UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF KENTUCKY
AT LEXINGTON
CASE NO. 02-571-KSF

LEXMARK INTERNATIONAL, INC.   PLAINTIFF

v.   **MEMORANDUM IN OPPOSITION TO**
                     MOTION FOR PRELIMINARY INJUNCTION

STATIC CONTROL COMPONENTS, INC.   DEFENDANT

* * * * * * * * * * * * * * *

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INTRODUCTION

This case is about neither copyright infringement nor the Digital Millennium Copyright Act. The complaint and motion for preliminary injunction are but the latest efforts by plaintiff Lexmark International, Inc. ("Lexmark") to stifle lawful competition by makers and sellers of remanufactured recycled toner cartridges. As Lexmark concedes, the purpose of the "handshake" chip technology at issue in this case is not to protect a copyrighted work but, in truth, ***"To prevent unauthorized toner cartridges from being used with Lexmark's T520/522 and T620/622 laser printers."*** Declaration of Michael Robert Yaro ¶ 7, attached to Lexmark Memorandum in Support of Preliminary Injunction Motion ("Lexmark Br."). Thus the Lexmark technology, indeed this lawsuit, are intended not to control access to copyrighted works, but to defeat access to the toner cartridge aftermarket by Lexmark's competitors, and compel consumers to purchase only Lexmark cartridges.

Defendant Static Control Components, Inc. ("SCC") has neither infringed any copyright nor violated the Digital Millennium Copyright Act ("DMCA"). The facts of this case demonstrate that SCC has engaged in legitimate reverse engineering that is expressly permissible under both the Copyright Act and the DMCA. All SCC has done is to discover certain lock-out codes and other functional, non-copyrightable elements on the Lexmark chips so as to enable SCC to create its own software and chips that are compatible, interoperable, and competitive with the Lexmark printers and cartridges. Such reverse engineering, the case law teaches, constitutes a complete defense under the fair use doctrine to a claim of copyright infringement and, pursuant to 17 U.S.C. § 1201(f), to an assertion of liability under the DMCA.

Substantial threshold questions of copyrightability must be addressed before considering Lexmark's claims. As the Affidavit of Dr. Benjamin Goldberg ("Goldberg Aff.") explains,

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Lexmark's programs consist solely of a few, standard, nonoriginal lines of computer code that implement simple mathematical formulae and constants. Courts applying Section 102(b) of the Copyright Act repeatedly have held that such formulae and constants are not copyrightable.

Likewise, Lexmark cannot succeed in its unprecedented attempt to extend controversial provisions of the DMCA so as to protect purely functional software routines that control the operation of a machine or product, cannot be copied for external purposes, and have no independent market value as a copyrighted work. As the legislative history of the DMCA demonstrates, such routines lie light-years away from the type of computer programs, books, motion pictures and sound recordings that Congress intended to safeguard against pirating and redistribution over the Internet. Finally, Lexmark's anticompetitive aspirations cannot be countenanced in light of public policies against the misuse of copyright to control the market for ancillary goods, and favoring recycling of used toner cartridges.

For the reasons summarized here and detailed below, SCC, not Lexmark, is likely to prevail on the merits in this case. In addition, as further explained below and in the accompanying affidavits of William Swartz, Lester Cornelius and Tricia Judge, an injunction in this case will work severe and irreparable injury upon both SCC and the remanufactured cartridge industry, and harm the public interests. Thus, all of the familiar four factors of the preliminary injunction analysis favor SCC. Lexmark's motion should be denied.

COUNTERSTATEMENT OF POINTS AND AUTHORITIES

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APPENDICES

COUNTERSTATEMENT OF THE CASE

I.   STATIC CONTROL COMPONENTS AND THE REMANUFACTURING INDUSTRY

A.   Static Control Components

Incorporated in 1987, Static Control Components ("SCC") is a family-owned and operated manufacturer and supplier of a diverse array of products. Affidavit of William K. Swartz ("Swartz Aff.") ¶¶ 4-5, attached as Appendix 1. SCC currently employs about 1,000 people at its Sanford, North Carolina headquarters. *Id.* ¶ 5. Since 1989, SCC's Imaging Division has provided various supplies, including chips and other component parts, to remanufacturers of laser printer toner cartridges. *Id.* SCC manufactures two "Smartek" chips that enable remanufacturers to establish interoperability between remanufactured toner cartridges and Lexmark's T520/522 and T620/620 laser printers. Affidavit Of Lynton Burchette ("Burchette Aff.") ¶¶ 6-7, attached as Appendix 2.

B.   The Remanufacturing Industry

Lexmark's business model is to sell laser printers to consumers at or below cost, in hopes of selling the consumer high-priced replacement consumables such as toner cartridges. Affidavit of Lester Cornelius ("Cornelius Aff.") ¶ 8, attached as Appendix 3. In order to provide a low-cost alternative to consumers, toner cartridge remanufacturers acquire used printer toner cartridges, recondition them, and refill them with toner to create a less-expensive, environmentally friendly alternative to buying an all-new toner cartridge from the Original Equipment Manufacturer ("OEM"). *Id.* ¶¶ 5-7. Thus, remanufacturing recycled cartridges provides significant benefits to consumers and to the environment. Affidavit of Tricia Judge ("Judge Aff.") ¶¶ 3-5, attached as Appendix 4; Cornelius Aff. ¶¶ 6-7.

II. LEXMARK'S "KILLER CHIPS" AND SCC'S DISCOVERY OF LEXMARK'S LOCK-OUT CODE

A. Lexmark's Efforts To Foreclose Competition For Toner Replacement Cartridges

Lexmark long has engaged in a campaign to stifle legitimate competition from toner cartridge remanufacturers. Burchette Aff. ¶ 5. Driven by a desire to increase its market share at the expense of lawful competitors, Lexmark, by placing a small microchip in toner cartridges for its laser printers, has been attempting to thwart remanufacturers' ability to compete. Cornelius Aff. ¶ 10; Burchette Aff. ¶¶ 5-6. When the cartridge runs low on toner or if one attempts to add toner to the cartridge, the chip "self-destructs," rendering the cartridge unusable either by remanufacturers or the consumers who purchase them. Burchette Aff. ¶5. Cartridge remanufacturers must replace these "killer chips" to make the remanufactured cartridge work properly. *Id*. Any code in these model printers used to calculate toner levels was incorporated in the printer itself. *Id.*

B. SCC Is Legally Competing In The Market By Developing A Product Compatible With Lexmark's Hardware

In or around May of 2001, SCC learned of Lexmark's introduction of a new generation of these "killer chips." *Id*. ¶ 6. SCC quickly realized that it would have to develop a replacement chip compatible with existing Lexmark hardware in order to continue to serve its customers that remanufacture recycled Lexmark toner cartridges. *Id*. ¶ 7. In order to legitimately compete with Lexmark, SCC immediately began to "reverse engineer" Lexmark's chips in order to learn what portions of the data on the Lexmark chip were strictly necessary for the chip to function

properly, and how SCC could manufacture its own chips compatible with the Lexmark

printer.[1] *Id.*

Through this legally permissible "reverse engineering" process, SCC determined that the

Lexmark chips performed a "hashing" function using a non-protectable, publicly available

government standard, known as the Secure Hash Algorithm-1, or "SHA-1." *Id*. ¶¶ 7-8.

Essentially, this algorithm takes a series of numbers and calculates a value, known as a "hash."

If the hash value calculated in the toner cartridge chip is the same as the hash value calculated by

the printer firmware, then the two devices will communicate information to each other. This

process commonly is known as "authentication." *Id*. ¶ 7.

During its testing, SCC also determined that there is a separate set of [] bytes of data in

the Lexmark chip that could not be changed or else the cartridge would not function.[2] *Id*. ¶ 11.

These mere [] bytes constitute Lexmark's so-called "Toner Loading Program." To put the size

of these bytes in perspective, more bytes are needed to store the phrase "Lexmark International

Inc. v. Static Control Components Inc." (without the quotation marks) on a microchip than is

necessary to store Lexmark's *entire program*. *Id.* ¶ 12.

SCC determined that these [] bytes are read into memory in the printer firmware.

Id. ¶ 11. SCC determined [   ] that if *any* of those bytes has been changed, then

the printer will display to the user an error code "32 Unsupported Print Cartridge," and the

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[1]   The first generations of toner cartridge chips for the Lexmark Optra T printers did not include either a
technological "handshake" measure or a "toner loading program," and soon was designed around by SCC and other
Lexmark competitors. Clearly, Lexmark undertook to incorporate these additional measures for the T520/522 and
T620/622 toner cartridge chips so as to fortify its legal arsenal against others in the remanufacturing industry.

[2]   In brief, a "byte" is a collection of eight binary digits (0's and 1's) stored in a computer's memory. Given
the various values represented by eight 0's and 1's, a single byte of data could represent 256 numbers (from 0 to
255). A byte also can be represented by a two-digit number in "hexadecimal" format (based on 16 symbols: the
digits o through 9 and the letters A through F) so as to represent numbers between zero ("00" in hexadecimal) to 255
("FF" in hexadecimal). For the convenience of the Court, these and other technical terms used in this Opposition are
defined more fully in Appendix 7.

printer will not work. *Id.* Thus, the [] bytes of information -- including the LXK "reference tag," which Lexmark purports "does not affect Toner Loading Program functionality" (Lex. Br. at 3) -- function as a lock-out code.[3] *Id.*; Goldberg Aff. ¶ 16. In order to be compatible with the Lexmark printer, a replacement chip must include the entire [] byte lock-out code sequence *exactly* as it appears on the Lexmark chip.[4] Burchette Aff. ¶ 12.

To complete its reverse engineering effort, SCC replaced Lexmark's SHA-1 program with another publicly available program. *Id*. ¶ 8. SCC engineers then wrote their own software code to make SCC's toner chip software interoperable with the Lexmark printers. *Id*. As the final and necessary step to achieve compatibility between the hardware, SCC integrated Lexmark's entirely unprotectable, functional lock-out sequence into its Smartek chip. *Id.* ¶ 12.

III.   LEXMARK'S RESPONSE TO SCC'S COMPATIBLE SMARTEK CHIP

SCC unveiled its compatible "Smartek" chip at a trade show in October 2002. *Id*. ¶ 15. Upon learning at the trade show that SCC's chip was indeed compatible with its T520/522 and T620/622 laser printers, Lexmark undertook to quash this competing product.

On October 29, 2002, unbeknownst to SCC, Lexmark raced to the United States Copyright Office to obtain a copyright registration for the so-called "Computer Program for Lexmark T520/522 Print Cartridge" and "Computer Program for Lexmark T620/622 Print Cartridge" (collectively, the "Toner Loading Routines"), programs it allegedly created more than

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[3]   Thus, Lexmark declarant Douglas Able's claims that the three bytes representing the letters L, X and K "[do] not affect the Toner Loading Program functionality" (Able Dec. ¶ 7) and that the LXK sequence serves "no purpose in the program" (Able Dec. ¶ 10), are inaccurate or, at best, misleading.   Although the LXK sequence may perform no function in the operation of the "program" code represented by these [] bytes of information, they serve an irreplaceable -- yet unprotectable -- function as data comprising part of the lock-out code. They must be copied exactly by anyone seeking to make a toner cartridge chip that is compatible and interoperable with the Lexmark printer. Burchette Aff. ¶ 13.

[4]   This conclusion regarding this entirely functional "lock-out" mechanism was confirmed by SCC and its expert Benjamin Goldberg upon review of the source code for the Toner Loading Program. Dr. Goldberg's analysis is discussed more fully at Section IV of this Counterstatement of the Case and set out in detail in the Affidavit of Dr. Benjamin Goldberg, attached as Appendix 5.

two years earlier. *See* Lexmark's Complaint in this action ("Compl.") Exhs. A-B.[5] On

December 6, 2002, Lexmark submitted a third copyright application entitled "Lexmark T620

Engine Microde" (the "Printer Engine Program"). *See* Compl. Exh. C.[6] Lexmark then filed this

case.

IV.   SCC'S DISCOVERIES SUBSEQUENT TO RECEIVING LEXMARK'S SUIT

When SCC created its compatible Smartek chip, [

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When SCC received Lexmark's Motion for Preliminary Injunction and the accompanying

Declaration of Douglas Able, [   ] all or part of those [] bytes of

data contain a purportedly copyrightable, non-functional work of authorship. *Id*. ¶ 13.

After obtaining from the Copyright Office the redacted source code deposits for the

Lexmark toner loading routines, [

] As set forth in the Affidavit of computer science expert Dr. Benjamin Goldberg, these few

bytes merely embody ideas and facts: a simple mathematical formula – applying either a basic

linear equation or a basic quadratic equation – that operate on factual values or "constants"

embedded in the code. Goldberg Aff. ¶¶ 7 and 19. As described more thoroughly below, in

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[5]   Notably, although the Copyright Office routinely grants copyright registrations upon a cursory review of the application and deposit materials, that did not occur in this case. The Copyright Office voiced significant concerns regarding the copyrightability of the Toner Loading Routines. A file history obtained from the Copyright Office reveals that, thereafter, Lexmark's counsel apparently engaged in extensive negotiations with the Copyright Office in an effort to obtain the registrations. *See* Affidavit of Carrie Shufflebarger ("Shufflebarger Aff.") Exhs. A-C, attached as Appendix 6.

Section A, such ideas and facts cannot be protected by copyright. As Dr. Goldberg further

explains, this code is executed only in the printer, and not on the toner cartridge chip itself. *Id.*

¶¶ 6&7. Therefore, there is no reason why these paltry few bytes could not have been

incorporated into the printer code itself, other than for the purpose of locking out competition

from competing cartridge remanufacturers.

Thus, the technical analysis confirms and underscores Lexmark's anti-competitive

motives in bringing this case. Yet, as described in the Affidavits of William Swartz, Lester

Cornelius and Tricia Judge, the disposition of this case is certain to have repercussions that far

surpass just Lexmark and SCC. The use of a lockout chip, if upheld, could have serious

implications for the entire cartridge remanufacturing industry. *See, e.g.* Cornelius Aff. ¶¶ 17-18;

Judge Aff. ¶ 7. Employing copyright law or the DMCA to sanction lock-out methods that

protect markets for consumable goods (as opposed to markets for the copyrighted works

themselves) could induce OEMs in other industries to follow Lexmark's lead, including

"aftermarket" manufacturers of parts for automobiles, computer, consumer electronics and

telecommunications equipment. And the direct result in the cartridge remanufacturing industry

will be to seriously harm the livelihoods of tens of thousands of workers, add tens of millions of

recyclable cartridges to our nation's landfills annually, and deprive the consuming public of the

choice of legitimate third-party remanufactured cartridges, which typically charge 30 to 50% less

than Lexmark and the other OEMs. *See* Cornelius Aff. ¶¶ 17-18.

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[6]   Lexmark does not allege that SCC infringes this program. Notably, however, Lexmark neglects to inform
the Court that the copyright for the printer engine code is not entitled to any presumption of validity. When
Lexmark applied to register that program, Lexmark deposited the program code with the Copyright Office in object
code format, and thus the Copyright Office registered that program under its "Rule of Doubt," precluding a
presumption of validity. *See* 37 C.F.R. § 202.20(c)(2)(vii)(B) ("Where registration of a program…is made on the
basis of an object code deposit the Copyright Office will make registration under its rule of doubt and warn that no
determination has been made concerning the existence of copyrightable authorship."). Indeed, Lexmark's counsel
explicitly acknowledged that Lexmark sought registration under the Rule of Doubt. See Shufflebarger Aff. Ex. D.

As set forth below, the law and the equities favoring SCC in this case are crystal clear.

Lexmark cannot demonstrate a likelihood of success on the merits of any of its claims.

Moreover, any irreparable injury to Lexmark is illusory, and pales in comparison to the actual

and immediate harm that would be suffered by SCC, the remanufacturing industry, American

consumers and the environment. For the reasons that follow, Lexmark's motion must be denied.

ARGUMENT

To prevail on its Motion for a Preliminary Injunction, Lexmark bears the burden of

demonstrating that the balance of four factors weighs in its favor: (1) likelihood of success on

the merits; (2) irreparable harm would result if the Court does not enter an injunction; (3) the

public interest; and (4) the possibility of substantial harm to others. *Forry, Inc. v. Neundorfer,*

Inc., 837 F.2d 259, 262 (6th Cir. 1988) (citation omitted). First, Lexmark cannot show a

likelihood of success on the merits in its claims for copyright infringement[7] or under the DMCA.

The trivial amount of code claimed by Lexmark to be infringed acts as a "lock-out code" which,

as the case law teaches, cannot be protected by copyright, and can freely be reverse engineered

and copied under both copyright law and the DMCA. Second, Lexmark will not suffer any

irreparable harm because there is no separate market for Lexmark's copyrighted work, and in

any event, any potential harm to Lexmark is fully compensable by money damages. Third, by

contrast, SCC stands to suffer substantial harm to its own business operations should a

preliminary injunction issue. Finally, the public interests in promoting marketplace competition,

availability of low-cost toner cartridge alternatives and in the promotion of environmentally-

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[7]   As discussed below, substantial questions exist in this case as to whether the alleged "Toner Loading
Program" is protectable at all by copyright, and if so, what elements are so protected; and, whether Lexmark's
efforts to extend its copyright so as to protect noncopyrightable consumable goods constitutes copyright misuse.

sound toner cartridge remanufacturing practices weigh heavily against the preliminary injunctive relief that Lexmark seeks.

In short, each of the four factors weighs decidedly in SCC's favor. For these reasons, as described in more detail below, the injunction should be denied.

I.   LEXMARK CANNOT DEMONSTRATE A LIKELIHOOD OF SUCCESS ON THE MERITS OF ITS COPYRIGHT INFRINGEMENT CLAIM (COUNT I)

Lexmark has provided the Court (and SCC) with a paucity of evidence of infringement. The affidavit submitted by Lexmark shows merely that a tiny amount of data is common between the Lexmark and Smartek chips. Lexmark utterly has failed to explain what these bytes are;[8] to demonstrate how, if at all, these numbers relate to the copyrighted works; or to assert what elements, if any, of computer source code purportedly represented by these numbers evince the requisite degree of authorship so as to be protectable by copyright.[9]

Lexmark cannot demonstrate a likelihood of success on the merits of its copyright infringement claim for three reasons. First, the [] bytes that constitute the so-called "Toner Loading Program" initially are being used by the Lexmark printer as data – not as a program – and such data cannot be protected by copyright. Second, even if these data also could be protected as program code, the purported programs are nothing more than mathematical formulae and constants – which, as a matter of law, are not protectable by copyright. Third, assuming *arguendo* that Lexmark holds a valid copyright, the law clearly holds that SCC's

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[8]   That is, apart from three bytes that signify the letters L, X and K, which Lexmark incorrectly asserts are nonfunctional, but accurately concedes are not protectable. (Able. Decl. ¶ 14).

[9]   *Compare, MiTek Holdings, Inc. v. Arce Eng'g Co., Inc.*, 89 F.3d 1548, 1555 (11th Cir. 1996) ("Perhaps the best approach for a district court in any computer program infringement case, whether involving literal or nonliteral elements, is for it to require the copyright owner to inform the court as to what aspects or elements of its computer program it considers to be protectable.") (footnote omitted). Lexmark has not even attempted to do that here.

legitimate reverse engineering activities are a complete defense to any claim of infringement under the fair use doctrine.

A. [Lexmark Cannot Claim Infringement against Copying of a Non-Copyrightable "Lock-out Code"](#)

The Copyright Act excludes from the scope of copyright protection "any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work." 17 U.S.C. § 102(b) (2002); *see also* 37 C.F.R. § 202(i)(a)-(b) (2002) (listing examples of works not subject to copyright protection, including "words and short phrases" and "[i]deas, plans, methods, systems, or devices").[10] Courts have applied this doctrine to cases, such as this, in which "key" codes that are used to "lock-out" competitors cannot be protected under copyright.

The facts and holding of *Sega Enter. Ltd. v. Accolade, Inc.,* the leading case concerning reverse engineering, are particularly on point with the case at bar.[11] 977 F.2d 1510 (9th Cir. 1992). Sega, a video game developer, incorporated into its games a small trademark security sequence ("TMSS") code segment intended to prevent competitors' and counterfeit games from playing on the Sega Genesis game console. A competing video game developer, Accolade, in order to market its own games that could be played on the Sega game console, reverse engineered Sega's software code, discovered the TMSS lock-out code mechanism, and copied into the Accolade code the precise TMSS lock-out code sequence (comprising approximately 25 bytes of data, including the letters "S-E-G-A") from the Sega program. *Id*. at 1514-15. The Ninth Circuit rejected Sega's claim that Accolade's conduct constituted copyright infringement, and instead held Accolade's conduct to be protected under copyright law as a fair use. *Id*. at

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[10]   Indeed, the Copyright Office specifically noted to Lexmark's counsel, Mr. Patel, that formulas are not copyrightable. Shufflebarger Aff. Ex. A.

1527. Notably, the court specifically rejected Sega's suggestion that Accolade's copying of the

TMSS lock-out code constituted infringement, and further observed that "Sega's security code is

of such de minimis length that it is probably unprotected under the words and short phrases

doctrine. 37 C.F.R. § 202.1(i)(a)." *Id*. 1524, n.7.[12]

Similarly, in *Atari Games Corp. v Nintendo of America*, the court held that data used by

the program as a lock-out code could not be protected by copyright:

> Whether a particular portion of program code is copyrightable 'expression' or an
> uncopyrightable 'idea' represents a legal conclusion that depends largely on
> whether the particular code is necessary for compatibility. Under a proper
> 'filtration' analysis, if a particular portion of code is strictly necessary to achieve
> compatibility, then the merger doctrine dictates that it is not copyrightable
> expression in the first place. *See Sega*, 977 F.2d at 1524 (noting that
> compatibility requirements are an 'external factor' which should be applied in the
> filtration analysis).

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[11]   977 F.2d 1510 (9th Cir. 1992).

[12]   §202.1 Material not subject to copyright.

The following are examples of works not subject to copyright and applications for registration for such works cannot be entertained:

(a) Words and short phrases such as names, titles, and slogans; familiar symbols or designs; mere variations of typographic ornamentation, lettering or coloring; mere listing of ingredients or contents;

(b) Ideas, plans, methods, systems, or devices, as distinguished from the particular manner in which they are expressed or described in a writing;

(c) Blank forms, such as time cards, graph paper, account books, diaries, bank checks, scorecards, address books, report forms, order forms and the like, which are designed for recording information and do not in themselves convey information;

(d) Works consisting entirely of information that is common property containing no original authorship, such as, for example: Standard calendars, height and weight charts, tape measures and rulers, schedules of sporting events, and lists or tables taken from public documents or other common sources.

(e) Typeface as typeface.

No. C88-4805 FMS, C89-0027 FMS, 1993 U.S. Dist. LEXIS 8183 at *22, n.14., 30 U.S.P.Q. 2d

(BNA) 1401, 1407 (N.D. Cal. Apr. 15, 1993).[13]

In this case, as the affidavit of Dr. Benjamin Goldberg explains, the bytes that Lexmark

accuses SCC of copying perform the same compatibility functions as the Sega and Atari codes.

See, *e.g.* Goldberg Aff. ¶¶ 9-12. The data constituting the Lexmark toner code bytes are

analyzed by firmware in the printer to prevent non-Lexmark printer toner cartridges from

operating in Lexmark's T520/T620 printers. *Id*. If the data are changed in any way, the printer's

firmware will calculate a mathematical "hash" value that does not match a pre-existing value

stored in the printer. The printer will display the error message "32 Unsupported Print

Cartridge" and will not print until and unless the cartridge is replaced with one that contains the

exact code as the Lexmark "Toner Loading Program." *Id*. Thus, like the code in *Sega* and *Atari*,

the bytes that constitute the Lexmark code are used for a noncopyrightable, utilitarian purpose

and, hence, cannot be the subject of a claim of infringement.

That these lock-out data in the instant case thereafter may be used as program code is a

distinction without a difference. Lexmark has chosen to treat this code initially purely as data, in

such a manner that these data must be slavishly copied in order for a competitor to achieve

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[13]   As the Supreme Court has noted, there is "a narrow category of works in which the creative spark is utterly lacking or so trivial as to be virtually nonexistent." *Feist Publ'n v. Rural Tel. Serv. Co.*, 499 U.S. 340, 358-59 (1991). Similar to the case at bar, courts have held that numbers and similar codes cannot be protected by copyright. *See Mitel, Inc. v. Iqtel, Inc.*, 124 F.3d 1366, 1373 (10th Cir. 1997) ("numbers constituting command codes [that] were arbitrarily chosen and arbitrarily assigned to each function" are insufficient to sustain a finding of originality meriting copyright protection); *Southco, Inc. v. Kanebridge Corp.*, 258 F.3d 148, 151 (3d Cir. 2001) (denying protection where part numbers resulted not from creative thought, but rather through mechanical operation of the numbering system)*; see also R&B, Inc. v. Needa Parts Mfg., Inc.*, Civ. Action No. 01-1234, 2001 U.S. Dist. LEXIS 17406 (E.D. Pa. August 14, 2001), *aff'd,* 50 Fed. Appx. 519 (3d Cir. 2002) (numbers derived through a combination of arbitrary assignment and mechanical application of a numbering system uncopyrightable); *Toro Co. v. R&R Products Co.*, 787 F.2d 1208, 1213 (8th Cir. 1986) (arbitrary assignment of parts numbers not copyrightable). Likewise, as explained *infra* at Section B, Lexmark's choice in values in the Toner Loading Routine are derived not from creative thought, but rather from mechanical application of the unprotectable formula necessary to produce the hash value identical to the value computed by the Printer Engine.

compatibility and interoperability between the printer and replacement cartridges.[14] Pursuant to

Section 102(b), as well as the leading cases cited above, Lexmark cannot protect against such

data being copied and incorporated into the Smartek chips. Hence, Lexmark's use of the toner

code bytes as a lock-out code renders them non-copyrightable, and precludes any likelihood of

success on the copyright infringement claim in this case.[15]

> B. Lexmark Has Not Satisfied the Applicable Tests for Proving Copyright Infringement.

Second, to prevail on its copyright infringement claim, Lexmark must prove (1) that it

owns a valid copyright in its Toner Loading Routine; and (2) that SCC copied *protectable*

elements of the copyrighted work. *Feist,* 499 U.S. at 361 (citations omitted). Lexmark has

satisfied neither prong of this inquiry.

> 1. Lexmark's "Programs" Merely Implement Mathematical Formulae and Constants, Which are Not Copyrightable Subject Matter.

As to the first prong of the inquiry, Lexmark relies on its certificates of registration from

the United States Copyright Office. However, a certificate is only *prima facie* evidence of

copyrightability; it "creates no irrebuttable presumption of copyright validity. Where other

evidence in the record casts doubt on the question, validity will not be assumed." *Durham*

Indus., Inc. v. Tomy Corp., 630 F.2d 905, 908 (2d Cir. 1980); *see also Bateman v. Mnemonics,*

Inc., 79 F.3d 1532, 1541 (11th Cir. 1996).[16] Such doubt exists in this case, inasmuch as the so-

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[14] Indeed, as the affidavit of SCC employee Lyn Burchette makes clear, at the time that SCC copied these data into its chips, it understood the data only to perform such a lock-out function. Burchette Aff. ¶ 14. Not until SCC received a copy of the Complaint and the redacted source code deposit accompanying the copyright applications for these programs did SCC recognize that these data might perform any other function whatsoever.

[15] The noncopyrightability of the "Toner Loading Programs" as program code is addressed in the next section.

[16] As noted *supra* at n.5, Lexmark's "Printer Engine Program" is an example of this principle. No presumption of validity attaches to registrations under the Rule of Doubt. *See Compaq Computer Corp. v. Procom Tech., Inc.*, 908 F.Supp. 1409, 1417-18 (S.D. Tex. 1995).

called "Toner Loading Programs" are no more than bare-bones implementations of mathematical formulae and scientific observations that cannot be protected by copyright. *See*, *e.g.* Goldberg Aff. ¶¶ 19-25.

As noted above, under section 102(b) of the Copyright Act, mathematical equations are not subject to copyright protection. "Copyright protection, therefore, is not available for: ideas or procedures for doing, making, or building things; scientific or technical methods or discoveries; … mathematical principles; formulas, algorithms; or any other concept, process or method of operation." U.S. Copyright Office Circular 31 (Sep. 1998). *See*, *e.g. Baker v. Selden*, 101 U.S. 99, 103 (1879) ("The copyright of a work on mathematical science cannot give to the author an exclusive right to the methods of operation which he propounds…so as to prevent an engineer from using them whenever the occasion requires."); *see also Computer Assoc. Int'l v. Altai, Inc.*, 982 F. 2d 693, 704 (2d Cir. 1992).

Similarly, mathematical constants to be used in such equations are facts that are not protectable under copyright law. For example, in *Gates Rubber Co. v. Bando Chemical Indus.*, the Tenth Circuit denied copyright protection to mathematical constants representing scientific observations of the load that a particular rubber belt could carry around certain sized gears at certain speeds given a number of other variables – despite the fact that Gates had expended thousands of hours of engineering labor to derive those constants: "These relationships are not invented or created; they already exist and are merely observed, discovered and recorded. Such a discovery does not give rise to copyright protection." 9 F.3d 823, 843 (10th Cir. 1993); s*ee also Feist,* 499 U.S. at 347 ("[F]acts do not owe their origin to an act of authorship. The distinction is one between creation and discovery: the first person to find and report a particular fact has not created the fact; he or she has merely discovered its existence.").

> No one may claim originality as to facts. Facts may be discovered, but they are not created by an act of authorship. One who discovers an otherwise unknown fact may well have performed a socially useful function, but the discovery as such does not render him an 'author' in either the constitutional or statutory sense.

1 Melville Nimmer *et al.*, Nimmer on Copyright §2.11[A] at 2-172.16 (2002 ed.)[17]

Extension of its copyright to mathematical equations and unprotectable constants is precisely what Lexmark attempts to do in the instant litigation.   As Dr. Goldberg's affidavit demonstrates, the "Toner Loading Program" consists of an extraordinarily short series of commonplace and unoriginal computer instructions (*e.g.*, add, subtract, multiply, take a percentage). Goldberg Aff. ¶¶ 21-23. Taken together, these instructions, using particular mechanical parts at particular print speeds, do nothing more than implement a straightforward mathematical equation for determining how much toner may be left in a cartridge.[18] One half of these formula is expressed as the simple form of linear equation. Goldberg Aff ¶ 19. The other half is a basic quadratic equation. Goldberg Aff ¶¶ 19, 25. Under *Baker* and its progeny, code that merely implements these equations is inseparable from the equation itself, and therefore cannot be copyrightable.[19]

The constants that the program uses in those equations are predetermined numbers that apparently were derived by what Lexmark's counsel, Mr. Patel, described to the Copyright

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[17]   Lexmark's citation to *Superchips, Inc. v. Street & Performance Elecs., Inc.*, No. 6:00-CV-896-ORL-31 KRS, 2001 U.S. Dist. LEXIS 23595, 61 U.S.P.Q.2d (BNA) 1589 (M.D. Fla. Dec. 6, 2001), is not to the contrary. In that case, the court agreed that no two software developers "would 'tune' or write the programs in exactly the same way, despite attempting to achieve the same end result." Here, as Dr. Goldberg explains, no creativity was required in the translation of the formulae into the toner loading programs. Goldberg Aff. ¶¶ 7, 23.

[18]   Even this purported "function" is absent in the Lexmark printers at issue. The printers indicate only the setting "Toner Low," at a point where the cartridge still can print thousands of pages. The printers do not have a display setting for "Toner Out" and, in fact, will continue to print blank pages long after the toner cartridge is empty. Burchette Aff. ¶ 11.

Office as "empirical" experimentation,[20] based on certain physical conditions such as the speed

of the printer, toner density, the design of the encoder wheel outside the cartridge and the

characteristics of certain metal springs. Goldberg Aff. ¶ 32. As *Gates Rubber* teaches, facts

derived from scientific experimentation cannot be protected by copyright.

Therefore, inasmuch as the "Toner Loading Programs" merely implement these formulae

and the constants, under Section 102(b) these programs are not protectable by copyright.[21] Thus,

SCC cannot have infringed.

2. SCC Copied No Protectable Elements

The second element of the *Feist* test requires scrutiny as to whether the elements that

SCC is accused of copying are, in fact, protectable by copyright. "The mere fact that a work is

copyrighted does not mean that every element of the work may be protected." *Feist,* 499 U.S. at

348; *see also Bateman*, 79 F.3d at 1542; *Gates Rubber*, 9 F.3d at 833. To assess the

protectability of elements of the Lexmark toner routines, courts first filter out unprotectable

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[19]   Indeed, finding copyrightability in such formulae and facts would contravene policies favoring competition and opposing overreaching copyright claims. "At times, parties seek to use the law of copyright as a club with which to beat competitors for the simple act of competition, rather than for copying the elements of expression that give rise to copyright subsistence in the first instance. In those cases, the policy animating courts that have followed the doctrine of *Baker v. Selden* deserves free rein – the defendant's conduct deserves a wide berth." *See* Nimmer at 2.18[D][2] at 2-204.8-9.

[20]   *See* Shufflebarger Ex. C. "Empirical" is defined as:

"1.   a. Relying on or derived from observation or experiment: *empirical results that supported the hypothesis.*

"b. Verifiable or provable by means of observation or experiment: e*mpirical laws.*" *American Heritage Dictionary of the English Language (Fourth Edition 2000).*

[21]   We note in this regard that the Copyright Office initially doubted the registrability of the "Toner Loading Programs," but that the examiners apparently were swayed by certain (undocumented) representations made during a web-enabled conference call with plaintiff's counsel. *See* Shufflebarger Aff. Exs. A-C. A "knowing failure to advise the Copyright Office of facts which might have occasioned a rejection of the application constitutes reason for holding the registration invalid and thus incapable of supporting an infringement action." *Whimsicality, Inc. v. Rubie's Costume Co., Inc.*, 891 F.2d 452, 456 (2d Cir. 1989) (internal citations omitted); *see also Fonar Corp. v. Domenick*, 105 F.3d 99, 104 (2d Cir. 1997) (listing examples of rebutting the presumption of validity, including evidence that work is a non-copyrightable utilitarian article, evidence that work was copied from the public domain, or where other evidence in the record casts doubt on the question).

elements, and then compare the remaining protectable elements with those that are claimed to infringe. *See, e.g.*, *Computer Assoc.*, 982 F.2d at 703; *Bateman,* 79 F.3d 1544.[22]

This "filtration" step implements the copyrightability requirements of Section 102(b) by separating protectable expression from non-protectable ideas. *Computer Assoc.,* 982 F.2d at 707. All functional elements or other factors precluded from protection under 17 U.S.C. § 102(b) must be filtered and removed from the analysis. *See, e.g., Sega*, 977 F.2d at 1524 ("In some circumstances, even the exact set of commands used by the programmer is deemed functional rather than creative for purposes of copyright."). Any elements dictated by considerations of efficiency so as to be necessarily incidental to that idea must be eliminated from the scope of the infringement analysis, because under those circumstances, the expression has "merged" with the idea itself.[23] *Computer Assoc.*, 982 F.2d at 707-08. ("[W]hen specific instructions…are the only and essential means of accomplishing a given task, their later use by another will not amount to infringement."); *Sega,* 977 F.2d at 1524 (citations omitted). The Court also should filter out elements dictated by factors external to the program itself, such as compatibility, as those elements are unprotectable *scenes à faire*.[24] *Mitel*, 124 F.3d at 1375 (command codes "limited by significant hardware, compatibility, and industry requirements" are excluded from protection

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[22]   Lexmark incorrectly asserted in its January 8, 2003 Response to SCC's Motion for Expedited Discovery (Docket Entry #13) that *Altai*'s "abstraction-filtration-comparison" test does not apply in cases of "literal infringement" such as the instant case. *See id.* at 1, FN1. As *Bateman* demonstrates, however, the "abstraction-filtration-comparison" test is appropriate even in literal infringement cases, because in both situations even literal copying does not create copyright liability if the copied elements are not entitled to protection in the first place. *Bateman*, 79 F.3d at 1545; *Gates Rubber,* 9 F.3d at 834. In any event, even courts that do not apply the "abstraction-filtration-comparison" test in cases of literal copying still recognize that non-copyrightable elements should not be considered in the infringement analysis. *See, e.g. Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807 (1st Cir. 1995).

[23]   "Under the merger doctrine, when an idea can be expressed in only one fashion, that expression is not protected by copyright, as the result would be to provide a monopoly over the idea itself." 4 Melville Nimmer et al., Nimmer on Copyright § 13.03[F][2] at 13-128 (2002 ed.) (citation omitted).

against infringement under the *scenes à faire* doctrine); *Bateman,* 79 F.3d at 1546-7 ("external

considerations such as compatibility may negate a finding of infringement); *Computer Assoc.,*

982 F.2d at 709. Finally, the Court must filter items taken from the public domain, which are not

protectable expression. *Id.*

Once the Court has filtered all non-protectable elements from the computer program,

only then should the Court compare the remaining protectable elements, if any, with the

allegedly infringing work.

In this case, the result of this filtration process reveals that there is no copyrightable

expression left to infringe. As an initial matter, as noted above, the data of the "Toner Loading

Programs" operate as a lock-out code, which is not protectable by copyright, hence, copying of

the data cannot be deemed infringement. Even if these bytes were not used as a lock-out code,

Dr. Goldberg's analysis shows that the code consists solely of instructions that implement

mathematical formulae, and factual constants to be used in those formulae. Goldberg Aff. ¶¶ 19-

25. After filtering out the formulae and constants, no code remains, and there is no

copyrightable code left to infringe. Therefore, for these additional reasons, Lexmark has no

likelihood of success on the merits of its infringement claim.

C. SCC's Reverse Engineering of the Toner Routines is a Lawful and Noninfringing Fair Use.

Even if the Lexmark toner code bytes are held to be protectable by copyright, SCC's

conduct falls well within the scope of permissible reverse engineering that constitutes a

legitimate and noninfringing fair use as a matter of law.

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[24] "*Scenes à faire*" is "[a] copyright law doctrine referring to incidents, characters or settings which are as a practical matter indispensable, or at least standard, in the treatment of given topic. Such material, in an otherwise copyrightable work, is considered unprotected by copyright because it would be natural for it to appear in works dealing with similar subjects or situations." Black's Law Dictionary (6th Ed. 1991).

"Reverse engineering" refers to a process by which, as in this case, software engineers must access copyrighted software code in order to build a compatible product. *Sony Computer Entm't, Inc. v. Connectix Corp.*, 203 F.3d 596, 599 (9th Cir. 2000) (citation omitted). Reverse engineering of the object code of copyright computer code in order to gain an understanding of the unprotected functional elements of the program is protected as a matter of law under the "fair use" doctrine.[25] *Sega*, 977 F.2d at 1518; *Sony*, 203 F.3d at 602. For example, in *Sega,* the Ninth Circuit rejected Sega's claim that Accolade's conduct constituted copyright infringement, and instead held Accolade's conduct to be protected under copyright law as a fair use – regardless of the literal copying by Accolade of the TMSS "lock-out" code.[26] Similarly, in *Sony,* the Ninth Circuit held that reverse engineering of Sony's computer game console was fair use, even though it involved the repeated copying of copyrighted code.

SCC similarly has engaged in fair use by reverse engineering the Lexmark chip and incorporating verbatim the Lexmark lock-out code, all of which was necessary to create the compatible Smartek chip. *See Sega*, 977 F.2d at 1523-24 ("an attempt to monopolize the market by making it impossible for others to compete runs counter to the statutory purpose of promoting creative expression and cannot constitute a strong equitable basis for resisting the invocation of the fair use doctrine"). As set forth in the affidavit of Lynton Burchette, SCC reverse engineered Lexmark's toner code and incorporated only those bytes that could not be changed in order to pass this authentication. Burchette Aff. ¶ 7. Thus, SCC reverse engineered the Lexmark chip in

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[25]   The fair use doctrine, as codified at 17 U.S.C. § 107, requires the balancing of four non-exclusive factors: (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit or educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work.

[26]   Notably, when enacting the DMCA Congress took great care to ensure that nothing in the Section 1201 detracted from the holding and effect of *Sega v. Accolade* in protecting reverse engineering. *See infra* at II-C.

order to discover the functional requirements for compatibility with the Lexmark T520/T620 printers, which fair use is shielded from infringement liability.

That SCC's reverse engineering constitutes fair use is furthermore clear from an application of the four-factor balancing test:

(1) the purpose and character of the use: SCC uses the code for its non-copyrightable function as a lock-out code, in order to render the printer interoperable with the toner cartridges remanufactured by SCC's clients. Goldberg Aff. ¶¶ 9-12. Notably in this regard, Lexmark gives SCC no choice but to copy and use these bytes. By electing to use these bytes as a lock-out code, Lexmark itself has dictated that each byte must be copied in the exact format and order presented. Thus, the first factor strongly favors SCC.

(2) the nature of the copyrighted work: As noted above, the case law is clear that lock-out codes are not subject to copyright protection. Notwithstanding, even if the Lexmark toner code bytes could be protected by copyright, they are entitled to thin protection at best. Case law generally accords a lesser scope of protection to utilitarian works such as this type of computer software. *See*, *e.g. Sega*, 977 F.2d at 1524; *Sony*, 203 F.3d at 603. Congress similarly has granted fewer rights to software of this type, which is embedded in a machine or product and is not externally copiable during the ordinary operation of the machine or product. 17 U.S.C. § 109(b)(1)(B) (denying to embedded functional software the right to prevent rental, lease or lending). The second factor therefore also favors SCC.

(3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole: Copying an entire work can be deemed fair use. *See Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984). In this case, Lexmark cannot be heard to complain that SCC copied the []-byte code "as a whole." By using these bytes as a "lock-out code," Lexmark

has compelled SCC to use all of the toner code bytes in order to build a compatible product. *See*, *e.g.* Goldberg Aff. ¶¶ 9-12. Thus, this factor also favors SCC.

(4) *the effect of the use upon the potential market for or value of the copyrighted work*: These [] bytes are not offered for sale or licensed to the public. There is no separate market for them and, therefore, no market value to be affected by SCC. The fourth factor also favors SCC.

In sum, the toner code bytes are used for a noncopyrightable function, and must be copied in their precise format and order so as to enable interoperability between the printers and replacement cartridges. As a matter of well-established law, Lexmark cannot use copyright to protect its lock-out code against copying by SCC. To the extent that such copying could be deemed to implicate copyright, such copying clearly constitutes fair use. Therefore, Lexmark cannot establish a likelihood of success on the merits, and its motion for preliminary injunction must be denied.

> D.   Lexmark's Efforts to Leverage its Copyright to Protect its Toner Cartridge Market Constitutes Copyright Misuse

Finally, permitting Lexmark to use either copyright law or the DMCA to stifle competition in markets for noncopyrighted goods, such as replacement toner cartridges, would unintentionally sanction copyright misuse. The doctrine of copyright misuse bars the plaintiff from using copyright to secure an exclusive right or a limited monopoly not expressly granted by copyright law. *See, e.g., Alcatel USA v. DGI Tech.*, 166 F.3d 772 (5th Cir. 1999); *Practice Mgmt. Info. Corp. v. American Med. Ass'n,* 121 F.3d 516 (9th Cir.1997); *QAD, Inc. v. ALN Assocs., Inc.,* 974 F.2d 834 (7th Cir. 1992); *Lasercomb Am, Inc. v. Reynolds*, 911 F.2d 970 (4th Cir. 1990). "No party can use the limited grant that a copyright confers to gain control of components over which it has no such right." *QAD, Inc. v. ALN Assocs., Inc.,* 770 F. Supp. 1261, 1267 (N.D. Ill. 1991).

Alcatel is instructive. There, the plaintiff sought to leverage its copyright in a computer program so as to foreclose competition in the market for telephone switching circuit boards that ran the software. As here, the plaintiff in *Alcatel* authorized the computer programs to be used only in conjunction with plaintiff's hardware equipment, and repeatedly adopted new technological measures in an effort to thwart competitors from running plaintiff's software on competitors' cards. *Alcatel*, 166 F.3d at 778. Despite a finding of infringement by the jury, the court held that plaintiff had misused its copyrights in order to protect the market for the associated hardware and, therefore, the plaintiff could not enforce its copyrights against the defendant. *Id*. at 794. Consequently, that court concluded, the district court had abused its discretion in awarding injunctive relief based on a finding of copyright infringement. *Id*. at 791-92.

Here, Lexmark concedes that it is using its copyrighted software to prevent the use of toner cartridges that are remanufactured or recycled by Lexmark's competitors from being used with Lexmark's T520/522 and T620/622 laser printers. *See*, *e.g.* Yaro Decl. ¶ 7. Indeed, use of the "killer chip" effectively turns a sale that otherwise would exhaust Lexmark's rights to its software into a rental of the software, which rental right Congress expressly denied to owners of software such as the Lexmark "Toner Cartridge Programs" under Section 109(b)(1)(B) of the Copyright Act. Granting an injunction on the basis of Lexmark's thin copyrighted software routine would effectively procure for Lexmark patent-like protection for otherwise not protected chips and toner cartridges. The consequences of such misuse would offend established economic policies by reducing competition, promoting monopolization, and, having eliminated lower-priced competitors from the marketplace, increasing prices to the consumer for both original and replacement cartridges.

Because enforcement of Lexmark's copyrights would constitute copyright misuse in this case, Lexmark cannot establish a likelihood of success on the merits of its Complaint.

II.   LEXMARK CANNOT DEMONSTRATE A LIKELIHOOD OF SUCCESS UNDER THE DIGITAL MILLENNIUM COPYRIGHT ACT (COUNTS II AND III).

By its terms, Section 1201(a) only applies to technological measures that control access to "a work protected under this title." 17 U.S.C. §120(a)(1)(A) (2002). To the extent that Lexmark's programs are not entitled to copyright protection, as discussed *supra* at I-B, Lexmark cannot claim entitlement to assert a cause of action under the DMCA. It is also clear that the DMCA does not protect the types of embedded utilitarian hardware controller programs at issue in this case, and that SCC's reverse engineering of the Lexmark chips, and the incorporation of the results of those efforts into the compatible and competing Smartek chips, is exempt from Section 1201(a)(2) under the safeguards for reverse engineering under Section 1201(f).[27]

A.   Section 1201(a) of the DMCA Does Not Apply to the Claims At Issue In This Case.

Lexmark's efforts to apply Section 1201(a) to the internal functional operations of a computer printer cannot be squared with the purpose of Title I of the DMCA: to secure copyrighted works in digital format against piratical reproduction and redistribution in the Internet and digital networked environment. The legislative history refers, throughout, to this underlying purpose. To cite but a few examples:

> [T]he law must adapt **in order to make digital networks safe places to disseminate and exploit copyrighted materials**. The legislation implementing the treaties, Title I of this bill, provides this protection and creates the legal

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[27]   It is unclear just what Lexmark claims the "technological measure" to be. Its Complaint seems to contend that the technological measure is the "secret handshake" which is performed by the publicly-available, federal government-developed standard SHA-1 algorithm. Elsewhere Lexmark seems to suggest that the technological measure is the "toner empty" code written by the Lexmark printers to the Prebate cartridge chips, which prevent such chips from being refilled. *See* Lexmark Br. at 19. SCC requests that Lexmark timely clarify the nature of its claims so that SCC can have fair and adequate notice of the contentions it must address at the hearing.

platform for launching the global digital online marketplace for copyrighted works.

S. Rep. No. 105-190, at 2 (1998) (emphasis added).

> The digital environment now allows users of electronic media **to send and retrieve perfect reproductions easily and nearly instantaneously, to or from locations around the works**. With this evolution in technology, the law must adapt in order **to make digital networks safe places** to disseminate and exploit material in which American citizens have rights in an unregulated and beneficial environment.

Staff of House Comm. on the Judiciary, 105th Cong., Section-by-Section Analysis of H.R. 2281

2 (Comm. Print 1998) (emphasis added).

> When copyrighted material is adequately protected in the digital environment, **a plethora of works will be distributed and performed over the Internet**. In order to protect the owner, copyrighted works will most likely be encrypted and made available to consumers once payment is made for access to a copy of the work.

H.R. Rep. No. 105-551, 1, at 10 (1998) (emphasis added).

> **The bill addresses the problems caused when copyrighted works are disseminated through the Internet and other electronic transmissions** without the authority of the copyright owner. By establishing clear rules of the road, this bill will allow electronic commerce to flourish in a way that does not undermine America's copyright community.

144 Cong. Rec. S4439 (May 6, 1998) (statement of Sen. Leahy) (emphasis added).

The House Committee on Commerce similarly explained the purpose of the legislation as the promotion of electronic commerce in copyrighted works. H.R. Rep. No. 105-551, 2, at 21-23 (1998).

The House Committee on the Judiciary report cited examples of laws that had been enacted by Congress in similar contexts, which addressed circumvention of systems that prevent unauthorized descrambling of cable and satellite television, and the digital serial copying of sound recordings – again, in each instance, protecting copyrighted works having an independent market value. H.R. Rep. No. 105-551, 1, at 18 (1998). As that Committee analogized, "[t]he act

of circumventing a technological protection measure put in place by a copyright owner to control access to a copyrighted work is the electronic equivalent of breaking into a locked room *in order to obtain a copy of a book*." *Id.* at 17 (emphasis added).[28] By contrast, Lexmark's DMCA claim seeks to prevent the owner of a printer from using the printer -- the electronic equivalent of breaking into a locked room *in your own house*.

In sum, the DMCA's legislative history is devoid of a single suggestion that Congress even remotely considered the possibility that Section 1201(a) might apply in the type of circumstances presented here. To the contrary, the consistent focus of the legislative history on the pirating of *copies* of works (such as books, CDs and motion pictures) that have an independent market value, across electronic networks, indicates that Congress did not intend to expansively apply the DMCA to the claims presented by Lexmark.[29]

Not surprisingly, then, each of the cases in which a court has found a DMCA violation to date has involved the application of a technological measure to protect a work that has an independent economic value. *See Universal City Studios v. Reimerdes*, 273 F.3d 429 (2d Cir. 2001) (motion pictures distributed on encrypted DVD video discs); *CSC Holdings, Inc. v. Greenleaf Elec., Inc.*, No. 99 C 7249, 2000 U.S. Dist. LEXIS 7675 (N.D. Ill. June 2, 2000) (television programming distributed in encrypted form by cable system); *RealNetworks, Inc. v. Streambox, Inc.*, No. C99-2070P, 2000 U.S. Dist. LEXIS 1889 (W.D. Wash. Jan. 18, 2000) (audio and audiovisual works performed by streaming Internet webcast following authentication

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[28]   *See also* House Judiciary Committee Print at 5.

[29]   *See also* Conference Report, H.R. Rep. No. 105-796, at 64 (1998), expressing the understanding of the conferees that "technological measures will most often be developed through consultative, private sector efforts by content owners, and makers of computers, consumer electronics and telecommunications devices." This underscores Congress' expectation that such measures would be applied to works created by content owners that had an independent economic value, and were capable of being copied and disseminated via computers, consumer electronics devices and telecommunications equipment – not utilitarian code embedded within the hardware devices themselves.

protocol); *Sony Computer Entm't Am., Inc. v. Gamemasters*, 87 F. Supp. 2d 976 (N.D. Cal. 1999) (copyrighted imported computer games distributed on region-coded CD-ROM).

Importantly, Congress also expressed significant concerns that Section 1201(a) might be abused in unanticipated ways that contravened the public interests. At the urging of the House Commerce Committee, Congress adopted several explicit exemptions from section 1201(a). Recognizing that they lacked Delphic prescience to anticipate all future potential misuses, Congress provided in Section 1201(a)(1)(B) for a process by which the Copyright Office can exempt from the Section 1201(a) prohibition a particular class of works whose noninfringing use of the works in the succeeding 3-year period is or is likely to be adversely affected by that prohibition.

In that connection, it is self-evident that the type of Section 1201(a) claim lodged here by Lexmark could be similarly abused in other industry contexts. One readily could envision, for example, an automobile manufacturer applying technological measures to comparably trivial software routines so as to prevent competition in the aftermarket for replacement tires, wiper blades or other automotive parts; camera manufacturers attempting to foreclose the use of competitors' lenses or brands of film; a ball-point pen manufacturer using a technological measure and an "ink low" program to shut out replacement ink refills; or a cell phone manufacturer applying technological measures to replacement batteries, headsets or car adapters.[30] None of this was envisioned by Congress in 1998, for the simple and obvious reason that Congress never intended the DMCA to be applied in this way.

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[30] Note in this regard the complaint in *Chamberlain Group v. Skylink Tech*, Civ. Action 02 C 6376 (N.D. Ill. Oct. 16, 2002), in which the plaintiff contends that defendant's universal garage door opener violates Section 1201(a) by circumventing a technological measure to access copyrighted garage door opening software.

In sum, Lexmark's novel "interpretation" of the DMCA bears no resemblance to the underlying purposes and intent of the statute. Their attempt to expand the scope of Section 1201(a) to the type of claims lodged here should be denied.

B. [Lexmark Cannot Employ Section 1201(a)(2) to Protect Market Share for Recyclable Cartridges.](#)

Lexmark cannot prevail on the merits of its Section 1201(a)(2) claim because Lexmark's avowed purpose in applying its technological measure is not to control access to a copyrighted work, as that section requires. As noted above, the works at issue have no independent market value to protect. Any "intention" to protect those programs is on its face pretextual.

Lexmark's true and only purpose is to exclude competition from third party remanufacturers or, using Lexmark's own words, "[t]o prevent unauthorized toner cartridges from being used with Lexmark's T520/522 and T620/622 laser printers, …." Yaro Dec. ¶ 7, Ex. B to Lexmark Br. Lexmark's intent to protect its sales of unpatented hardware, rather than its software, is further evidenced by Lexmark's discussion of how the technological measure "guarantees that the 'prebate' cartridge will not function once the toner level in that 'prebate' cartridge reaches a low toner level." Lexmark Br. at 19, *citing* Yaro Dec. ¶ 12. Indeed, several of Lexmark's patents for toner cartridge technology explicitly teach how toner level sensing mechanisms can be used to inhibit competitive marketing of replacement cartridges.[31] Because Section 1201(a)(2) only applies to technological measures that protect copyrighted works, and not to measures intended to protect non-copyrighted goods, Lexmark's DMCA claims must fail.

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[31]   *See* Goldberg Aff. Ex. D, United States Patent No. 6,295,422 col.10, citing the ability to use technological measures against competitors so as to "inhibit the use of cartridges from vendors where it is felt that the cartridge will give inferior print, may have some safety concern, or damage the machine in some way. Alternatively, if the machine is supplied as an OEM unit to a vendor for his own logo, the cartridges may be coded so that his logo cartridge is that which is acceptable to the machine."

Even if Section 1201(a)(2) somehow could apply to the case at bar, unquestionably

SCC's activities would nevertheless be protected under Section 1201(f), as lawful reverse

engineering for purposes of attaining interoperability.[32] The objective of this exception

> is to ensure that the effect of current case law interpreting the Copyright Act is not changed by enactment of this legislation for certain acts of identification and analysis done in respect of computer programs. *See Sega Enterprises, Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 24 U.S.P.Q.2d 1561 (9th Cir. 1992). The purpose of this section is to foster competition and innovation in the computer and software industry.

S. Rep. No. 105-190 at 32.[33] Thus, just as SCC's reverse engineering of the Lexmark code

constitutes fair use under *Sega*, it is a complete defense to the DMCA claims as well under

Section 1201(f).

Specifically, Section 1201(f)(2) of the DMCA provides that a person may develop and

employ methods to circumvent protection afforded by a technological measure, as necessary to

enable interoperability of an independently created computer program with other programs.

Section 1201(f)(3) permits those methods to be marketed to others solely for such purpose of

enabling interoperability. As set forth in the affidavit of Lynton Burchette, that is exactly what

occurred here. SCC reverse engineered the Lexmark chip and designed a chip containing its own

software code. Burchette Aff. ¶ 7. Without reverse engineering and circumventing the Lexmark

version of the SHA-1 hash, SCC would have been unable to supply compatible chips to the

marketplace. *Id*. The only means to obtain the information necessary to build and market a

compatible chip was for SCC to reverse engineer and circumvent the Lexmark SHA-1 hash.

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[32] "[T]he term 'interoperability' means the ability of computer programs to exchange information, and of such programs mutually to use the information which has been exchanged." 17 U.S.C. § 1201(f)(4) (2002).

Thus, SCC's conduct falls squarely within the Section 1201(f) exemption, and Lexmark cannot

demonstrate a likelihood of success on either Counts 2 or 3 of its Complaint.

III.   THE HARDSHIP AN INJUNCTION WOULD INFLICT ON SCC AND OTHERS
         SWAMPS THE ILLUSORY HARM OF WHICH LEXMARK COMPLAINS.

Lexmark claims in its moving papers that it will be irreparably harmed if SCC is not

enjoined from supplying its Smartek chips to the remanufacturing industry, but Lexmark

provides no evidence as to just what portion of its $4.35 billion per year it stands to lose. As

noted above, Lexmark has not sought and cannot point to a separate market for the purported

copyrighted material it accuses SCC of infringing. Any claim to harm Lexmark might make

would necessarily be predicated not on the diminished value of the copyrighted work, but on the

loss of sales of noncopyrightable goods. Any damage Lexmark might suffer would be incurred

because SCC and others have freely copied the "key" that opens the door to interoperability. As

detailed above, however, material acting as a lockout key is simply not entitled to copyright

protection. It follows, then, that any losses Lexmark might suffer because others can copy its

key are not cognizable under the copyright laws and should not be considered in the preliminary

injunction balancing.

Moreover, in stark contrast to the lack of evidence offered by Lexmark, SCC has

submitted with this Opposition a detailed projection of the harm *it* stands to suffer, not only in

lost sales of Smartek chips, but also in the loss of sales of associated products and customers,

which will likely consolidate their buying with some other supplier of remanufacturing products.

See, *e.g.* Swartz Aff. ¶¶ 9-14. For the reasons detailed in the Swartz Affidavit, an injunction at

this time would have a dramatic effect on SCC, depriving it not only of current sales of Smartek

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³³   *Accord* House Judiciary Committee Print at 15. *See also* H.R. Rep. No. 105-551, 2, at 42 ("the objective of
the analysis must be to identify and extract such elements as are necessary to achieve interoperability which are not
otherwise available to the person. Finally, the goal of this section is to ensure that current law is not changed.").

chips, but almost certainly of other sales it would otherwise make to buyers of the chips, who

will take their business for toner and other consumables elsewhere.

IV. PUBLIC POLICY DRAMATICALLY FAVORS REFRAINING FROM CONSIDERING AN INJUNCTION ON ANYTHING LESS THAN THE COMPLETE RECORD AFFORDED BY A TRIAL

As noted previously, the Complaint in this action is only part of a long, mostly

unsuccessful effort by Lexmark to secure a market in toner cartridges to itself and to preclude

any and all competitors from that market. In some senses, this lawsuit represents a new tack,

using the copyright laws where patent, contract, trademark and trade dress and unfair

competition laws have failed. This Court should consider upon a full record the public policy

implications of stretching copyright law into copyright misuse. But even on the incomplete

record assembled in the few short weeks available to oppose this motion, it is absolutely clear

that numerous public interests are at stake, having nothing to do with "preserv[ing] the integrity

of the copyright laws." Lexmark Br. at 21.

First, at stake is the right of remanufacturers to pursue their livelihoods. None of whom

are party to this lawsuit, yet all of them will be affected. An injunction against SCC will cut off

a source of supply to remanufacturers across the United States, thus harming American

businesses and jobs. *See, e.g.* Cornelius Aff. ¶¶ 17-18; Judge Aff. ¶ 7; Swartz Aff. ¶ 16.

Second, an injunction would deny the consuming public the ability to choose lower-

priced, remanufactured cartridges. Lexmark alone is not capable of supplying this marketplace

need. Even were they able to meet demand, a sole supplier without price competition has the

ability to artificially raise prices to the consumer, in contravention of the antitrust laws and

public policies.

Third, an injunction would threaten significant and truly irreparable harm to the environment. Absent remanufacturing of computer printer toner cartridges, some 27 million otherwise recyclable cartridges would be dumped annually in public landfills in the United States alone. Trashing recyclable toner cartridges introduces into the environment metals and chemical products that further contaminate the land and seep into the water table, thus increasing risks to the public health. The depth and immediacy of this policy concern is underscored by the November 8, 2002, adoption by the European Parliament of a Directive on Waste Electrical and Electronic Equipment ("WEEE") that outlaws use of the types of technological restrictions that Lexmark seeks to impose through this litigation. Specifically, Article 4 of the Directive, covering Product Design, provides, in pertinent part:

> Member States shall encourage the design and production of electrical and electronic equipment which take into account and facilitate the dismantling and recovery, in particular the re-use and recycling of WEEE, their components and materials. In this context, *Members States shall take appropriate measures so that producers do not prevent, through specific design features or manufacturing processes, WEEE from being reused*,....[34]

Thus, the European Parliament has specifically determined as a matter of public policy to eradicate the pernicious practice by printer manufacturers, including Lexmark, of embedding chips in toner cartridges so as to prevent their reuse.[35] The European Parliament's action demonstrates the fallacy in any assertion by Lexmark that its killer chip program is intended to "encourage" remanufacture and recycling.

Our government, as yet, has not adopted an outright prohibition of one-time-use chips equivalent to that of the European Directive on WEEE. However, United States government

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[34]   Toner cartridges are specifically called out in the Annexes to the Directive as a type of waste subject to the directive.

[35]   *See* Matthew Broersma, "Printer makers rapped over refill restrictions," http://news.zdnet.co.uk/story/0,,t269-s2127877,00.html December 20, 2002.

procurement laws and environmental policy promote and encourage – indeed, mandate -- the

purchasing of remanufactured recycled toner cartridges. *See* 42 U.S.C. § 6962(j); [36] Exec. Order

13101, Greening The Government Through Waste Prevention, Recycling, And Federal

Acquisition, Section 601(a) (Sept. 1998); [37] 40 CFR §§ 247.6, 247.16 (2002). *See also*, GSA

Office Products and Services and New Products/Technology - Schedule 75 IIA; [38] "Once is Not

Enough: Buying Remanufactured Toner Cartridges," WasteWi$e Update, Environmental

Protection Agency at 9 (May 1997). [39] Rational government policies that promote acquisition of

remanufactured recycled cartridges equally should disfavor efforts by Lexmark to

technologically limit its cartridges only to one-time use.

Against these compelling policies, Lexmark's attempt to depict the equities in its favor is

particularly weak. Lexmark has not offered a shred of evidence that any consumer has ever been

confused when buying a remanufactured toner cartridge that it was in fact receiving a new

cartridge. [40] If Lexmark truly is concerned about consumer confusion between "authorized" and

third party toner cartridges, Lexmark Br. at 21, then Lexmark should have brought its claim

based on consumer confusion under the Lanham Act, not under the Copyright Act or the DMCA.

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[36]   Subsection (j) provides: "Preference for recycled toner cartridges-- (a) Notwithstanding any other provision of law, a Federal agency in conducting a procurement for toner cartridges for use in laser printers, photocopiers or microphotographic printers shall purchase recycled cartridges,…."

[37]   Section 601(a)(2) provides: "In addition to white paper, mixed paper/cardboard, aluminum, plastic, and glass, agencies should incorporate into their recycling programs efforts to recycle, reuse, or refurbish pallets and collect toner cartridges for remanufacturing." Subsection 601(b) requires that "Agencies shall set goals to increase the procurement of products that are made with recovered materials, in order to maximize the number of recycled products purchased, relative to non-recycled alternatives."

[38]   Schedule available online at
http://www.gsa.gov/Portal/content/offerings_content.jsp?contentOID=118306&contentType=1004

[39]   Available online at http://www.epa.gov/wastewise/pubs/progrpts/pdfs/report6.pdf

[40]   Indeed, all indications are that consumers specifically look for remanufactured cartridges, recognizing that the price is 30 to 50% less than Lexmark demands.

Thus, powerful public policy equities favor SCC, and oppose entry of the requested injunction.

CONCLUSION

In sum, all four factors strongly favor SCC. For the foregoing reasons, defendant Static Control Components, Inc. respectfully requests that the request of plaintiff Lexmark International, Inc. for a preliminary injunction be denied.

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CERTIFICATE OF SERVICE

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