

# CD-Audio Copy Protection

- Guideline -





# SonoProtection

## Initiative Against Illegal Copying

### ***Good Reasons for Audio Copy Protection***

The galloping market development of CD burners and CD-Rs, enabling 1-to-1 digital copies of any CD to be made in minutes at the touch of a button, have cost the music industry a lot of money in terms of lost license fees and revenue. In view of the ever-decreasing prices of copying hardware and blank CDs, we can expect to see a significant increase in CD Audio piracy, especially "playground piracy", that is to say, copying for school friends or groups of friends. The large-scale availability of copying technology and blank CDs clearly results in little thought being given to the damage it causes. Fact: Opportunity creates thieves. There seems to be little or no guilty conscience about it.

### ***What is Audio Copy Protection?***

CD Audio Copy Protection systems are right there where most protection is needed - at the PC copier. Since Copy Protection cannot distinguish between straightforward playing and the copying of audio tracks, the recognition of audio tracks by the CD/DVD-ROM drive is generally inhibited. If desired, an additional data track containing all the audio tracks in protected, compressed form will be attached to the CD Audio to enable PC playback.

Due to this Copy Protection, the protected CD no longer completely fulfils the Philips/Sony CD specifications (Red Book). Therefore, the CD Logo must not appear on this product, neither on the CD label nor the packaging (booklet, inlay, etc.). The CD packaging (booklet, inlay card, etc.) must clearly indicate that this CD has restricted use due to Copy Protection (e.g. "Copy Protected CD! Cannot be played on ROM drives!").

### ***Incompatibilities***

The wide variety of differing CD/DVD drives with differing reading technology means that current Copy Protection systems work with most models, but not yet with all drives.

An unwanted side-effect of Copy Protection measures like these is that there are also some CD Audio and DVD-video players, containing CD-ROM or DVD-ROM drives, which cannot play back protected CDs.

CD Audio Copy Protection systems are constantly being revised and their compatibility and effectiveness optimised.



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### CD Audio Copy Protection systems offered by Sonopress:

- **Cactus Data Shield™**
  - ◆ **CDS-100™**
  - ◆ **CDS-200™**
  
- **key2Audio™**
  
- **AlphaAudio™**
  - ◆ **AlphaAudio S Type**
  - ◆ **AlphaAudio M Type**

### Additional Information:

- **Copy Protection Labelling**

For detailed information on individual systems, see the following web-sites:

[www.sonopress.com](http://www.sonopress.com)

[www.macrovision.com/solutions/audio/](http://www.macrovision.com/solutions/audio/)

[www.key2audio.com](http://www.key2audio.com)

[www.settec.net](http://www.settec.net)



## Cactus Data Shield™ ( Macrovision )

The Cactus Data Shield CD-Audio Copy Protection systems CDS-100 and CDS-200 are developed by Midbar Tech Ltd./Macrovision.

### CDS-100™

In CD-Audio players, audio CDs with CDS-100 Copy Protection behave the same as normal unprotected audio CDs. However, should one of these CDs be inserted into a CD-ROM drive, it will not be recognised. A CD-Audio, protected with CDS-100 cannot be copied or played back in a CD-ROM drive.

Master Media: Standard Audio Media (CD-R preferred)  
CD Audio playing time: max. 77 Minutes  
PC play back: not available

### CDS-200™

Audio CDs protected with CDS-200 Copy Protection can be played back on a computer with Windows operating system despite the protection. Although the CD-Audio tracks remain hidden to the computer as with the CDS-100 system, the additional CD-ROM track makes audio play back possible. This CD-ROM track contains a copy of all the music tracks of the CD Audio session in compressed form, also copyprotected, which can be played back on a Windows PC.

Once the CD is inserted, the supplied software player, which enables the individual music tracks to be selected and played back, is installed and started. If desired, you can personalise the player's design. Supplementary text information is added onto the CD contents (including "CD Title", "Artist", "Label", and "Web-Link"). The InfoBuilder Software for producing appropriately formatted text-data can be obtained on request from Sonopress.

Master Media: Standard Audio Media (CD-R preferred)

Text files: tracklist.ini (contains text for the CD tracks)  
url.ini (contains web link)  
CD Audio playing time: max. 73.5 Minutes  
shortest track playing time = 28 seconds

PC play back: Windows PC

### CDS-200 with Multisession Support

As of CDS-200 V.4, multisession music CDs can also be protected (CD Session1=Audio Tracks; CD Session2=ROM Track).

Please note the following important information about this:

#### Macintosh Support

The ROM track of the Master CD must be in Windows format (ISO9660). Macintosh formats (HFS format) are not supported. Combined Windows/Macintosh formats (Hybrid Format) are not supported. Macintosh HFS files will be lost!

#### Windows Autostart Support:

The windows application in the ROM track of the Master CD must contain an "AUTORUN.inf" file. This guarantees that the EXTRA button appears in the CDS software player. Clicking on this EXTRA button automatically starts the Windows application. The file names of the Windows files must not exceed 8.3 alphanumeric characters.

Blue Book Support:

The Blue Book standard (CD-EXTRA) is not supported. Should there be items in the root directory of the Master CD that are specified in the Blue Book table of contents - CDPLUS and PICTURES - then these, including the contents of the directory, will not be transferred to Copy Protected replica CDs. For the production of Master CDs to be protected with CDS-200, it is recommended that you do not use the Blue Book table of contents structure.

Maximum storage space for EXTRA contents:

The following formula is used to calculate the maximum possible data size for the EXTRA content of the ROM track:

$$X = 150 * T_{\text{const}} - T_{\text{audio}} * (150 + \text{BR}) \quad [\text{Kbytes}]$$

Where the EXTRA content is known, the following formula is used to calculate the maximum CD Audio playing time:

$$T_{\text{audio}} = \frac{150 * T_{\text{const}} - X}{150 + \text{BR}} \quad [\text{Seconds}]$$

$$T_{\text{const}} = 76:46 [\text{MM:SS}]$$

Depending on the WMA compression required for the audio tracks, the following value is entered for BR (the greater the bit rate, the better the compressed audio quality):

- BR = 16 Kbytes/sec. (128 kbps)
- BR = 12 Kbytes/sec. (96 kbps)
- BR = 10 Kbytes/sec. (80 kbps)
- BR = 8 Kbytes/sec. (64 kbps)
- BR = 6 Kbytes/sec. (48 kbps)



Picture: Windows PC Audio Player for CDS-200™ V.4



## key2audio™ ( Sony DADC )

The "key2audio" CD Audio Copy Protection has been developed by Sony DADC.

The purpose of this Copy Protection is to prevent audio CDs being played back, and therefore also being copied, on PCs.

With key2audio, special emphasis has been placed on keeping the audio stream unaltered despite the hidden "signature".

There is no option with key2audio for PC playback.

Compatibility with all conventional CD players (including in-car players), DVD video players, portable CD and DVD systems and PlayStation consoles has been adequately tested.

key2audio is guaranteed to undergo constant revision to optimise compatibility and effectiveness.

|                               |                                       |
|-------------------------------|---------------------------------------|
| <u>Master Media:</u>          | Standard Audio Media (CD-R preferred) |
| <u>CD Audio playing time:</u> | max. 77 Minutes                       |
| <u>PC playback:</u>           | not available                         |

## AlphaAudio™ ( SETTEC Inc. )

The AlphaAudio CD-Audio Copy Protection systems are a development of SETTEC, Inc..

The following versions are on offer:

AlphaAudio S Type (Single session, no PC playback)

AlphaAudio M Type (Multisession, PC playback available)

### AlphaAudio M Type

Master Media: Standard Audio Media (CD-R preferred, but also DAT, U-Matic)

Max. CD Audio playing time: max. 76.5 minutes (with minimal title text entries!)

PC playback: Windows PC playback available

Sample CD-R: Production of a protected sample CD is available

Title texts: Please supply title text in Windows PC format as a .txt file  
(one line per track title)

The required PC player files and optional additional information is applied to the audio CD to be protected during the pre-mastering authoring process. A protected sample CD is produced. All Copy Protection functions are tested using this sample CD. The Production Master AlphaAudio CD-R is then produced.

This Production Master CD-R is now used to initiate the following production process.

The Copy Protection signatures are applied during Glass Mastering. These signatures are developed specially for AlphaAudio to block PC copying, or at least to make it more difficult.

In addition to the PC player, no other data is needed for the ROM-Track, so that the AlphaAudio M Type Copy Protection is especially suitable for long audio playing times.

Individual audio tracks can be copied onto a PC, protected and playable with additionally supplied PC player software.

As an additional option the protected AlphaAudio M Type CD can be supplied with the following contents for PC playback:

- A video file in MPEG1 format (optionally with additional Copy Protection)
- Web link address
- Banner Graphics file (JPG, 300 x 40 pixel)
- Additional Windows files



Picture: Windows-PC Audio Player for AlphaAudio M Type  
(Left: Audio Playback; right: Video Playback)

## Copy Protection labelling and logos for CD label and CD packaging

The restricted use of this CD due to the copy protection must be clearly indicated on the CD packaging (booklet, inlay card, etc.). E.g. "Copy Protected CD! Cannot be played back using ROM drives!"

### Do not use CD logos!

Due to the Copy Protection, the protected CD no longer fulfils completely the Philips/Sony CD specification (Red Book). Therefore, the CD logo must not appear on this product, neither on the CD label nor the packaging (booklet, inlay, etc.).

Example logo and imprint for inlay card including information about CD Audio home playback facility (BMG):



| Playability on / Abspielbarkeit auf / Lecture sur                                 |   |
|---|---|
|  | CD Audio Home player / lecteur <span style="float: right;">✓</span>     |
|   | Others / Sonstige / Autres <span style="float: right;">&lt; 100%</span> |
| Info: <a href="http://www.bmg-copycontrol.info">www.bmg-copycontrol.info</a>      | PC/Mac <span style="float: right;">—</span>                             |

Example logo and printed inlay card for CD Audio home playback facility and PC ROM playback facility (BMG):



| Playability on / Abspielbarkeit auf / Lecture sur                                   |   |   |  |
|---|---|---|--|
|  | CD Audio Home player / lecteur <span style="float: right;">✓</span>     |  | PC, min. Win 95/64 MB RAM, Pentium II 233 <span style="float: right;">✓</span> |
|   | Others / Sonstige / Autres <span style="float: right;">&lt; 100%</span> |   | Mac <span style="float: right;">—</span>                                       |
|   |   |   | Others / Andere / Autres <span style="float: right;">—</span>                  |
| Info: <a href="http://www.bmg-copycontrol.info">www.bmg-copycontrol.info</a>        |   |   |  |

The IFPI recommends, but does not demand, that all music publishers use their CD Copy Protection logo. [IFPI=International Federation of the Phonographic Industry]

IFPI Copy Control Logo (IFPI):

