer toner cartridges and associated harm to consumers.

EFF notes that in recent months, a garage door opener manufacturer has invoked the DMCA in its lawsuit against the manufacturer of a universal garage door opener device,¹³ in an apparent attempt to thwart the development of a market in competing interoperable devices. Although it may be appropriate in a given case to invoke the DMCA to protect legitimate copyrighted works, EFF is concerned that this case and the Lexmark/SCC case mark the emergence of a new trend where incumbent technology owners rely on the prohibition in section 1201(a)(1) together with a copyright in a work that is not the object of protection, in an attempt to preclude the development of legitimate interoperable products, and to achieve by technological fiat what might otherwise be considered an anti-trust law violation.

These cases raise important policy issues. If section 1201(a)(1) can be applied to what is essentially functional software, in the Lexmark/SCC case (and possibly also in the Skylink/garage door opener case), section 1201(a)(1) could potentially be used to tie devices related goods and preclude the development of a wide range of interoperable products and aftermarket industries. For instance, it is not difficult to imagine that the same logic could be used to force consumers to purchase a particular automobile manufacturer's oil filter, spark plugs or timing belts with appropriate authentication-verifying chips, for use in that manufacturer's automobiles. Or that a photocopier manufacturer might use a similar technology to ensure that only its brand of paper would interoperate with a particular photocopy machine.¹⁴

Further if section 1201(a)(1) can be used in this way, it is likely to severely impact the ability of technologists to engage in legitimate reverse-engineering, which Copyright law has previously permitted as fair use due to its socially beneficial purposes.¹⁵ While

¹² Id. However, Hewlett-Packard has criticized the use of the DMCA in the Lexmark / SCC case. See *HP raps rival for invoking DMCA*, Ian Fried, Cnet News.com, February 5, 2003, at <http://news.com.com/2100-1040-983518.html>

¹³ *The Chamberlain Group, Inc. v. Skylink Technologies, Inc.*, filed in Dist. Ct N.D.Ill., E.D., on September 11, 2002, CV No. 020 6376

¹⁴ For a helpful discussion of the public interest policy issues at stake for these classes of works and further examples of affected products, see the Brief Amicus Curiae filed by Professor Peter Jaszi and other Law Professors, dated January 30, 2003 in *Lexmark International, Inc. v. Static Control Components, Inc.*, CV 02-571-KSF, at page 6. Available at: http://www.eff.org/IP/DMCA/Lexmark_v_Static_Controls/

¹⁵ For a discussion of the legal system's recognition of the socially beneficial purposes underlying reverse engineering, see *The Law and Economics of Reverse Engineering*, Professors Pamela Samuelson and Suzanne Scotchmer, 111 Yale LJ 1575 (May 2002). See also *Sega Enterprise Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Circ., 1992); *Sony Computer Entertainment, Inc. v. Connectix Corp.*, 203 F.3d 596 (9th Circ.,

the exception for reverse-engineering in 17 U.S.C. §1201(f) might appear to be helpful in such situations, in practice, that section has proven to be too narrow to address these concerns. First, the section only permits reverse-engineering for the purposes of interoperability between two computer programs. In many instances, the required interoperability may be between a device and a computer program. Second, that section applies only to interoperability of an “independently created computer program” with other programs. In a case where a copyright owner creates a TPM controlling access to a cryptographically protected work, it may be cryptographically necessary to copy the entire work in order to achieve interoperability.¹⁶ However, that would fall outside of the scope of the exception. As a result, section 1201(f) is not able to address the potential for misuse of section 1201(a)(1) by a copyright owner seeking to leverage copyright in one work to obtain influence over another market in which it does not hold copyright or patent rights.

In the event that the Registrar is persuaded that an exemption should be granted but feels constrained to recommend to the Librarian that only one of the three proposed exemptions be granted, EFF respectfully requests that the Registrar recommend the grant of the third of the proposed exemptions, on the basis that it would protect consumers from a wider range of possible misuses of section 1201(a)(1). Although only two cases have been documented at the time of filing these comments, from the history of use of the anti-circumvention provisions over the last four years, it seems likely that section 1201(a)(1) will increasingly be used in this way in the following three years. Granting an exemption for the third of the above classes of works would provide incumbent technology owners with the appropriate incentives to permit the development of interoperable products and legitimate aftermarkets that are advantageous to consumers, and would balance the copyright protection that should rightfully be accorded to owners of separable economically significant copyrighted works.

5. Conclusion

For the reasons set out above, EFF respectfully requests the Copyright Office recommends to the Librarian that the three proposed exemptions described above be granted.

Respectfully submitted,

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¹⁶ The court found that this was not the case in the *Lexmark v. Static Control* case,