SAFEAUDIO™

Audio CD Copy Protection

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General Questions

1) Why is there a demand for audio CD copy protection?

The advent of low-cost digital media copying devices and proliferation of the Internet render content owners increasingly vulnerable to unauthorized use and distribution of their content. The International Federation of Phonographic Industries (IFPI) estimated that the loss to the music industry in the last year due to illegal music sales was $4.2 billion, up 10% over the prior year. CD-R discs now make up 35% of all pirate sales. In addition, the worldwide CD-recordable drive installed base will double to over 120 million units by end of 2002. The sales of blank CD-R discs indicate that copies made worldwide are now on a par with CD albums sold, according to the Recording Industry Association of America (RIAA).

2) How does SAFEAUDIO™ work?

SAFEAUDIO distorts unauthorized copies by embedding annoying pops and jumps in audio content that is copied to a PC CD-R drive or internal hard disk. These pops and jumps are inaudible on the original playback. In addition, some options of SAFEAUDIO either hide the CD-Audio tracks on a PC, thus preventing copying, or use other CD format changing methods that prevent CD-burning software from working.

3) Is SAFEAUDIO designed to prevent CDs being copied onto PC CD-R drives or to hard drives?

Yes, for both situations. SAFEAUDIO is designed to prevent or distort high-speed digital copies of music CDs.

4) Does SAFEAUDIO prevent CDs being copied onto dual-deck audio CD recorders?

The effectiveness of SAFEAUDIO on these devices is dependent on the options used. SAFEAUDIO is designed to prevent or distort high-speed digital copies. The SAFEAUDIO Toolkit in 3.01+ allows the industry standard Serial Copy Management System (SCMS) bit to be set in order to prevent dual deck machines making a digital copy.

5) SAFEAUDIO is advertised as a multi-layered copy protection system. What does that mean?

SAFEAUDIO has six different copy protection elements that may be selected by the artist, publisher or music label to be used separately, or in any combination with each other. It is these six

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patented elements that make SAFEAUDIO the most robust (hack resistant), most playable (compatible with the installed base of consumer electronics' and PC devices), and most effective (prevents a high percentage of unauthorized copy attempts) audio copy protection solution available. The six elements are referred to as coding, hiding, timing-pulse, timing-groove, track1 and SCMS.

6) Is SAFEAUDIO compliant with the 'Red Book' standard?

The SAFEAUDIO coding option is designed to be compatible with Philips Red Book CD audio standard. This design ensures that SAFEAUDIO has superior compatibility and playability across the worldwide installed base of CD players and PC drives.

7) What is the purpose of a second session encrypted 'Yellow Book' file on a CD?

The second session has two uses on a copy protected CD:

a) Since many audio copy protection features cause CDs to be unplayable on a PC, a second session of the album is available as a compressed file in order to provide excellent playability of copy-protected CDs on a PC. Macrovision's SAFEAUTHENTICATE™ provides additional copy-protection for these second session files.
b) The second session provides a way for artist and the music label to offer consumers extra features (e.g., video clips, artist interviews, links to Internet for merchandising/promotion programs, etc.) to build consumer satisfaction while preventing indiscriminate CD copying. The second session is an encrypted, compressed file that is controlled by a third party DRM (digital rights management) supplier. Depending on the third party implementation, the DRM may provide pre-ripped files to drag and drop on the consumer's PC, or files that can be exported to a portable player device. The DRM will help control unauthorized peer-to-peer file sharing because the music file is encrypted.

8) Which DRMs does SAFEAUDIO and SAFEAUTHENTICATE support?

We have designed out technologies to be compatible with Windows® Media Player™ version 7.1 and higher. We will support other DRMs if there is demand from our customers.

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9) What is SAFEAUTHENTICATE, and how is it different from SAFEAUDIO?

SAFEAUTHENTICATE is a proprietary digital copy protection/rights management tool that can be used by the record label to ensure that when the CD is played on a PC, it is an authentic, original CD –- and not an unauthorized copy. When used in conjunction with a third party DRM technology (like Windows Media Player) it offers the advantage of local authentication –- and before the user is given rights to download the music on his/her hard drive or export it to a WMA compatible portable device, the DRM will check to ensure that the CD was purchased in a retail outlet. SAFEAUTHENTICATE will typically be used on the second session of a SAFEAUDIO copy-protected CD.

10) Is SAFEAUDIO commercially available?

Yes.

11) How do I get SAFEAUDIO?

You may contact Macrovision at 1-800--900-4229 or through our website: www.macrovision.com/contact/audio.php3. You may also contact one of our authorized replicators/resellers in your region. A listing of licensed replicators/resellers is available at: www.macrovision.com/solutions/audio/worldwide.php3.

12) The protection of intellectual property is justified. But most of the copyright laws also allow fair use. If your system prevents users from making MP3-files and copying them to their mobile device, doesn't your system undermine the fair use principle?

No, quite the contrary. In this age of digital media, fair use is being redefined by the courts and the legislatures. Unrestricted digital copying translates into a disaster scenario for the music labels and artists. SAFEAUDIO and SAFEAUTHENTICATE actually support enhanced CD features that provide consumers with more, not less. SAFEAUDIO supports a “second session” encrypted compressed music file that allows record labels to offer ‘pre-ripped’ music files available on the CD if they wish. Macrovision is not a music label or record publisher and, therefore, cannot determine where and how technology is used.

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Circumvention Issues

13) How effective is SAFEAUDIO in preventing disc burning if a felt tip pen or magic marker is used to cover the hidden data indexes of the CD?

The felt tip pen/magic marker hack may work on audio copy protection products that rely on the single data index copy protection technique. Macrovision's SAFEAUDIO V3 is resistant to this hack approach because we have implemented a tunable multi-layer security solution, based upon multiple patent-pending technologies. Depending on the protection options used, SAFEAUDIO's effectiveness in preventing disc burning can be as high as 98%.

14) Does the technique work in all cases, or just some PCs?

The felt pen technique is not PC dependent, but the accuracy of applying the markings to the disc is important; otherwise, the disc itself could be permanently damaged. It should be noted that consumers are taking a risk of voiding the warranty on their CD players by adding magic marker ink to the data side of their CDs. Using ink on the playing surface of a CD can cause loss of the entire contents of the CD. In addition, inks or foreign materials could affect the extremely tight tolerances of CD player drives and laser readers.

15) Is Macrovision working to solve the circumvention problem?

SAFEAUDIO offers multiple protection techniques as options, which are continually being enhanced.

Operational Issues

16) Does SAFEAUDIO allow playback on standard CD audio players? PC CD-ROM drives? DVD-Video players? DVD-audio players? DVD-based consoles?

Yes. Some options offer nearly 100% compatibility across the player base, while other options offer greater effectiveness and less playability on such devices. When these later options are used, it is recommended that protected music files be placed on a second session on the CD in order to give PC playability. The artist, publisher, or music label can make these decisions on an album-by-album basis.

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17) Is the SAFEAUDIO technology on the CD disc and not in any hardware?

Correct. The SAFEAUDIO technology is embedded in the discs at the point of manufacture. The protected discs are designed to play on standard CD Audio playing devices.

18) What is SAFEAUDIO's compatibility or playability factor?

Extensive lab and field tests have shown SAFEAUDIO's playability factor to be 99+% for the coding option.

19) Does the SAFEAUDIO application require extra CD space?

No additional space is used on the protected disc. However, the hiding option requires the disc to contain a second session. Second session CDs use more disc space than single session CDs, and DRM files (if used) will use about 5-10% of the CDs capacity.

20) Which devices or software does your system interfere with?

It does not interfere with playback on almost all devices. The anti-copying process is designed to interfere with copying and ripping of CDs.

21) What does a copied audio file sound like? Does it sound similar to an old worn out vinyl record?

Depending on options used, SAFEAUDIO either completely prevents copying, or a series of pops and jumps are inserted into the copied music.

22) Does SAFEAUDIO hinder users from making MP3-files out of their music?

The technology has been designed to render unauthorized copies with the audio distortions mentioned above, or to prevent copies from being made at all. This would include files copied to MP3.

It should be noted that while SAFEAUDIO stops most MP3 ripping, music labels and publishers may make music files utilizing other compression technologies available on a SAFEAUDIO disc by using a third party DRM solution – such as Windows Media Player.

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Mastering and Replication

23) Does the mastering house require additional hardware to implement SAFEAUDIO?

No. SAFEAUDIO is a 100% software-based solution. The mastering process to apply SAFEAUDIO does not require any additional hardware other than a software upgrade to the installed CD mastering and manufacturing equipment.

24) What are the implications of using SAFEAUDIO technology for mastering houses and replicators?

SAFEAUDIO is integrated into the standard CD manufacturing infrastructure, with a simple encoder software upgrade and the SAFEAUDIO Toolkit. No additional hardware installation is necessary at the mastering house.

25) Should copy protected CDs contain the compact disc logo?

Macrovision recommends that the compact disc logo not be applied to copy-protected CDs, as there is debate in the industry as to whether copy-protected CDs are supported by the logo licensing entity.

26) Should copy protected CDs be labeled?

Macrovision would recommend labeling on the lines of:

"Copy Protected CD. This disc is intended for playback on conventional consumer CD players (hi-fi stereo, portable, boom box, car, etc.)"

And then if a PC-compatible second session (Yellow Book file) is included:
"PC compatibility requires Windows Media Player 7.1 or above. Will not play on Mac®."

If no PC-compatible second session is included:
"Will not play on PC or Mac."

27) When will a Mac-compatible copy protection system be available?

Mac support is in plan. No firm release dates are available at this time.

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