

CPPM COMPLIANCE RULES FOR DVD-AUDIO

1. DEFINITIONS

Harmonization. Where a term is not defined in these Compliance Rules, the definitions in the Agreement shall apply

- 1.1 “Album TEXT” means optional information such as the Album name, the Group name and the Track name described in Audio Manager Information as specified in the DVD Audio Specifications.
- 1.2 "Authorized Access Control Method" means (a) a method of delivery of content that is an Authorized Secure Digital Output, (b) a method of delivery of Content for which the owner of such Content specifically authorizes the use of the method and in which Content is transmitted in a secure (encrypted or equivalent) manner, or (c) a method of delivery of audio Content where such Content is screened for the presence of the Audio Watermark, where the method requires that any Copy Control Information found in an Audio Watermark (if present) must be accurately conveyed through the digital Copy Control Information protocols of such method (as well as being retained in the Audio Watermark), and where the method transmits Content in a secure (encrypted or equivalent) manner and the secure manner used provides security and integrity at least as protective as that provided by methods that are provided for in (a), above (determined based on the combination of the inherent security of the technology, the licensing requirements associated with the technology, and the available means of enforcement to ensure proper use of the technology).
- 1.3 “Audio Watermark” means the Verance Audio Watermark as defined in the specification “4C 12 Bit Watermark Specification” published by 4C Entity, LLC.
- 1.4 “Audio Zone” means the data zone on a DVD-Audio disc that is in conformance with the “audio zone” as that term is defined by the DVD Audio Specifications.
- 1.5 “Authorized Secure Digital Output” means a secure output for the transmission of Digital Audio Content and Related Content specifically approved by 4C Entity in accordance with the requirements of Section 3.3 of the Agreement and Section 3.8.2 of the Content Participant Agreement, including (a) a Digital Transmission Content Protection (“DTCP”) protected digital output, or (b) another type of protected (approved by 4C

Entity) digital output which is capable of securely supporting transmissions of Digital Audio Content and/or Related Content.

- 1.6 “Copy Control Information” (“CCI”) means the information that represents the copy protection status of particular content to Participating Devices as defined by the applicable copy protection specification and these Compliance Rules.
- 1.7 “Commercial Content” means audio, video, text and/or graphics works which are:
- (a) Not created by the user of a Recorder and
 - (b) Transmitted or distributed, either generally or on demand, to subscribers or purchasers at large, not uniquely to an individual or a small, private group.
- 1.8 “Computer Monitor Output” means a connector for an analog or digital monitor typically found and associated with a Computer Product and which carries uncompressed analog and/or digital video signals. The term expressly includes those outputs known as VGA, SVGA, XGA, DVI, and various non-standardized digital monitor connections which have been implemented by manufacturers, and expressly does not include such typical consumer electronics connectors as NTSC, PAL, SECAM, SCART, YPrPb, S-Video and Consumer RGB, whether or not such connectors are found on any Computer Product.
- 1.9 “Computer Product” means a device which is designed or permits the end user to install software applications thereon, including, but not limited to, personal computers, handheld “Personal Digital Assistants,” and the like.
- 1.10 “Copy Freely” is a copy protection status that means that content, pursuant to the 4C 12 Bit Watermark Specification or the Digital Copy Control Information rules set forth in these Compliance Rules, has been encoded “Copying is permitted without restriction.” In such a case these Compliance Rules impose no requirements as to copying.
- 1.11 “Copy One Generation” is a copy protection status that means that content, pursuant to the 4C 12 Bit Watermark Specification or the Digital Copy Control Information rules set forth in these Compliance Rules, has been encoded as “Copy One Generation” indicating that only one generation of

copies is to be made of it.

- 1.12 “CPPM Content” means Commercial Content that has been encrypted and recorded using Content Protection for Pre-recorded Media (CPPM) as specified by CPPM Technical Specifications [“DVD Book” and “Introduction and Common Cryptographic Elements”].
- 1.13 “DVD Audio Content” means Digital Audio Content which is prerecorded onto a DVD disc.
- 1.14 “DVD Audio Specifications” means the document entitled “DVD Specifications for Read-Only Disc Part 4 AUDIO SPECIFICATIONS” published by DVD Forum, as may be amended from time to time by the DVD Forum.
- 1.15 “Hidden Track” means a Track in the Title Group which is accessible only through use of the unique access method specified in the DVD Audio Specifications.
- 1.16 “ISRC Information” means “International Standard Recording Code Information.” “ISRC Information” is the collective name of “ISRC data” and “ISRC status.” “ISRC data” is the ISRC portion out of “UPC EAN ISRC data.” Both “UPC EAN ISRC data” and “ISRC status” are defined in Table 7.2.3.1.1-2 RBP 1 and Table 7.2.3.1.2-2 RBP 1 of the DVD Audio Specifications.
- 1.17 “Legacy Digital Audio Output” means IEC-958, IEC-60958, IEC-61937 or USB Audio Device Class output. [Note that USB Audio Device Class output is defined by those USB specifications necessary for the output of audio to USB speakers, and that all other USB Device Class outputs (e.g. Communication Device Class, Mass Storage Class, etc.) are not included in this definition.]
- 1.18 “Legacy Media” means physical media in the CD (prerecorded), CD-R, CD-RW, Mini-Disc or DAT formats.
- 1.19 “Linear PCM” means audio encoding using Linear Pulse Code Modulation (“LPCM”) as specified in the DVD Audio Specifications.
- 1.20 “No More Copies” is a copy protection status that means that content, pursuant to the 4C 12 Bit Watermark Specification or the Digital Copy Control Information rules set forth in these Compliance Rules, has been

encoded as “No More Copies,” indicating that it may have originated as “Copy One Generation,” but that the version being recorded is that one generation and that therefore no more copies are permitted, or in relation to the 4C 12 Bit Watermark Specification, that Content recorded using CPPM has been originally marked “No More Copies.”

- 1.21 “Packed PCM” means the lossless compression coding system for Linear PCM as specified in the DVD Audio Specifications.
- 1.22 “Participating Device” means a device or software application (or other software component) subject to a license from 4C that is a Compliant Product.
- 1.23 “Participating Listening Device” means a Participating Device which is not a recorder and does not play media, but in all other respects has the same obligations as a Participating Player Device when processing the DVD Audio signal received through an Authorized Access Control Method.
- 1.24 “Participating Player Device” means a Participating Device capable of playing back CPPM Content.
- 1.25 “Participating Recording Device” means a Participating Device capable of recording Commercial Content using Content Protection for Recordable Media (CPRM).
- 1.26 “Related Content” means any one or more of the following: Still Picture, TEXT Information, or Visual Menu.
- 1.27 “Sound Quality Equivalent to CD-Audio or less” means a sound quality of 2-channels or less, no greater than 48KHz sample frequency, and no more than 16 bits per sample.
- 1.28 “Still Picture” means Audio Still Video (ASV) to be presented together with Audio data by Video Capable Audio Player as specified in the DVD Audio Specification.
- 1.29 “TEXT Information” means text style information including Album TEXT and Track TEXT information stored in the Audio Zone as specified in the DVD Audio Specification.
- 1.30 “Track TEXT” means text data stored synchronously with the Audio data

as specified in the DVD Audio Specifications. Such data may contain text data such as lyrics, and liner notes.

- 1.31 “Video Zone” means the data zone on a DVD-Audio disc in conformance with the “video zone” as that term is defined by the DVD Audio Specifications.
- 1.32 “Visual Menu” means a video type menu for Audio Manager (AMG) stored in Audio Zone as specified in the DVD Audio Specification.
- 1.33 “Compressed Audio” means audio encoding using compression technologies such as Dolby Digital, AAC, MPEG and ATRAC.
- 1.34 “Bound Recording Method” means a method for recording content that effectively and uniquely associates such recording with a single Participating Player Device (using a cryptographic protocol or other effective means) so that such recording cannot be accessed in usable form by another product except where the content of such recording is passed to another product as permitted under this Exhibit C-1.

2. SCOPE

The compliance rules specified in this document are applicable to the encoding, playback and recording of CPPM Content (including, where applicable, decrypted CPPM Content). CPRM technology shall not be used to encode Digital Audio Content and Related Content stored on pre-recorded DVD Audio Discs.

3. ENCODING RULES FOR INDIVIDUAL PARAMETERS OF PRE-RECORDED DVD AUDIO DISC.

The following conditions shall be observed by Content Participants with respect to encoding individual parameters for the protection of content in the Audio Zone (e.g. DVD Audio Content, Still Picture, Visual Menu and TEXT Information) where the Content Participant desires to use CPPM technology for copy control purposes.

3.1 Encryption of Content in DVD Audio.

3.1.1 Content Stored in the Audio Zone. DVD Audio Content,

Still Picture, and Visual Menu stored in the Audio Zone may be encrypted by CPPM. TEXT Information is always unencrypted.

3.1.2 **Content Stored in the Video Zone.** Copy protection for the Video Zone is not controlled by these Compliance Rules.

3.2 **Control of Copy Permission.** Copy protection for CPPM Content shall be controlled by the following rules:

3.2.1 **DVD Audio Content.** Copy permission for DVD Audio Content shall be controlled by Digital CCI as specified in section 3.3 below.

3.2.2 **Still Picture.** Copy permission for Still Picture shall be controlled by CPPM encryption. If Still Picture is CPPM encrypted, the content shall not be copied.

3.2.3 **Visual Menu.** Visual Menu shall not be copied if it is CPPM encrypted.

3.3 **Digital CCI Configuration.** Digital Copy Control Information (“Digital CCI”) consists of the following five parameters: “Copy Permission”, “Audio Quality”, “Related Content Copy Permission”, “Legacy Copy Control Information (L_CCI)” and “Transaction”. Content Participant shall have the option of authorizing additional copies, enhanced sound quality copies, copies of Related Content, and copies in legacy formats. Additional future flexibility is provided by means of the “Transaction” parameter in connection with an electronic authorization. These five parameters of Digital CCI along with their corresponding allocation and assignment in the DVD Audio Specification comprise the configuration and are defined below:

3.3.1 **Copy Permission Parameter (“C”).** The Copy Permission Parameter (C) consists of 5 bits divided into two portions, “Audio Copy Permission” (2 bits), and “Audio Copy Number” (3 bits). The Copy Permission Parameter and “ISRC Information” (see section 3.5 below) are used to control the number of protected copies permitted per Participating Recording Device. Copy Permission Parameter (C) is changeable on a music track by music track basis for DVD

Audio Content.

(i) Audio Copy Permission (2 bits). Audio Copy Permission shall be set as follows:

- “00b”: Copying is permitted without restriction (“Copy Freely”). If DVD Audio Content is CPPM encrypted, Audio Copy Permission shall not be set to “00b”.
- “10b”: Protected copying is permitted per the Audio Copy Number as specified in section 3.3.1 (ii) below.
- “01b”: Reserved and shall not be used until further notice.
- “11b”: Protected copying is permitted in compressed form per the Audio Copy Number, with restrictions as specified below (“Restricted Copies”).

(ii) Audio Copy Number (3 bits). Audio Copy Number specifies the number of permitted protected copies per Participating Recording Device, and is defined below when Audio Copy Permission is set as “10b” or “11b”. When Audio Copy Permission is set to “00b” or “01b”, the Audio Copy Number shall be set to “000b”. Under this circumstance, the Audio Copy Number has no meaning to Participating Player or Recording Devices.

- “000b”: Number of permitted protected copies per Participating Recording Device or other recording device which reads and responds to Digital CCI (“Compliant Recorder”) is “1”. If Audio Copy Permission is “11b”, this state shall not be used unless otherwise specifically authorized by 4C.
- “001b”: Number of permitted protected copies per Compliant Recorder is “2”. If Audio Copy Permission is “11b”, this state shall not be used unless otherwise specifically authorized by 4C.
- “010b”: Number of permitted protected copies per Compliant Recorder is “4”.
- “011b”: Number of permitted protected copies per Compliant Recorder is “6”.
- “100b”: Number of permitted protected copies per Compliant Recorder is “8”.

- “101b”: Number of permitted protected copies per Compliant Recorder is “10”.
- “110b”: Number of permitted protected copies per Compliant Recorder is “3”.
- “111b”: “Copy One Generation.” The number of sequentially made protected copies per original prerecorded disc per Compliant Recorder is not restricted although serially made copies (copies of copies) by Compliant Recorders are prohibited.

NOTE: (1) If ISRC Information identifying a given music track pursuant to section 3.5 below is not provided, Participating Recording Devices will default the Audio Copy Number to “111b”, “Copy One Generation” status. (2) Permitted copies must be made from the pre-recorded original. Copies are not permitted to be made from other copies. (3) Where permitted copies may be made in either PCM or Compressed Audio format, the total made in both formats shall not exceed that specified by the Audio Copy Number.

3.3.2 Audio Quality Parameter (“Q”). The Audio Quality Parameter (Q) consists of 2 bits and defines the number of channels (ch), sampling frequency (fs), and quantization bit level (Qb) for permitted protected copies in PCM format, or the overall quality level in the case where Compressed Audio is otherwise specified. When Audio Copy Permission is set to any state other than “10b” or “11b” (i.e. "00b" or "01b") the Audio Quality Parameter shall be set to “10b”. Under this circumstance, the Audio Copy Quality has no meaning to Participating Player or Recording Devices. Audio Quality Parameter (Q) is changeable on a music track by music track basis for DVD Audio Content.

- “00b”: Number of channels shall be two or less for copies made in either PCM or Compressed Audio formats. Sampling frequency shall be no greater than 48 kHz, and quantization bit level shall be no greater than 16 bits, for copies in PCM format. The sound quality for copies in Compressed Audio format shall not exceed that specified herein for PCM format.

Accordingly, the total bit rate for both channels of Compressed Audio copies shall not exceed 192kbps. Licensor may review and amend such total bit rate in the future. If Audio Copy Permission is set to “11b”, only Compressed Audio copying is permitted.

“01b”: Number of channels shall be two or less for copies made in either PCM or Compressed Audio formats. Sampling frequency and quantization bit level are not restricted for copies made in PCM format, and sound quality and bit rate are not restricted for copies in Compressed Audio format.

“10b”: Number of channels shall not be restricted for copies made in either PCM or Compressed Audio formats. Sampling frequency and quantization bit level are not restricted for copies made in PCM format, and sound quality and bit rate are not restricted for copies in Compressed Audio format.

“11b”: Number of channels is not restricted for copies made in either PCM or Compressed Audio formats. Sampling frequency shall be no greater than 48 kHz, and quantization bit level shall be no greater than 16 bits, for copies in PCM format. The sound quality for copies in Compressed Audio format shall not exceed that specified herein for PCM format. Accordingly, the total bit rate for all channels of Compressed Audio copies shall not exceed 448kbps. Licensor may review and amend this total bit rate in the future. If Audio Copy Permission is set to “11b”, only Compressed Audio copying is permitted.

NOTE (1): If the Audio Copy Permission is set to “10b” and the Audio Watermark Copy Control Information is set to indicate “No More Copies,” [or “Copy One Generation,”] the Audio Quality Parameter shall be set to “10b” or “11b.”

NOTE (2): If the Audio Copy Permission is set to “10b” and the Legacy Copy Control Information is set to “11b”, the Audio Quality Parameter shall be set to “10b” or “11b.”

3.3.3 Related Content Copy Permission Parameter (“R”). The

“Related Content Copy Permission Parameter” is used to separately indicate the copy permission status of different types of Related Content. Related Content of Still Pictures contains the individual “Related Content Copy Permission Parameter (R)” consisting of 1 bit. Since Visual Menu has no “Related Content Copy Permission Parameter”, copy permission for Visual Menus is indicated by CGMS setting as described in 3.3.5. The actual copy permission for Still Pictures and Visual Menu shall be controlled by the presence of encryption. If contents are encrypted, copying is not permitted. For Related Content of Still Pictures, the “R” parameter is set for indicating copy permission status as follows:

- “0b”: “Copy Freely.” Copying of Related Content is permitted without restriction.
- “1b”: “Copy Never.” No copying of Related Content is permitted.

Copying shall be controlled on a picture by picture basis for Still Pictures; and on an album basis for Visual Menu.

3.3.4 Transaction Parameter (“T”). The “Transaction Parameter (T)” consists of 1 bit and may be used along with a separate electronic authorization to permit copying of content within the Audio Zone. Participating Devices are not required to support the “Transaction Parameter” or electronic authorizations. Detailed specifications and requirements for use of the “Transaction Parameter” or “T” parameter are not yet defined.

- “0b”: Not present
- “1b”: Reserved and shall not be used until further notice

3.3.5 Legacy Copy Control Information (“L_CCI”). The “Legacy Copy Control Information (“L_CCI”) consists of two bits, and is used to control unprotected copying of CPPM protected content onto Legacy Media via an internal connection pursuant to Section 5.3. The “Legacy Copy Control Information (L_CCI)” shall be set as follows:

- “00b”: Unprotected copying onto Legacy Media via internal connection is controlled by the state of the Audio

Watermark, as described in Section 5.3.1.

“10b”: Unprotected copying onto Legacy Media via internal connection is permitted, regardless of the state of the Audio Watermark.

“01b”: Reserved and shall not be used until further notice.

“11b”: Unprotected copying onto Legacy Media via internal connection is prohibited.

3.3.6 Digital CCI Allocation and Assignment in the DVD Audio Specifications. Digital CCI is allocated and assigned in the DVD Audio Specifications as follows:

(i) **Linear PCM Content.** For Linear PCM content, “C”, “Q” and “T” parameters of Digital CCI are defined in Section 3.3.1, 3.3.2 and 3.3.4. Their allocation and assignment are specified in Table 7.2.3.1.1-2 RBP12 of the DVD Audio Specifications. “L_CCI” parameters of Digital CCI are defined in Section 3.3.5. The allocation of L_CCI (2 bits) corresponds to b7 and b6 of RBP13 in Table 7.2.3.1.1-2 of the DVD Audio Specifications. Other bits (b5..b0) of RBP13 shall be set as “reserved”. Bit assignment for b7 and b6 shall correspond to L_CCI definition as follows:

b7..b6

“00b”: Unprotected copying is controlled by Watermark

“10b”: Unprotected copying is permitted

“01b”: Reserved

“11b”: Unprotected copying is prohibited

(ii) **Packed PCM Content.** For Packed PCM content, “C”, “Q” and “T” parameters of Digital CCI are defined in Section 3.3.1, 3.3.2 and 3.3.4. Their allocation and assignment are specified in Table 7.2.3.1.2-2 RBP8 of the DVD Audio Specifications. “L_CCI” parameters of Digital CCI are defined in Section 3.3.5. The allocation of L_CCI (2 bits) corresponds to b7 and b6 of RBP9 in Table 7.2.3.1.2-2 of the DVD Audio Specifications. Other bits (b5..b0) of RBP9 shall be set as “reserved”. Bit assignment for b7 and b6 is described in 3.3.6 (i) above.

(iii) **Still Picture Content.** If Still Picture is encrypted the “R”

parameter of Digital CCI shall be set to “1b” (Copy Never). If Still Picture is not encrypted, the “R” parameter of Digital CCI shall be set to “0b” (Copy Freely). The allocation and assignment of the “R” parameter is specified in “ASV_Copy_Permission” of “ASV_SRP” in Table 6.1.2-1 RBP 0-1 of the DVD Audio Specifications.

(iv) **Visual Menu.** Visual Menu does not contain the “R” parameter of Digital CCI, and copy permission for Visual Menu is controlled by the presence of CPPM encryption. The allocation and assignment of CGMS-D setting is as follows: Table 3.6.4-2: CGMS-D Information field and Table 3.7.2-2: CGMS-D Information field of DVD Specifications for Read-Only Disc Part 2 FILE SYSTEM SPECIFICATIONS.

3.3.7 Digital CCI Default Settings. Each of the above Digital CCI parameters and components thereof shall have the following default settings. These default settings shall be used during content preparation in the event the Content Participant has not explicitly supplied the values.

(i) The default settings when the state of “Audio Copy Permission” is “10b” are described below:

Audio Copy Number: “000b”

Audio Quality: “00b”

If the Audio Watermark Copy Control Information is set to indicate “No More Copies,” [or “Copy One Generation”] the Audio Quality shall be set to “10b” or “11b.”

Related Content Copy Permission: “1b”

CGMS setting for Visual Menu: “11b”

Transaction: “0b”:

L_CCI: “10b”

(ii) The default settings when the state of “Audio Copy Permission” is “11b” are described below:

Audio Copy Number: “110b”

Audio Quality: “00b”

Related Content Copy Permission: “1b”.

CGMS setting for Visual Menu: “11b”

Transaction: “0b”:

L_CCI: “11b”

To achieve these default settings, DVD Audio Content, Still Pictures (if present) and Visual Menu (if present) shall be CPPM encrypted.

3.4 **Analog Protection System for Video Contents.** At the option of the Content Participant the Analog Protection System (“APS”) specified in the explanatory note of the DVD Video Specifications may be required for video content in the Audio Zone. When APS is set “On”, the analog video output from Participating Player Device is protected as described in the explanatory note of the DVD Video Specification.

3.4.1 **APS for Visual Menu.** If Visual Menu is CPPM encrypted, APS shall be turned on according to the APS bit settings supplied by the Content Participant. Their allocation and assignment are specified in Table 5.2.3.1.1-1 RBP 4-5 (“AMGM_APSTB”) of the DVD Audio Specifications.

3.4.2 **APS for Still Picture.** If any Still Pictures are CPPM encrypted, APS shall be turned on according to the APS bit settings supplied by the Content Participant on a picture by picture basis. Their allocation assignment are specified in Table 6.1.2-1 RBP 0 (“ASV APSTB”) of the DVD Audio Specifications.

3.5 **ISRC Information.** At the option of the Content Participant, ISRC may

be used to facilitate counting the number of copies recorded of a given track. If ISRC Information is supplied by a Content Participant, it shall conform to the requirements specified in the DVD Audio Specifications. ISRC status flags shall be set on a music track by music track basis as specified in Table 7.2.3.1.1-2 RBP 1 and Table 7.2.3.1.2-2 RBP 1 of the DVD Audio Specifications.

- 3.6 **Audio Watermark CCI.** Content Participants may elect to embed the Audio Watermark in DVD Audio Content. If such a watermark is used it shall conform to the requirements of the 4C 12 Bit Watermark Specification published by 4C Entity, LLC. The Audio Watermark conveys CCI and other information, which can be used to indicate the copy protection status of the DVD Audio Content, and which can be detected when the audio signal is not encrypted. Note that if the 4C 12 Bit Watermark is not embedded in the audio signal, the result is that certain protection mechanisms in Participating Devices will not be applied (this applies to both hardware and software implementations).
- 3.7 **Encoding Rule for 4C Audio Watermark.** If DVD Audio Content is encrypted with CPPM, the CCI bits of the 4C Data Payload of the Audio Watermark (when used) shall be set according to the requirements set forth in Section 3.3.2, above, and as specified in the 4C 12 Bit Watermark Specification.
- 3.8 **Labeling.** Unless otherwise specifically authorized by 4C, CPPM protected DVD Audio Content produced after September 15, 2004, that is marked as “11b” in the Copy Permission setting shall include consumer visible notification that affirmatively and clearly conveys to the consumer of such content the restrictions and permissions encoded by the Digital CCI and Audio Watermark CCI of such content. By way of example and not limitation, such notification shall affirmatively and clearly convey the number and quality of permitted protected copies, whether Related Content and the Visual Menu may be copied, and whether unprotected copies in legacy formats are permitted.

4. PLAYBACK AND OUTPUT CONTROL RULES FOR PARTICIPATING PLAYER DEVICES.

Participating Player Devices shall be constructed to comply with the following rules for playback control and output control.

4.1 **Playback Control.** Participating Player Devices shall be constructed to comply with the following rules for playback control:

4.1.1 **Playback Control by Audio Watermark.** Subject to the conditions described in 4.1.2 below, if the audio content is not on Legacy Media, is not encrypted, and the CCI bits of the Audio Watermark (if present) are set to any state other than "Copy Freely", the content on the media shall not be played.

4.1.2 **Watermark Detector.** Participating Player Devices constructed on or after January 1, 2001 shall respond to the Audio Watermark. With regard to detection that is not associated with remarking, the Audio Watermark detection obligation shall be considered to be fulfilled if detection is conducted for each track in the following manner: The system shall examine each track of Digital Audio Content for a full 15-second detection period beginning 30 seconds into the track and thereafter shall search for the Audio Watermark throughout at least one additional 15-second detection period in that track, provided that this additional detection period shall occur randomly and shall begin no sooner than 45 seconds into the track. Further, for either of the detection periods, if the system detects the presence of the Audio Watermark then it must continue to detect throughout the track until it collects all relevant watermark data.

4.1.3 **NOTE: The following requirements are suspended until further notice from Licensor: Media Type Detection.** For the purpose of the requirements in this provision, a "DVD Drive" is a DVD disc reader that is capable of operating as an internal or peripheral component of a Computer Product and that incorporates the authentication described in the specification entitled, "CSS Compatible DVD Drive Authentication for CPPM", and a "DVD Player" is a DVD disc reader that has the internal capability to play back CPPM Content and that does not incorporate the authentication described in the specification entitled, "CSS Compatible DVD Drive Authentication for CPPM." For the recordable media

types that a particular DVD Player or DVD Drive is capable of playing back, either by design or by the compatibility of the media type with ROM media, DVD Players shall not play back CPPM Content from recordable media, and DVD Drives shall refuse to perform authentication functions with respect to any CPPM Content contained on recordable media, based on recognizing that the particular media is recordable media using the following techniques. DVD-RAM media shall be recognized as different from ROM media based on its physical format differences. For DVD Drives and DVD Players manufactured on or after April 1, 2001, but prior to April 1, 2002, DVD-RW, and +RW media types shall be recognized as different from ROM media either based on differences in media reflectivity as defined by the format specifications for those media types or based on wobble detection as defined in the specifications applicable to each type of media. For DVD Drives and DVD Players manufactured on or after April 1, 2002, DVD-R, DVD-RW and +RW media types shall be recognized as different from ROM media based on wobble detection as defined by the specifications applicable to each type of media.

4.1.4 **Continuous Monitoring of CCI Information.** For the purpose of securely transmitting Digital CCI and ISRC Information (if present in the DVD Audio Content) during playback of CPPM Content, Participating Player Devices shall monitor the Digital CCI and ISRC Information on DVD Audio discs with every sector interval or with intervals less than 100 sectors using randomized period (unpredictable period). (Regarding the sector, refer to “CPPM Specification DVD Book” issued by 4C Entity, LLC).

4.2 **Output Control.** Participating Player Devices shall be constructed to comply with the following rules for output control: These rules apply to decrypted CPPM Content.

4.2.1 **Permitted Outputs for Audio.** Participating Player Devices shall output decrypted CPPM Content only to the following: (i) Authorized Secure Digital Outputs; (ii) Legacy Digital Audio Outputs of IEC-958, IEC-60958, IEC-61937, and USB Audio Device Class; or (iii) Analog outputs. The following

restrictions shall apply for copy protection purposes:

(i) Authorized Secure Digital Outputs. Except as provided in section 4.2.1 (ii) below, all digital outputs shall be Authorized Secure Digital Outputs, and Digital CCI and ISRC Information (refer to section 3.5) shall be accurately transmitted, provided that ISRC Information need not be transmitted at all only if such transmission is solely for a Participating Listening Device or if the Content being transmitted is otherwise ensured not to be copied. Sound quality of Authorized Secure Digital Outputs is not restricted by Digital CCI of the original DVD Audio recording, and sound quality may be the same as that of the original DVD Audio recording, only if the secure technology of the Authorized Secure Digital Output ensures either that the Content is transmitted solely to Participating Listening Devices or that if the Content is received by a recording device, no useable copy will be made at a sound quality level above that permitted by the Audio Quality parameter set in the Digital CCI contained in the original recording. For the purpose of allowing the original sound quality to be transmitted while also ensuring that a copy will not be made by a recording device that may receive such transmission, it is permitted for a Participating Player Device to set the Digital CCI to the No More Copies state for such a transmission. Note that content transmitted through an Authorized Secure Digital Output need not be limited to real-time transmission.

(ii) Legacy Digital Audio Outputs. (IEC-958, IEC-60958, IEC-61937, and USB Audio Device Class) Legacy Digital Audio Outputs from Participating Player Devices shall be limited to 1.5 times normal speed, unless the pitch is corrected to the pitch at normal speed. In addition, such outputs shall comply with the following requirements:

(a) Limitation on Sound Quality. Sound quality of Legacy Digital Audio Outputs when playing Linear PCM and Packed PCM streams shall be equivalent to CD Audio Quality or less.

(b) SCMS Status Setting. Participating Devices that are not operating as an internal, peripheral, or software component of a

Computer Product shall ensure that Legacy Digital Audio Outputs include SCMS information set at “Copy One Generation” permitted (i.e. “Cp-bit” and “Category Code” are set in the appropriate manner to indicate that the audio originates with a commercially available pre-recorded disc in which “copyright is asserted”, and a copy is permitted), unless Audio Copy Permission is set to “11b,” in which case such SCMS information shall be set at “No More Copy permitted”. Participating Devices shall not actively strip out or actively alter any SCMS information contained in the Digital Audio Content.

(c) IEC-958/60958 Sunset. Participating Player Devices constructed on or after October 1, 2005 shall not output decrypted CPPM Content to IEC-958 or IEC-60958 outputs.

(iii) Analog Outputs. Analog outputs from Participating Player Devices shall be limited to 1.5 times normal speed, unless the pitch is corrected to the pitch at normal speed. Except for the requirement just described, sound quality of analog outputs is not restricted in any way by Digital CCI, and may be the same as that of the original DVD Audio recording.

4.2.2 Permitted Outputs for Related Content. Participating Player Devices shall output Related Content only to Authorized Secure Digital Outputs, Computer Monitor Outputs or analog outputs in accordance with the CPPM encryption status of the Related Content on the pre-recorded disc. The following additional restrictions and/or measures apply for copy protection purposes:

(i) Authorized Secure Digital Outputs. With the exception of Computer Monitor Outputs from Computer Products all digital outputs shall be Authorized Secure Digital Outputs. If Related Content of Visual Menu and/or Still Pictures are CPPM encrypted on a DVD Audio disc, such Related Content shall not be transmitted to such secure outputs. However, Related Contents may be transmitted to a Participating Display Device via an Authorized Secure Digital Output solely for display purposes even if Related Contents are CPPM encrypted. Adopter is cautioned that 4C anticipates adopting one or more copy protection methods

for Computer Monitor Outputs and/or potential future resolution limits for non-protected Computer Monitor Outputs. Use of such methods may become a requirement for some content formats.

(ii) Analog Output Protection System for Video Contents. At the option of the Content Participant the Analog Protection System (“APS”) specified in the explanatory note to the DVD-Video Specifications may be required for video content in the Audio Zone. When APS is set “On”, the analog video output from Participating Player Device is protected as described in the explanatory note to the DVD Video Specifications.

4.3 **Resolution of Potential Conflicts.** In the event a conflict arises between behavior intended by the DVD Audio Specifications and that implied by Digital CCI, Participating Player Devices shall follow the following rules:

4.3.1 **Handling of “Hidden” Content.** All content (including Related Content, but excluding TEXT Information) associated with a Hidden Audio Track shall not be copied unless the Hidden Audio Track is “opened” by the Participating Player Device. (Refer to 3.2.2 Group and E.35 Hidden Group Play, E.36 Hidden Track Play and E.37 Hidden Time Play of Annex E in the DVD Audio Specifications.)

5. RULES FOR COPYING VIA INTERNAL CONNECTIONS TO RECORDERS INCLUDED WITHIN PARTICIPATING PLAYER DEVICES

Participating Player Devices shall be constructed to comply with the following additional rules regarding content that is played back and redirected internally to a recorder included within the same device. Note that these CPPM Compliance Rules impose no requirements regarding content received through external device inputs.

5.1 **Protected Copies of CPPM Protected Content.** Participating Player Devices may make a copy of CPPM Content via an internal connection to a recorder included within the same device using CPRM or a Bound Recording Method and, in doing so, shall comply with the requirements of the Digital CCI and with the following rule. When such content is received by such recorder via internal connection by means other than a technology that meets the definition of an Authorized Access Control Method or a technology that meets the Robustness Rules with regard to

internal transmission of data, where such technology securely transmits Digital CCI and ISRC Information (if present in the DVD Audio Content), the Participating Player Devices shall ensure that the CPRM copy is made only at a rate not to exceed 1.5 times normal speed.

5.2 **Legacy Copies of CPPM Protected DVD-Audio Content.** Participating Player Devices shall comply with the following rules when making unprotected copies of CPPM protected DVD Audio Content via an internal connection to a recorder included within the same device:

5.2.1 **L_CCI and Watermark Screening.** As described in Section 3.3.5, if L_CCI is set to any state other than “00b,” permission to make such copies via internal connection shall be controlled directly by the L_CCI. If L_CCI is set to “00b,” then such permission shall be controlled by the Audio Watermark, as follows: subject to the conditions described previously in 4.1.2, Participating Player Devices shall detect the Audio Watermark before making such a copy via internal connection, and such copy is permitted only if the watermark is encoded “Copy Freely” or is not present.

NOTE(1) If a Participating Player Device does not support detection of the Audio Watermark in internal connections, then such a Device shall treat the “00b” L_CCI setting as prohibiting copies through internal connections.

5.2.2 **Formats.** Such copies via internal connection shall be made only onto Legacy Media, and only in the LPCM format for CD and DAT or in the ATRAC format for MD.

5.2.3 **Copy Rate and Quality.** Participating Player Devices shall make such copies via internal connection only at a rate not to exceed 1.5 times normal speed, and at a Sound Quality Equivalent to CD Audio or less.

5.3 **CD-Audio Content.** Participating Player Devices shall comply with the following rules when making a copy of CD-Audio content via an internal connection to a recorder (other than a Participating Recording Device)

included within the same device.

5.3.1 **Watermark Screening.** Subject to the conditions described previously in Section 4.1.2, Participating Player Devices constructed on or after March 31, 2002 shall detect the Audio Watermark if present in the CD-Audio content being read from CD media, and shall not make such a copy via internal connection if the watermark is encoded “No More Copies”.

5.3.2 **NOTE: The following requirements are suspended until further notice from Licensor: Watermark Updating.** Participating Player Devices constructed on or after October 1, 2004 shall update the “Copy One Generation” Audio Watermark, if present, to the “No More Copies” state prior to making such a copy via internal connection, subject to the following conditions:

(1) Participating Player Devices shall update the Audio Watermark, if present, to the “No More Copies” state prior to making such a copy via internal connection at the same time as it incorporates the capability of updating the Audio Watermark when making a copy of CPPM Protected Content onto Legacy Media via internal connections (as provided in Section 5.2, above), without regard to any of the further conditions described below and without regard to the October 1, 2004 date, above, if the CPPM-related capability is incorporated prior to that date;

(2) if, on April 1, 2003, releases of music titles in the DVD Audio format are not a substantial part of the prerecorded, packaged music market in the United States, then Licensor will notify Adopters that compliance with the requirement stated above is delayed until further notice. Thereafter, on the first day of each calendar quarter, Licensor will determine whether releases of music titles in the DVD Audio format are a substantial part of the prerecorded, packaged media market in the United States and, on the first such date that such releases meet this test, notify licensees that compliance with the above stated requirement is effective eighteen months from the date on which this determination is made. For purposes of this section, releases of music titles in the DVD

Audio format shall be considered to be a substantial part of the prerecorded, packaged media music market in the United States if (1) 50% or more of the music titles from Major Labels appearing on the Billboard 200 chart, during the two-month period ending just prior to the date on which the determination as to substantiality is made, have been released in the DVD Audio format; or (2) there are more than 500 albums released in the DVD Audio format.

- 5.4 **Circumvention Prohibited.** It shall be circumvention prohibited by Section 2.6 of the Adopter Agreement for Adopter licensed under section 2.3 of the Adopter Agreement to provide equipment as part of the items included in the original package of a CPPM Licensed Product sold to a consumer where such equipment is included to allow the consumer of such CPPM Licensed Product to avoid the internal connection requirements of this provision through an external connection from an output of the CPPM Licensed Product to an input of that same product or to provide instructions to users of a CPPM Licensed Product, either as part of the information provided to consumers at the time of purchase of a CPPM Licensed Product or through other means of providing information to consumers owning CPPM Licensed Products, where such instructions explain how such users may avoid the internal connection requirements of this provision through means described in the instructions. Adopter shall use commercially reasonable efforts to assist Licensor or a Content Participant in the event that a dealer or other distributor of Adopter's CPPM Licensed Products is engaging in activities that would be circumvention pursuant to this Section 5.4 if Adopter itself engaged in the activities.