



# **SDMI: BOOM OR BUST FOR THE MUSIC INDUSTRY**

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## **TABLE OF CONTENTS**

INTRODUCTION

IMPETUS FOR SDMI

WHAT SDMI IS AND IS NOT

FINALLY, WHAT'S AT STAKE EXACTLY

- Major Labels
- Manufacturers
- Consumers
- 

OVERVIEW OF THE SDMI PORTABLE DEVICES SPECIFICATION

- Copy
- Distribution
- Two-Phase Approach
- 

WILL SDMI WORK ?



## **INTRODUCTION**

On July 13th, the Secure Digital Music Initiative (SDMI) Forum released the Portable Device Specification Part 1, Version 1.0 to the public. The specification was hashed out in meetings in Los Angeles, London and Tokyo by the Portable Device Working Group (PDWG), a committee within SDMI. The purpose of the specification is to provide a technical environment for the secure distribution of digital music to next-generation portable digital music players (PDMP). Thus, it is of critical importance to all segments of the music industry, including artists, copyright owners, distributors, retailers and hardware/software manufacturers.

"The specification will protect copyrighted music in all existing and emerging digital formats and through all delivery channels." (SDMI press release, 2/26/99)



## **IMPETUS FOR SDMI**

The SDMI initiative was spearheaded by the Recording Industry Association of America (RIAA), an industry trade association comprising of, among others, the five major labels: Sony Music, Universal, EMI Group, BMG Entertainment and Warner Music. It was launched in December 1998 "to enable consumers to conveniently access music in all forms, artists and recording companies to protect their intellectual property and technology and music companies to build successful businesses in their chosen areas." (Secure Digital Music Initiative Q&A) But why was SDMI necessary to achieve these objectives?

The core impetus of course has been the growing popularity and use of the mp3 format, which stands for MPEG Audio 1, Layer 3 - A compression format (12:1) to distribute music in a digital medium. Although there have been several alternative options available to users, including Liquid Audio and AT&T's a2b music, it was not until the emergence of the mp3 format that the downloading of digital music has become widespread. But, this grassroots market adoption of mp3 poses a threat, though, to copyright holders, and musicians. as well as labels, as the compression technology incorporates no security or authentication features with the file. This has resulted in reduced access to music for the consumer, whose options were usually restricted to little-known independent artists or pirated works as major copyright holders (usually the major labels) took a wait-and-see approach to the adoption of the technology.

In addition, you had the introduction of the Rio player by Diamond Multimedia Systems, Inc., an SDMI member, in the fall of last year. At the time, with a memory chip capable of holding 60 minutes of music, the Rio was a watershed in mp3 portable device technology. On October 8th of last year, the RIAA filed a lawsuit in the Central District Court of California. The RIAA'S lawsuit had claimed that the Rio player violated the Audio Home Recording Act (AHRA) of 1992, which requires manufacturers to pay royalties as compensation for the illegal duplication of music. The RIAA also argued that the Rio does not incorporate a serial copyright management system, which prevents the illegal manufacture/copying of second generation copies. The Rio player was an impetus for the RIAA establishing the SDMI and the portable working group. However, the RIAA's lawsuit has since become irrelevant with the wide consumer acceptance of the by consumers Rio (hundreds of thousands of copies already sold). On June 15, 1999 central district court ruled against the RIAA and threw out the lawsuit.

Finally, there was the growing proliferation of competing proprietary systems being developed by competing groups of industry players such as IBM, Liquid Audio, Intertrust, a2b music. The threat of market fragmentation posed to the industry was saddling consumers with the confusion and cost of requiring format-specific devices and content, and thus limiting consumer choices or increasing their cost. This becomes analogous to the home video game market where content developers must produce different versions for the varying proprietary system (Nintendo, Sega, Sony, etc.) to reach the broadest market. Interoperability among different vendor equipment and copyright holders content is viewed as essential to providing the most user-friendly market for consumers and music producers.



## **WHAT SDMI IS AND IS NOT**

"...the industry proposed solution for online music distribution, sdmi, was not favored by respondents (69%)." (Mp3: Digital Music For The Millennium?)

Since the news was released on the formation of the SDMI Forum by the RIAA, there has been, perhaps understandably, significant confusion on their actual objective and the impact of their work on existing technologies, specifically MP3.

It is therefore necessary to state what the SDMI proposed solution is not. First and foremost, it is not "a rival to MP3" or any other existing technologies. What the SDMI solution appears to be is an underlying infrastructure on which different music compression formats such as MP3 and a2b operate. If you want, you can view music distribution as a network with different layers each performing a specific task. As such, the SDMI specification represents a security and authenticity layer on which different audio compressions would operate. To make an analogy, SDMI is a safe for digital music files. Just as a normal safe will not distinguish between US dollars, French francs or Japanese yen, SDMI is technology neutral with respect to compression format.

In addition, it is not an RIAA trojan horse designed to highjack the infant digital music industry. In fact, the SDMI forum is simply a new industry-specific standards body. A standards body fills two complementary functions: (i) gathering a broad set of industry participants, and (ii) issuing industry-specific technical specifications or standard. As such, it is no different from the banking standards body, which allows you to use your ATM card at any bank ATM machine. Contrary to rumors, the SDMI member's list of over 110 companies appears to represent a broad, though small, segment of the emerging digital music industry, including online content providers, ISPs, telecommunication companies, and others. In addition, the \$10,000 minimum membership fee should not be a significant barrier. For firms expecting to play an important role in the distribution of digital music, \$10,000 is a small investment especially considering the access to technical information and resources.



### FINALLY, WHAT'S AT STAKE EXACTLY

This may be the most important question in judging the Portable Devices Specification and understanding the incentives of different players to work together or advance their individual business objectives.

#### Major Labels

As the major labels initiated this effort, it is important to understand what's at stake for them. It must first be understood that it is the labels, due to their role as copyright owners, which have the most to lose from the lack of a secure distribution system.

Although artists also face the same downside as labels, the scope for the labels is tremendous in that much of the value of a label is held in the ownership of its music catalog. "[Recording industry companies] have the problem that content loses its value. [They] want to create content that will retain its value. Overcoming this obstacle has been a great thing." (Leonardo Chiariglione, Wired News, 7/20/99) As such, the RIAA originally meant for the effort to block pirated music in order to control the usability of such illegal files.

#### Manufacturers

For hardware and software manufacturers, the market for PDMPs is potentially huge. In its report "Emerging Digital Audio Opportunities: MP3, SDMI and Portable Music Players", Cahners In-Stat Group has forecasted nearly \$800 million in sales for 2003. In our white paper "MP3: Digital Music for the Millennium?," we had gone further in speculating that PDMPs manufacturers, as the first developers of Net devices, were in a position to go beyond the music player market, and actually play a key role in the broader market of Internet devices. So how do manufacturers benefit from SDMI? Since SDMI appears to be the catalyst to getting the majors into gear and making their music library and new releases available in digital format, they benefit from the greater availability of existing music as well as new releases likely to fuel the demand for players and other devices.

#### Consumers

There is no direct perceptible gain for the consumer. At the moment, consumers appear quick satisfied with the MP3 solution as is. Unlike the CD which represented a technological improvement in the retail product (i.e., sound quality, durability, mobility, etc.), SDMI primarily addresses the concerns of copyright holders. Even manufacturers don't really care about whether security features are included in their product, except to extent demanded by consumers. As SDMI adds nothing to the listening experience or consumer convenience, they are not likely to bear any cost associated with the implementation of SDMI.



## **OVERVIEW OF THE SDMI PORTABLE DEVICES SPECIFICATION**

The specification establishes an SDMI environment within which SDMI-compliant content may be produced, stored, copied, distributed and played back. The SDMI environment is made up of three layers: (i) the application layer which includes software to extract, store, distribute, playback as well as establish Usage Rights, (ii) the personal device (PD) layer which includes equipment used for the transfer and playback of SDMI-compliant content, and (iii) the Licensed Compliant Module (LCM) which acts as a gateway between the application and PD layers. Additionally, by enforcing Usage Rules prescribed by the copyright holder, the LCM layer may be used as a translator where incompatibilities are found.

From the perspective of copyright holders, the key is in the ability to establish Usage Rules, which governs consumer's use of the SDMI-compliant content. The Usage Rules basically apply to three primary functions: copy, distribution and exporting SDMI-compliant content to non SDMI-compliant components.

### **Copy**

Through the Usage Rules, copyright holders can establish the number of copies consumers may make of a copyrighted work. As a default, when content is converted to SDMI-protected content and the Usage Rules have not been set, the default setting allows the consumer to make no more than four (4) copies of which three (3) may be transferred to a PD via the LCM. Copyright holders are free to set the copy parameter from one to unlimited quantity. As such, the default setting is meant as a protection for when a consumer uses SDMI-compliant applications to extract music from a CD for example.

### **Distribution**

Distribution is controlled by a Check-out/Check-in feature. The feature acts as a referee ensuring (i) that no more copies than are available can be transferred to a PD, and (ii) that original copies are destroyed as they are copied to the new destination PD or application layer. In addition, the copyright holder may limit the number of times music may be copied to other devices by 'binding' the content to a unique ID embedded in each PD. This can be used to control the possible scope of distribution by limiting the Check-out/Check-in feature for that file to a specific PD's ID.

### **Two-Phase Approach**

In order to allow manufacturers to incorporate SDMI technology by the Christmas shopping season, SDMI took a two-step approach with respect to screening acceptable and unacceptable content. Under Phase 1, SDMI-compliant PDs will accept and playback protected and non-protected music. This significant compromise on the part of major labels was at the insistence of technology companies which did not want to be forced to choose between the existing market for MP3s and the market for SDMI-compliant content, especially considering the popularity of MP3 in the market and among consumers. Phase 1, however, will act as a screen for Phase 2-compliant content that will require an upgrade to Phase 2 technology, which has yet to be specified. The screening process will detect whether the content requires an upgraded PD through a watermark



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'trigger'. Content not possessing the trigger, whether Phase 1-compliant or unprotected, will be admitted into the SDMI environment. Record companies have announced that they anticipate incorporating Phase 2 triggers by mid/late 2000.



## **WILL SDMI WORK ?**

In our judgement, SDMI thus far has very good prospects of succeeding based on this first specification. By success, we mean that SDMI is likely to be widely adopted by PDMP manufacturers, which was the primary objective of this first specification. By providing an open platform for music compression files, it allows manufacturers to simultaneously support multiple compression technologies such as MP3 while providing security to copyright holders. More importantly though, the concession by the recording industry permitting SDMI-compliant PDMPs to receive and playback non-compliant content was key to the widespread adoption by manufacturers.

It should be noted that one possible problem in the widespread implementation of SDMI by manufacturers is the issue of licensing the actual components of SDMI. While SDMI members possessing enabling technology have been "requested to confirm the availability to license their technology on fair and reasonable terms, and non-discriminatory conditions" (Leonardo Chiariglione, Webnoize, 4/6/99), they are not required to do so and may decide to keep the value of that technology to themselves. This threatens SDMI's goal of providing an open architecture for content producers and hardware/software manufacturers by limiting their ability to innovate and increasing their cost of development.

SDMI-compliant content will also be incorporated within content producers and providers offerings. The appeal of SDMI lies not simply in copyright holder's ability to control distribution, but to develop new business models based on innovative uses of the Usage Rules. But real success of any technology or product lies in the hands of consumers in the marketplace. And in this respect, record labels are starting out at a disadvantage as compared to other product shifts. In the shift from the LP to the CD, the proposition was simple: the industry had found a new technology that allowed them to deliver a higher quality product at a lower cost and in a more portable format.

Consumers embraced the new format, often replacing entire music libraries at a higher per unit cost. Although the price of producing music had decreased dramatically, consumers were willing to pay more for the perceived value in increased quality and portability. The proposition in this case is different though. Consumers are increasingly embracing digital music, primarily in the form of MP3. The only additional functionality provided by SDMI-compliant PDMPs is the ability to use SDMI-compliant content, and as such only an indirect benefit. But even this benefit may potentially be counteracted by the manner in which the Usage Rules embedded in the content are utilized.

The Electronic Freedom Foundation has argued that the SDMI specification contravenes the "First Sale" doctrine. The First Sale doctrine says that "a copyright holder who conveys title to a particular copy of a copyrighted work relinquishes exclusive right to vend that particular copy; although holders' other rights remain intact, vendee holds right to distribute the transferred copy in whatever manner vendee chooses." (Black's Law Dictionary) In other words, the First Sale doctrine is what permits you to listen to purchased CDs as many times as you wish, perform incidental copying and pass it on to friends as long as the activities do not infringe on the copyright holder's basic rights such as unlimited distribution. The



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purchase of the CD thus shifts rights of use from the copyright holder to the purchaser.

The Specification's Usage Rule retains the control over rights of use in the hands of the copyright holder. The issue goes to the heart especially of the Usage Rules's Check-Out/Check-In feature. The feature, which controls the LCM the process by which SDMI-compliant content, is copied between the application and PD layers or PDs themselves. By monitoring the number of copies available for transfer and ensuring that the original copy is rendered unusable during transferal, the check-Out/Check-In feature attempts to imitate the physical world where distribution implies a loss of the copy by the original holder. This is necessary because distribution in the physical world also entails reproduction. If an MP3 file is placed on a server for distribution, each file downloaded is an additional copy to the original. This also explains the four copy default Usage Rule setting. While it does not prevent a user from recopying four additional copies multiple times, the technical barrier is meant to raise the cost of pirating while permitting fair use by consumers.

The Specification proposal appears to be a reasonable compromise for the application of the First Sale doctrine to the digital distribution of music, but this does not mean that it will win favor with consumers. The best illustration of this is perhaps the success of the MP3 format, the primary impetus for SDMI. While downloadable music has only become viable in the last year as higher speed modems become more ubiquitous, data storage broadband service prices decrease, the primary players of the downloadable format have been established for some time.

Outside of MP3, AT&T's a2b Microsoft MS Audio and Liquid Audio have provided downloadable products which are, in many ways, superior to the no-frills MP3. The alternatives provide greater functionality, security, compression, and sound quality. The key differences between these proprietary options and MP3 are (i) the level of openness, and (ii) control of rights of use. As an internationally recognized open standard, MPEG-1 Layer 3 allowed entrepreneurs to compete developing products based on the open standard by providing them with access to the technical specifications at no cost. This competition and variety in offerings by providers helps build the critical mass to create a viable market. The proprietary systems depend solely on the owner and developer of the technology who may not be able to create that critical mass. This has certainly been the case of Liquid Audio and a2b.

But more importantly, the format was the only open format to consumers from a rights of usage perspective. Unlike its competitors, because MP3 is the no-frills technology providing only compression, it does not possess the features that are able to limit consumers usage of the file. It is this freedom and flexibility which has not only generated a grassroots MP3 movement, but also facilitated the emergence of content providers such as MP3.com and retailers such as E.Music. It will therefore take some considerable effort on the part of manufacturers and copyright holders to convince content distributors and consumers that the usage limits to do not place an undue burden on the consumer.

Another potential burden for consumers may be the upgrade from Phase 1 to Phase 2. The Specification does not outline how the upgrade will be performed, whether it will simply require changing the chip in the PDMP which raises issues of ease of use or actually purchasing a new PDMP.



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But while there are only indirect benefits to consumers from the implementation of Phase 1, there is no indication that Phase 2 will provide any added benefit justifying the added cost of implementing or acquiring the upgrade. Record labels will first have to convince manufacturers that there is a market for Phase 2 SDMI components justifying the necessary resources, who will themselves then have to find incentives consumers to upgrade their existing equipment. To date, there has been little indication that the labels will be able to provide incentives to any of the involved parties.

