

Version 1.1

CSS SPECIFICATIONS

I. PROCEDURAL SPECIFICATIONS

1. DEFINITIONS.

In addition to the terms defined in the License Agreement, which shall have the same meaning in these CSS Procedural Specifications, the following terms shall have the meanings set forth below for purposes of this Agreement.

1.1. "Authenticator" shall mean a product that incorporates the Authentication Key and the CSS Authentication Algorithm in order for a DVD Drive ("Authenticator Module for DVD Drive") and/or CSS Decryption Module ("Authenticator Module for CSS Decryption Module") to authenticate each other.

1.2. "Authenticator Hardware" shall mean a Hardware product that is an Authenticator.

1.3. "Authentication Key" shall mean the cryptographic key used in the process of a DVD Drive and CSS Decryption Module authenticating each other.

1.4. "Authenticator Software" shall mean a Software product that is an Authenticator.

1.5. "Authoring Studio" shall mean a party in the business of providing to a Content Provider engineering services that include recording, editing, and processing of content for incorporation into a DVD Disc.

1.6. "Content Provider" shall mean a party providing content for scrambling using CSS and incorporation into a DVD Disc.

1.7. "Content Scrambling Algorithm" shall mean the algorithm, employed in conjunction with an appropriate Title Key, to scramble or descramble the corresponding Title.

1.8. "Copy Protection Functions" shall mean (1) the regional playback control, recordable media playback control, and digital and analog output restrictions and protections

required by Section 6.2 of the CSS Procedural Specifications to be performed by and/or contained in CSS Compliant Products and (2) the internal data and signal restrictions and protections required by Sections 6.2.4.2(2) and 6.2.5.2(b)(ii) and (iv).

1.9. "CSS Audio Data" shall mean CSS Data representing the sounds accompanying CSS Video Data in a work protected using CSS.

1.10. "CSS Authentication Algorithm" shall mean the algorithm, employed in conjunction with the Authentication Key, for a DVD Drive and a CSS Decryption Module to authenticate each other.

1.11. "CSS Data" shall mean the digital data originally scrambled on a DVD Disc using CSS, irrespective of its form of fixation or transmission, including, but not limited to, optical, electronic, and radio frequency.

1.12. "CSS Decryption Hardware" shall mean a CSS Decryption Module implemented in Hardware.

1.13. "CSS Decryption Module" shall mean a product capable of receiving, decrypting and descrambling transmissions from a DVD Drive and that incorporates the CSS Authentication Algorithm, the Disc Key Recovery Logic, the Title Key Recovery Algorithm and the Content Scrambling Algorithm. Such capability may be in Hardware and/or Software.

1.14. "CSS Decryption Software" shall mean a CSS Decryption Module implemented in Software.

1.15. "CSS Disc Formatter" shall mean a device that performs the Content Scrambling Algorithm in order to scramble one or more Titles using the corresponding Title Keys, for incorporation of the scrambled Titles, the Encrypted Title Keys and the Secured Disc Key Set into a DVD Disc.

1.16. "CSS Keys" shall mean the Authentication Key, the Disc Keys, the Master Keys, the Title Keys, the Secured Disc Key Set, and/or the Encrypted Title Keys.

1.17. "CSS Security Algorithms" shall mean the CSS Authentication Algorithm, Disc Key Recovery Logic, the Title Key Recovery Algorithm and/or the Content Scrambling Algorithm.

1.18. "CSS Video Data" shall mean the CSS Data representing the visual images in a work protected using CSS.

1.19. "Descrambler" shall mean a product that incorporates the Disc Key Recovery Logic, Content Scrambling Algorithm and Title Key Recovery Algorithm.

1.20. "Descramble Hardware" shall mean a Hardware product that is a Descrambler.

1.21. "Descramble Software" shall mean a Software product that is a Descrambler.

1.22. "Disc Key" shall mean the cryptographic key required to decrypt one or more Title Keys resident on a DVD Disc.

1.23. "Disc Key Recovery Logic" shall mean the logic required to extract the Disc Key from the Secured Disc Key Set encoded on a DVD Disc.

1.24. "DVD Disc" shall mean an example of the optical disc form factor commonly referred to as DVD.

1.25. "DVD Drive" shall mean a DVD Disc reader that is capable of operating as an internal or peripheral component of a personal computer, workstation or other computing device, and that incorporates the CSS Authentication Algorithm.

1.26. "DVD Player" shall mean a DVD Disc reader that has the internal capability to play back content encrypted on a DVD Disc using CSS, that incorporates the Disc Key Recovery Logic, the Title Key Recovery Algorithm and the Content Scrambling Algorithm, and that does not operate through use of the CSS Authentication Algorithm.

1.27. "Encrypted Title Key" shall mean a Title Key encrypted using a Disc Key.

1.28. "Hardware" shall mean a physical device, including a component, that implements any of the functions as to which this Agreement requires that a DVD Product be compliant and (i) does not include instructions or data; (ii) does not include instructions or data other than such instructions or data that are permanently embedded in such device or component; or (iii) includes instructions or data (such as firmware) that are not permanently embedded in such device or component where such instructions or data have been customized for such DVD Product and (x) such instructions or data are inaccessible to the end user through the DVD Product itself or through User Tools (as defined in Section 6.2.5.2(a)(i)); or (y) such instructions or data are accessible to the end user through the DVD Product itself or through User Tools, but they cannot otherwise be used (a) using User Tools, to circumvent or defeat CSS, (b) using Widely Available Tools (as defined in Section 6.2.5.2(a)(i)), to circumvent or defeat the technologies referenced in Section 6.2.6.2, or (c) User Tools to circumvent or defeat the technologies referenced in Section 6.2.6.5.

1.29. "Integrated Product" shall mean a combination of any one or more of a DVD Player, DVD Drive, Descrambler, Authenticator, or CSS Decryption Module with any other product, device or component into a single integrated unit that permits, or that is designed for further integration into a product that permits, the transmission of unscrambled content in digital or analog format to any internal or external output or connection, provided that use of the term "Integrated Product" does not affect the obligations or provisions pertaining to any separately defined DVD Product. For purposes of this Section 1.29, a "single integrated unit" shall include a group of two or more otherwise disaggregated products that are controlled by a central processor and that are manufactured with the intent that such products be used together as a unit. Integrated Products may include by way of example and not of limitation: (i) integration of DVD Drives or CSS Decryption Modules with or into computer systems; and (ii) integration of DVD Drives or DVD Players with or into television receivers and videocassette recorders.

1.30. "Master Key" shall mean the cryptographic key used in a DVD Player or CSS Decryption Module to decrypt the Disc Key of a DVD Disc.

1.31. "Membership Categories" shall mean the categories of CSS Licenses, which may be adopted or changed by Licensor in its discretion and presently include the categories of: (i) Content Provider; (ii) Authoring Studio; (iii) CSS Disc Formatter Manufacturer; (iv) DVD Disc Replicator; (v) DVD Player Manufacturer; (vi) DVD Drive Manufacturer; (vii) Descrambler Manufacturer; (viii) Authenticator Hardware Manufacturer for DVD Drives; (ix) Authenticator Manufacturer for CSS Decryption Module; (x) CSS Decryption Module Manufacturer; (xi) Integrated Product Manufacturer; (xii) Assembler; (xiii) Reseller and (xiv) Verification Products Manufacturer.

1.32. "Scrambler" shall mean a semiconductor and/or software product that incorporates the Content Scrambling Algorithm.

1.33. "Secured Disc Key Set" shall mean the Disc Key as cryptographically processed by Licensor.

1.34. "Special Purpose DVD Player" shall mean a DVD Player that is designed solely for the playback of CSS Data contained on DVD Disc designated as Region 8.

1.35. "Special Purpose DVD Drive" shall mean a DVD Drive that is designed solely for the playback of CSS Data contained on a DVD Disc designated as Region 8.

1.36. "Software" shall mean the implementation of the functions as to which this Agreement requires a DVD Product to be compliant through any computer program code

consisting of instructions or data other than such instructions or data that are included in Hardware.

1.37. "Technical Specifications" shall mean the portion of the CSS Specifications containing detailed information applicable to the specific Membership Categories for which technical specifications are provided.

1.38. "Title" shall mean a work, such as a motion picture, or other audio/video programming, provided by a Content Provider to be incorporated, either scrambled or descrambled, by itself or with other such works, into a DVD Disc.

1.39. "Title Key" shall mean the cryptographic key required to descramble a Title from a DVD Disc.

1.40. "Title Key Recovery Algorithm" shall mean the algorithm, employed in conjunction with the Disc Key of a DVD Disc, to decrypt one or more of the Title Keys resident therein.

1.41. "Verification Product" shall mean either

(i) a combination of a DVD Decryption Module with a (1) DVD Drive and (2) tape drive and/or hard disk and/or second DVD Drive into a single physical unit which is intended to facilitate the manufacture of CSS Compliant discs by allowing the contents of a DVD Disc to be compared to the unscrambled contents of a tape or hard disk based image or another DVD Disc, and which does not allow the transmission of any unscrambled content in digital or analog form to any external output or connection ("Type 1 Verifier"); or

(ii) a combination of an Authenticator and Scrambler, with (1) a tape drive and/or DVD Drive and/or a hard disk, and (2) a second DVD Drive, and/or floppy disk drive into a single physical unit which is intended to facilitate the manufacture of CSS Compliant DVD Discs by allowing the scrambled contents of a DVD Disc to be compared to the scrambled contents of a tape or DVD Disc, and which does not allow the transmission of unscrambled content in digital or analog form to any external output or connection ("Type 2 Verifier")

2. **CSS SPECIFICATIONS.** The CSS Specifications are provided in order that each CSS Licensee, from each of the Membership Categories, has access to the appropriate information, both procedurally and technically, for it to implement CSS in its respective capacity in accordance with the terms of the Agreement. The CSS Specifications are

provided in two sections: (i) these Procedural Specifications, which provide the terms and conditions of use of the CSS Specifications; and (ii) the Technical Specifications, designated specifically for particular Membership Categories and provided to CSS Licensees according to their specific Membership Categories.

3. **LICENSING.** The Procedural Specifications are provided only to CSS Licensees, prospective CSS Licensees, and others with a business need to know consistent with the intent and purposes of the CSS licensing process. Technical Specifications for a Membership Category are provided to only CSS Licensees in the appropriate Membership Category, and possession of Technical Specification materials by any person is prohibited unless such person (i) is a CSS Licensee of the relevant Membership Category or (ii) is a signatory to a non-disclosure agreement either with Licensor or pursuant to Section 2.1(c) of the CSS License Agreement and such non-disclosure agreement entitles such person to possess the relevant Technical Specification materials.

4. **DISCLOSURE.**

4.1. Initial Disclosure. CSS Licensees shall be provided with Technical Specifications as specified in this Article 4. All Membership Categories will be provided with these Procedural Specifications. In addition, Technical Specifications provided to each CSS Licensee shall correspond with its Membership Category (or Categories), as follows.

4.1.1. CSS Disc Formatter Manufacturers. Pursuant to the applicable Technical Specifications, Licensor shall disclose to CSS Disc Formatter Manufacturers the Content Scrambling Algorithm.

4.1.2. DVD Player Manufacturers. Pursuant to the applicable Technical Specifications, Licensor shall disclose to DVD Player manufacturers the following: (i) the data format of DVD Discs; and (ii) the control method of Descramble Hardware.

4.1.3. DVD Drive Manufacturers. Pursuant to the applicable Technical Specifications, Licensor shall disclose to DVD Drive manufacturers the following: (i) the data format of DVD Discs; and (ii) the control method of the Authenticator Hardware.

4.1.4. Descrambler Manufacturers. Pursuant to the applicable Technical Specifications, Licensor shall disclose to Descrambler manufacturers the following: (i) the Disc Key Recovery Logic; (ii) the Title Key Recovery Algorithm; and (iii) the Content Scrambling Algorithm.

4.1.5. Authenticator Module for DVD Drive. Pursuant to the applicable Technical Specifications, Licensor shall disclose to Authenticator Hardware Manufacturers the following: (i) the CSS Authentication Algorithm; and (ii) the Authentication Key.

4.1.6. Authenticator Module for CSS Decryption Module. Pursuant to the applicable Technical Specifications, Licensor shall disclose to Authenticator Hardware Manufacturers the following: (i) the CSS Authentication Algorithm; and (ii) the Authentication Key.

4.1.7. CSS Decryption Module Manufacturers. Where Licensee implements the CSS Decryption Module, pursuant to the applicable Technical Specifications, Licensor shall disclose to CSS Decryption Module Manufacturers the following: (i) the control method of the Descrambler Module; and (ii) the control method of the Authenticator Module.

4.1.8. Verification Product Manufacturers. Pursuant to the applicable Technical Specifications, Licensor shall disclose to Verification Product Manufacturers the following: (i) the Disc Key Recovery Logic; (ii) the Title Key Recovery Algorithm; (iii) the Content Scrambling Algorithm; (iv) the CSS Authentication Algorithm; (v) the Authentication Key, (vi) the control method of the Descrambler Module; and (vii) the control method of the Authenticator Module.

4.2. Updates. From time to time, at Licensor's sole discretion, Licensor may amend, modify or supplement the CSS Specifications, subject to Sections 4.2 and 10.7 of the CSS License Agreement.

5. LICENSOR OPERATING PROCEDURES AND SECURITY STANDARDS.

Each CSS Licensee shall abide by the following standards.

5.1. Master Key Allocation. Licensor shall allocate Master Keys on a non-discriminatory basis. The Master Keys shall remain the property of Licensor, and no CSS Licensee may transfer any rights to the Master Keys without Licensor's prior written approval. Licensor has the right to change the Master Keys in the event of the loss of confidentiality of such Master Keys, provided that no such change shall result in making any Licensee's product, past or current, unable to perform its CSS functions.

5.2. CSS Security Algorithms. Each CSS Licensee shall comply with the procedures (including but not limited to designations for secure media) for the secure

delivery to Licensee by Licensor of CSS Security Algorithms as may be reasonably adopted by Licensor from time to time.

5.3. Disc and Title Keys. Any Content Provider may submit a request to Licensor for the processing of Disc and Title Keys chosen by the Content Provider into a Secured Disc Key Set and Encrypted Title Keys, respectively. Such a request may be submitted directly, or through a designated Authoring Studio. Each Content Provider or its designated Authoring Studio shall comply with procedures for submissions and respond to requests for processing of Disc and Title Keys as such procedures may be adopted and amended by Licensor from time to time.

5.4. Non-alteration of the Secured Disc Key Set. The Secured Disc Key Set received by a Content Provider or CSS Disc Replicator shall not be altered in any respect, but shall be included, in its entirety, on the appropriate DVD Discs, pursuant to the applicable Technical Specifications governing such inclusion.

5.5. Key Management. In the event the security of one or more CSS Keys is compromised, whether or not through the fault or negligence of Licensor, a CSS Licensee's sole remedy as against Licensor in this regard shall be to have Licensor issue new CSS Keys as appropriate.

6. ADDITIONAL CSS LICENSEE OBLIGATIONS.

6.1. Coverage. The obligations of these CSS Specifications shall apply to CSS Licensees, their respective employees, directors, officers, agents and contractors. A CSS Licensee shall be held fully responsible for non-compliance owing to the acts or omissions of its employees, directors, officers, agents and contractors.

6.2. Copy Protection. In order to provide continued protection for CSS Data, the following conditions must be observed by CSS Licensees with respect to access to, playback of and transmission of CSS Data and/or analog signals constituting the content converted from CSS Data.

6.2.1. DVD Players. The following provisions are applicable to DVD Players in respect of their capabilities to read and playback CSS Data using internal decryption and decoding capabilities and related outputs to other free-standing products. To the extent that a device that is otherwise a DVD Player is also a DVD Drive, such a device shall also be subject to the rules applicable to DVD Drives set forth in Section 6.2.2, below, with respect to its functions as a DVD Drive.

6.2.1.1. Analog Outputs.

(1) Standard Resolution Outputs. In any transmission through a standard definition NTSC, YUV, SECAM, PAL, or SCART format analog output (including an S-video output for the listed formats and including transmissions to any internal recording device) of a signal constituting the content converted from CSS Data, DVD Players shall generate copy control signals and/or information in response to the instructions provided in the CSS Data. Absent an amendment to these CSS Procedural Specifications, the only technologies that provide the requisite copy control signals and/or information are the standard definition versions of the following outputs:

(a) For interlaced format outputs –

(i) NTSC analog outputs, the specifications for the Automatic Gain Control and Colorstripe copy control systems (contained in the document entitled "Specification of the Macrovision Copy Protection Process for DVD Products, Revision 7.1.D1, September 30, 1999") and the CGMS-A specifications contained in IEC 1880 (for inclusion on Line 20) and in EIA-IS-702 (for inclusion on Line 21), provided that all three of such technologies must be utilized in order to meet this requirement;

(ii) For PAL, SECAM or YUV outputs, (i) with respect to interlaced format outputs, the appropriate specifications (i) for the Automatic Gain Control copy control system (contained in the document entitled "Specification of the Macrovision Copy Protection Process for DVD Products, Revision 7.1.D1, September 30, 1999"), and (ii) for the CGMS-A copy control system (contained in, or adapted without material change from, IEC 61880 for inclusion on line 20 and EIA-702 for inclusion on line 21 for YUV outputs and in ETC 300294 for PAL and SECAM outputs), provided that both of these technologies must be utilized in order to meet this requirement and

(b) For 525P (480P) progressive scan outputs -

(i) the “Specification of the Macrovision AGC Copy Protection Waveforms for DVD Applications with 525p (480p) Progressive Scan Outputs, Rev 1.03 (December 22, 1999)”, and

(ii) the appropriate specifications for the CGMS-A copy control system (contained in, or adapted without material change from, EIAJ CPR1204-1 (defining the signal waveform carrying the CGMS-A) and IEC61880 (defining the bit assignment for CGMS-A)),

provided that both of these technologies must be utilized in order to meet this requirement. DVD Players with such a progressive scan output must also contain an interlaced format output capable of carrying the signal containing the same content originally encrypted using CSS as carried by the progressive scan output.

(c) For devices using a SCART connector, the Automatic Gain Control specifications for the composite signal carried by such SCART connector, provided that such SCART connector must be configured so that the RGB signal carried by such connector must always be accompanied by a composite signal and that such composite signal must provide the only synchronization for the RGB signal.

(d) For RGB (other than as permitted as part of a SCART connector pursuant to (c), above) or other analog outputs not specified above, DVD Players shall not transmit through such analog outputs a signal constituting the content converted from CSS Data until such time as these Specifications are amended in accordance with the provisions of Licensor’s By Laws, to provide for an adequate copy control system for use with such outputs.

(2) Higher Resolution Outputs. Absent an amendment to these CSS Procedural Specifications, DVD Player analog outputs with higher resolution than standard definition are not authorized to be used for CSS Video Data, except to the extent that the content encrypted using CSS that

is contained on a particular DVD Disc is itself recorded on that DVD Disc in a higher resolution and the copy protection information in the data recorded onto the disc (in the form of CGMS information or information to trigger the use of the Automatic Gain Control copy protection technology) affirmatively indicates that no analog copy protection is intended to be invoked by the content provider, in which case outputs with resolution equivalent to that recorded onto the DVD Disc are authorized for such content. Licensee should be aware that copy protection technologies and related requirements for higher resolution outputs may be adopted in the future. At that time, appropriate requirements will be added to these CSS Procedural Specifications.

Licensee understands that a system for content marking alternative to CGMS-A will be considered in connection with the evaluation and adoption within these CSS Specifications of the Content Marking System described in Section 6.2.13.2 and, if the CSS Specifications are amended to incorporate such Content Marking System, Licensee agrees to utilize such system in addition to CGMS-A in any DVD Players manufactured on or after the effective date of the revision incorporating such system, provided that such amendment shall be adopted in accordance with the By Laws.

6.2.1.2. Digital Video Outputs. Subject to the notice requirement below, DVD Players may transmit CSS Video Data to only to the following digital outputs:

- (1) IEEE 1394 equipped with Digital Transmission Copy Protection (“DTCP”);
- (2) USB equipped with DTCP; and
- (3) DVI equipped with High-band width Digital Copy Protection (“HDCP”).

Provided that such outputs are authorized only upon receipt of a notice from Licensor, such notice to be issued no earlier than November 1, 2000, and then only upon receipt of written statements of endorsement of DTCP technology, HDCP technology, or both, by Motion Picture Companies that are CSS Licensees and that, collectively, account for more than 50% of the CSS encrypted DVD Disks produced for the U.S. market by all Motion Picture Companies that are CSS Licensees (measured either by total number of different titles released or by total number of DVD Disks produced and including all titles released and disks produced by each such Motion Picture Company, without regard to when such Motion Picture Company became a CSS Licensee); and provided further that, approval of

each such technology is subject to the continuing requirement that such technology and related license-based obligations must not be modified in a manner that has a material adverse effect on the integrity or security of the technology or the protections provided to content providers by such technology or pursuant to the license-based obligations associated with such technology. With respect to this last requirement, Licensor will suspend or terminate the authorization for DVD Players to transmit CSS Video Data to these digital outputs if the continuing requirement is not met, and no cure is accomplished within a reasonable period of time, at any given time in the future.

6.2.1.3 Digital Audio Outputs. DVD Players shall not transmit CSS Audio Data unless (1) such data are descrambled, (2) such data are transmitted using a compressed audio format or using Linear PCM format in which the transmission information is sampled at no more than 48 khz and no more than 16 bits (without regard to the recorded levels encoded on the DVD Disc), and (3) such transmission carries Serial Copy Management System information in the manner specified for the relevant transmission format, including either SCMS information converted from the copy protection information contained on the DVD Disc containing the CSS Data or SCMS information sufficient to prevent copying by a digital audio recording device subject to the Audio Home Recording Act. DVD Players may make other transmissions of CSS Audio Data at such time as the Specifications are amended to provide an adequate copy control system for use with such transmissions. Licensee should note that the permission to transmit digital audio content originally scrambled using CSS may be terminated by amendment to these CSS Procedural Specifications, adopted in conformance with the By-Laws.

6.2.1.4 Regional Code Playback Control. Each DVD Player shall be designated for only one region and shall implement regional code playback controls so that CSS Data are not played back except in accordance with the regional code instructions contained on the prerecorded DVD Disc. DVD Players may play back such data only if the data are coded for playback in the same geographic region for which the DVD Player is itself designated, including coding of such data that provides for playback in multiple regions where one of such regions is the single designated region for the DVD Player on which the disk is to be played back. A Special Purpose DVD Player shall play back only those DVD Discs designated as Region 8 and is permitted to be sold only in conformance with the conditions set forth in the

License Agreement that are specific to the sale of Special Purpose DVD Players.

6.2.1.5 Recordable Media Playback Control. DVD Players shall refuse to play back recordable (whether write-once or rewritable) DVD Discs containing digital source code indicating that the content was never to be copied. DVD Players shall also refuse to perform CSS descrambling functions with respect to any content contained on a recordable (whether write-once or rewritable) DVD Disc. Licensee understands that the Content Marking System described in Section 6.2.13 is expected to be used for recordable media playback control, and that adoption of such Content Marking System is expected to include modifications to the requirements of this provision to accomplish such use.

6.2.2. DVD Drives. If a DVD Drive is equipped with internal decryption and decoding capabilities and may be connected through its outputs to other free-standing products, such a DVD Drive shall be treated as a DVD Player for the purpose of such capabilities and outputs and shall be subject to the requirements of Section 6.2.1, above. With respect to the operation of all other DVD Drives, the following requirements shall apply.

6.2.2.1. Digital Outputs. A DVD Drive shall include an Authenticator to engage in and complete the authentication process with the CSS Decryption Module and to ensure that the CSS Keys and CSS Data in scrambled form are passed to the CSS Decryption Module only if the authentication process is successful. These technologies are designed to ensure that the destination product is a CSS Compliant Product and to ensure that CSS Data transmitted from the DVD Drive to any such CSS Compliant Product remain in the scrambled form as on the DVD Disc and that the CSS Keys are further encrypted for transmission to such product. If authentication is attempted and fails, the DVD Drive shall not transmit CSS Data.

6.2.2.2. Regional Playback Control. For CSS implementations through DVD Drives, the regional playback control requirements provide for two implementations, divided into Phase I and Phase II, as described below, and subject to the deadlines and transition period requirements of Section 6.2.2.2(3) and (4), below.

(1) Phase I Control. For all Phase I implementations, the regional code playback instructions contained on a DVD Disc shall be implemented for DVD Drives through Hardware or Software closely coupled with the Hardware and/or Software modules responsible for the authentication function and for the descrambling of the CSS Data. As used in the previous sentence, "closely coupled" shall mean that:

(a) the Hardware or Software that supports the regional playback control function does not support substitution of Hardware and/or Software modules that will circumvent the regional playback control capability but continue to allow playback.

(b) In the case of operating system Software which fully supports regional playback control, "closely coupled" shall mean that the Software that supports the regional playback control function will also perform critically necessary functions for the playback of regionalized movies and thus will be difficult to re-engineer, replace or modify in order to circumvent regional playback control.

(c) The regional playback control shall disallow playback unless the region setting of the DVD Disc is consistent with the single region setting of the regional playback control module.

End users shall not be permitted to alter the region assignment of the regional playback control module once such region assignment has been set.

(2) Phase II Control. For all Phase II implementations, regional playback control systems must be implemented in a manner such that the region setting is either a programmed element contained in the DVD Drive or fixed in the DVD Drive Hardware. The Phase II regional playback control system may allow (i) the end user to directly set the region a maximum of five times, and (ii) a maximum of five reinitializations of end-user's ability to directly set the region five times, provided that such reinitializations may be accomplished only using a secure method based on specialized equipment available only to authorized service or manufacturing centers. Hence, the total

number of drive region resets available to an individual user must be no more than 25. Renewal of a drive to be provided to a new user may be done only by a DVD Drive manufacturer thereby allowing the end user direct setting and reinitialization process described above to be started again for the new user. The user reset and service or manufacturing center reinitialization provisions of this subparagraph shall not apply to a Special Purpose DVD Drive, which may be designated to play back only those DVD Discs designated as Region 8. DVD Drives that are not Special Purpose DVD Drives shall not play back those DVD Discs designated as Region 8, either through initial setting or through consumer reset or service or manufacturing center reinitialization. A Special Purpose DVD Drive is permitted to be sold only in conformance with the conditions set forth in the License Agreement that are specific to the sale of Special Purpose DVD Drives.

(3) Effective Dates and Transition Rules. Subject to (4), below, no Phase I DVD Drives, or any other product implementing Phase I regional playback control, may be shipped by any CSS Licensee after December 31, 1999. This prohibition applies whether the Phase I DVD Drive or other product is contained in a kit designed for end user addition to an existing computer, in a product that is sold for the purpose of integration into an Integrated Product, as part of an Integrated Product, or in any other configuration. Phase II DVD Drives may be shipped at any time, but after December 31, 1999 are the only DVD Drives that may be shipped by a CSS Licensee for use with CSS. Any Phase II DVD Drive shipped prior to December 31, 2001 must be configured so as to ensure that either Phase I or Phase II regional playback control operates effectively when a product containing Phase I implementation is connected to a DVD Drive. That is, a Phase II DVD Drive shipped prior to December 31, 2001, must either allow the Phase I regional playback controls in the product to which it is connected to operate, effectively overriding the Phase II implementation, or must implement Phase II control, effectively overriding the Phase I regional playback control in the product to which it is connected. As an alternative, it shall be accepted compliance with this provision if a Phase II DVD Drive will not play back a DVD Disc utilizing CSS when connected to a product containing Phase I regional playback control. For purposes

of this provision, "Phase I DVD Drive" means any DVD Drive which does not implement Phase II regional playback control within the drive, and "Phase II DVD Drive" means any DVD Drive which implements Phase II regional playback control within the drive.

(4) Special Transition Rules

(a) Licensee may ship Phase I implementations after January 1, 2000 only pursuant to the following Special Transition Rules:

(i) to replace Phase I implementations originally shipped as part of laptop computers, where such replacement is required due to a defect or other failure of the implementation or of the associated DVD Drive;

(ii) to allow a consumer to up-grade a laptop computer where the consumer's computer was not originally equipped with a DVD Drive and where an RPC Phase I DVD Drive was the only available DVD optional feature of such computer; or

(iii) to fill order pursuant to a contract entered prior to October 1, 1999, where such contract requires Licensee to provide a specified product that was, at the time the contract was entered, equipped with a Phase I implementation and where unilaterally filling such orders with products equipped with Phase II implementations would violate the terms of the contract.

(b) In order to be eligible for this special transition rule (including any of the three conditions set forth in this section), Licensee must file a notice with Licensor stating that it is utilizing one or more of these rules and stating the quantity of its Phase I implementations that will be subject to these rules. In no event may Licensee ship more than 50,000 Phase I implementations after January 1, 2000, pursuant to these Special Transition Rules.

6.2.2.3. Recordable Media Playback Control. DVD Drives shall refuse to play back recordable (whether write-once or rewritable) DVD

Discs containing digital source code indicating that the content was never to be copied. DVD Drives shall also refuse to perform CSS authentication and descrambling functions with respect to any content contained on a recordable (whether write-once or rewritable) DVD Disc. Licensee understands that the Content Marking System described in Section 6.2.13 is expected to be used for recordable media playback control, and that adoption of such Content Marking System is expected to include modifications to the requirements of this provision to accomplish such use.

6.2.3. CSS Decryption Modules. If CSS Decryption Hardware has outputs or connections, or CSS Decryption Software supports outputs or connections, which are not part of the computer system into which the CSS Decryption Hardware or CSS Decryption Software is intended to be inserted, then those outputs or connections shall be subject to the output requirements in Sections 6.2.1, above, except (1) the requirements in Section 6.2.1.1(1)(d) shall not apply to computer monitor RGB applications (e.g., SVGA); and (2) the CGMS-A requirements in Sections 6.2.1.1(1)(a) and (b) shall not apply. Outputs or connections that are provided or supported as part of the computer system into which the CSS Decryption Module is intended to be inserted are subject to the requirements applicable to Integrated Products in Section 6.2.8, below. Moreover, Licensee should be aware that these requirements are expected to be modified to reflect the results of the work called for in Section 6.2.13, below. The Authenticator in a CSS Decryption Module shall correctly engage in and complete the authentication process with the DVD Drive and ensure that the CSS Keys are received by the Descrambler only if the authentication process is successful. Additional comprehensive requirements affecting CSS Decryption Software are provided in Section 6.2.4. and affecting CSS Decryption Hardware are provided in Section 6.2.5.

6.2.4. Software Authentication and Descrambling. The following provisions apply to implementations of Authenticators and/or Descramblers in Software.

6.2.4.1. All implementations of Authenticators and Descramblers shall include features clearly designed to effectively frustrate each of the following:

- (1) attempts to defeat the copy protection functions related to such Authenticators or Descramblers;

- (2) attempts to discover decrypted confidential CSS Keys embodied therein;
- (3) attempts to discover Highly Confidential Information in the form of CSS Security Algorithms.

6.2.4.2. Specifically, such implementations shall include all of the characteristics set forth in paragraphs (1), (2), and (3) of this Section 6.2.4.2 which shall be implemented in a way that it is reasonably certain they: cannot be defeated or circumvented using widely accessible tools such as but not limited to debuggers, decompilers, or similar Software development products; and can only with difficulty be defeated or circumvented using professional computer engineering equipment such as, but not limited to, in-circuit emulators, logic analyzers, or chip disassembly systems. Such implementations shall:

- (1) Protect confidential keys and algorithms against being revealed without explicit and proper authorization. Any method of achieving this result may be used including but not limited to: encryption, execution of a portion of the implementation in ring zero or supervisor mode, and/or embodiment in a secure physical implementation; and in every case of implementation in Software, using techniques of obfuscation to disguise and hamper attempts to discover the approaches used;
- (2) Have the CSS Authenticator, Descrambler, and MPEG decoder be designed and associated and otherwise integrated with each other to protect the flow of unscrambled content between them against being intercepted and copied. This provision requires that unscrambled compressed data representing video content or keys initially encrypted using CSS not be carried on a user accessible bus. A "user accessible bus" means a data bus which is designed for end user upgrades or access such as PCI, PCMCIA, or Cardbus, but not memory buses, CPU buses, and similar portions of a device's internal architecture. When it becomes reasonably practicable for Licensee, taking into account but not solely determined by any substantially greater cost of implementing in Licensee's architecture relative to other CSS Licensees'

architecture, to apply the requirements of this 6.2.4.2(2) to decompressed data representing video content or keys initially encrypted using CSS, Licensee shall do so; and

(3) Design the implementation so as to perform self-checking of the integrity of its component parts such that unauthorized modifications will be expected to result in a failure of the implementation to provide the authorized authentication and/or descrambling function. For the purpose of this provision, a "modification" includes any change in, or disturbance or invasion of features or characteristics, or interruption of processing, relevant to Sections 6.2.4.2 (1) and/or (2), above. In the case of implementations in Software, this provision requires at a minimum the use of "signed code" or more robust means of tagging operating throughout the code.

6.2.4.3. In the event a Descrambler or Authenticator is in compliance with the criteria set forth in Section 6.2.4.2, above, but at any time thereafter circumstances arise which had they been existing at the time of design would have caused the descrambler or authenticator to fail to comply with Section 6.2.4.2 (wherein such circumstances shall only relate to Licensee's specific implementation of a Descrambler or Authenticator -- and not include general breaches of the CSS keys or algorithms that destroy the effectiveness of CSS) -- such circumstances hereinafter referred to as "new circumstances" -- then upon Licensee having (1) actual notice of new circumstances, (2) actual knowledge of new circumstances, or (3) learned information that should reasonably have led it to believe -- based on the information having been learned by individuals in the business unit responsible for Licensee's design or production of DVD Products -- there was a substantial likelihood that the new circumstances would pose meaningful harm in the commercially foreseeable future, -- the occurrence of any one or more of which shall be referred to as "notice" in this provision -- Licensee shall promptly redesign or replace its affected products and, as soon as reasonably practicable, incorporate such redesign or replacement into its affected products, cease manufacturing affected products, and cease selling such affected products. A reasonably practicable time period shall be determined by taking into account, without regard to the actual resources of Licensee: (A) the substantiality of actual and potential harm resulting from the new circumstances, (B) the technological difficulty to design or

feasibility to license an engineering solution to cure the failure arising from the new circumstances, redesign or replace its affected products or incorporate such redesign or replacement into production of such affected products, and (C) whether the affected product is a product where no portion of the implementation of the descrambler or authenticator is included in an operating system irrespective of whether such product is intended for sale to integrators or for sale to end users ("Non-O/S Product"), or an operating system ("O/S Product"), provided, however, in any event sale of affected Non-O/S Products must cease no longer than 15 months following notice. Where Licensee seeks to extend any of the time periods set out below, Licensee shall have the burden of proof. Where a Licensee or third party beneficiary seeks to shorten any of the time periods set out below, that party shall have the burden of proof.

(1) Non-O/S Products. In the case of any affected Non-O/S Products:

(a) Redesign or replacement and incorporation of the redesign or replacement into production of the affected Non-O/S Product shall be presumed to require no more than 6 months following notice;

(b) Cessation of manufacture of the affected Non-O/S Product shall be presumed to require no more than 6 months following incorporation of the redesign or replacement into production of such Non-O/S Product;

(c) Cessation of sale of the affected Non-O/S Product shall be presumed to require no more than 3 months following cessation of manufacture of the affected Non-O/S Product; and

(d) To the extent Licensee provides upgrades or updates of Non-O/S Products through one or more distribution channels, Licensee shall incorporate such redesign or replacement into the next upgrade or update following incorporation of the redesign or replacement into the affected Non-O/S Product that is distributed -- in accordance with Licensee's customary distribution procedures -- through each distribution channel.

Products: (2) O/S Products. In the case of any affected O/S

(a) Redesign of the O/S Product for each O/S Product channel shall be promptly undertaken and shall be presumed to require no more than 9 months following notice.

(b) If as of the notice date, the next release of the affected O/S Product for the applicable O/S Product channel is scheduled to occur no less than 9 months following the notice date, such release in the applicable O/S channel shall incorporate the redesign. In addition, regardless of when the release of the affected O/S Product is scheduled, the next release of the affected O/S Product for the applicable O/S Product channel occurring no less than twenty-four (24) months after the notice of date shall incorporate the redesign

(c) Regardless of when the next release of the affected O/S Product is scheduled, to the extent Licensee provides general upgrades or updates of the affected O/S Product for the applicable O/S Product channel generally to End Users through one or more distribution channels, Licensee shall incorporate such redesign into applicable O/S Product channels (e.g., World Wide Web site, corporate, OEM, retail, service packs) if such upgrade or update is scheduled to occur no less than 9 months following the notice date. In addition, regardless of when the next general update or upgrade of the affected O/S Product is scheduled, the next general update or upgrade of the affected O/S Product for the applicable O/S product channel occurring no less than twenty-four (24) months after the notice date shall incorporate the redesign. All of the above shall occur in accordance with Licensee's customary distribution procedures. In promotional materials produced for OEMs describing such upgrades or updates, the Licensee, when reasonably practical, shall encourage OEMs to adopt such upgrades or updates.

(d) Notwithstanding subparagraphs (b) and (c), if, within three months of the notice date, Licensee is then currently preparing a next release or a general upgrade or update of the affected O/S Product and such release, upgrade or update has not entered pre-general distribution testing (e.g., beta testing) then Licensee shall make commercially reasonable efforts to incorporate a redesign of the O/S Product.

(e) In the event that Licensee offers an update to the affected O/S Product for download on its product support Website to comply with this Section and Licensee has not previously offered the update in its OEM channel for the affected O/S Product, Licensee will make commercially reasonable efforts to provide the update to the affected O/S Product in its OEM channel and encourage its OEM licensees to incorporate the update.

(f) Any general O/S Product upgrade or update to End Users of such O/S Product distributed to comply with this Section shall describe the purpose of such upgrade or update in such a manner as to encourage End Users to adopt such upgrade or update.

(g) Any change made by Licensee to an affected O/S Product that requires recompilation of the entire affected O/S Product shall constitute a "next release" of such affected O/S products for purposes of this Section. The addition or replacement of files or programs that accompany that affected O/S Product (e.g., fonts, drivers, bonus programs, catalogues, games, trial software, etc.) shall not constitute a "next release."

(h) In any event, for outdated affected O/S Products (i.e., not the current version of a Licensee's O/S Product) Licensee shall continue to sell those products only in the ordinary and customary course of business for a product in the same stage of its life cycle; and, in no event, shall it intentionally promote the failure of the older affected O/S Product.

6.2.4.4. Licensee agrees that under reasonable terms, including execution of non-disclosure agreements, upon notice given by any Motion Picture Company, such Motion Picture Company may have an independent expert acceptable to Licensee (which acceptance shall not be unreasonably withheld) at the Motion Picture Company's cost, at mutually convenient times, inspect the details necessary to an understanding of a delivered implementation of this subsection by Licensee and sufficient to determine whether Licensee's Product is in compliance with Sections 6.2.4.1, 6.2.4.2, and 6.2.4.3, for example, such details to include the executable object code, functional design diagrams, examples of the product, or block diagrams but shall not include the source code, the Verilog Hardware Description Language ("VHDL") or similar highly confidential information, and Licensee shall fully cooperate in providing such details, provided, that (1) such independent expert agrees to report to the engaging Content Provider and the Licensee its opinion as to whether the terms of this section have been complied with and a statement of the grounds for such opinion (but not a description of the underlying details that are confidential); and (2) Licensee shall not be precluded or estopped from challenging the opinion of such expert in any forum. Nothing in this paragraph shall limit the role or testimony of such expert, if any, in a judicial proceeding under such protective orders as a court may impose. No single Motion Picture Company may invoke this provision more than once per implementation; provided that Licensee reserves the right to refuse such independent examination if it receives a cumulative number of requests that are unreasonable under the circumstances. If Licensee refuses such independent examination, it must do so in writing within fifteen days of receipt of such request; Licensee's notice of refusal shall contain the reason for this refusal, including how many audits it has already submitted to on the subject implementation and how many requests for audits in total it has received for this implementation.

6.2.5. Hardware Authentication and Descrambling. The terms of this Section 6.2.5 shall apply to implementations of Authenticators and/or Descramblers in Hardware ("Licensee's Hardware Implementations").

6.2.5.1. Licensee's Hardware Implementations shall be clearly designed in a manner that would effectively frustrate each of the following:

(1) attempts to defeat the copy protection functions related to such Authenticator Hardware or Descramble Hardware;

(2) attempts to discover decrypted confidential DVD Keys embodied therein;

(3) attempts to discover Highly Confidential Information in the form of CSS Security Algorithms; and

6.2.5.2. Specifically, (a) Licensee's Hardware Implementations shall be designed in a manner in which it is reasonably certain that the characteristics set forth in Section 6.2.5.1

(i) cannot be defeated or circumvented using general purpose tools or equipment that are widely available at a reasonable price, such as screwdrivers, jumpers, clips and soldering irons ("Widely Available Tools"), or using specialized electronic or software tools that are widely available at a reasonable price, such as eeprom readers and writers ("Specialized Tools") (Widely Available Tools and Specialized Tools collectively, "User Tools"). User Tools shall not include either (A) professional tools or equipment, such as chip disassembly systems or in-circuit emulators or (B) specialized devices or technologies, whether hardware or software, that are designed and made available for the purpose of bypassing or circumventing the technologies set forth in this Section 6.2 ("Circumvention Devices"); and

(ii) cannot be defeated or circumvented except with difficulty using professional tools or equipment, such as logic analyzers, chip disassembly systems, or in-circuit emulators, but not including either professional tools or equipment that are made available on the basis of a non-disclosure agreement or Circumvention Devices ("Professional Tools").

(b) Licensee's Hardware Implementations also shall:

(i) Protect DVD Keys and CSS Security Algorithms against being revealed without explicit and proper authorization by designing DVD Products so that decrypted DVD Keys are not available outside

integrated circuits, except as otherwise permitted under Section 6.2.4;

- (ii) Not carry unscrambled compressed CSS Video Data on a user accessible bus, as defined in Section 6.2.4.2(2);
- (iii) Prevent any users from having ready access to exposed internal components such as switches, wires, connectors or jumpers by which the copy protection technologies set forth in this Section 6.2 can be circumvented; and
- (iv) As to any particular implementation in a CSS Compliant Product, apply the requirements of 6.2.5.2(b)(ii) to decompressed data representing video content initially encrypted using CSS at such time as it becomes both commercially and technically reasonable for Licensee to do so.

6.2.5.3. In addition, Licensee shall not disclose to end users any diagnostic information relating to such implementations and shall protect the confidentiality of integrated circuit specifications relating to CSS. Licensee shall not disclose information on integrated circuit specifications that would compromise the security of CSS without entering into a written agreement providing at least equivalent protections as are provided in the CSS Non Disclosure Agreement. Nothing in this Section 6.2.5.3 shall relieve Licensee from any of the confidentiality obligations contained in the CSS License Agreement.

6.2.5.4 Without implying whether any other implementation does or does not comply with this Section 6.2.5, and subject to Section 6.2.5.5,

- (a) Implementations satisfy the terms of Sections 6.2.5.1 and 6.2.5.2 if the characteristics set out in Section 6.2.5.1 and the designs set out in Section 6.2.5.2 can be circumvented only by methods that Licensee reasonably expects to risk disabling Licensee's DVD Products (i.e., by disabling or removing the primary functions of such DVD Products);
- (b) Implementations satisfy the terms of Sections 6.2.5.1(1), (2) and (3) and Sections 6.2.5.2(a) and (b) if (A) they contain in a single solid state chip that is soldered onto a board (i) CSS descrambling and MPEG decompression functions, in the case of DVD Players (and Integrated Products, to the extent that they are

obligated to comply with the terms of Section 6.2.1) and (ii) CSS descrambling, CSS authentication and MPEG decompression functions, in the case of DVD Drives (and Integrated Products, to the extent that they are obligated to comply with the terms of Section 6.2.2) and (B) DVD Keys, CSS Security Algorithms and decompressed CSS Video Data are not available outside such chip except as permitted hereunder.

6.2.5.5 (a) The provisions of this Section 6.2.5.5 shall apply in the event that Licensee's DVD Products are in compliance with the criteria set forth in Sections 6.2.5.1 and 6.2.5.2 at the time such DVD Products are designed and at any time thereafter

(1) Professional Tools become widely available at a reasonable price, or new Professional Tools become available to professionals, or new Widely Available Tools or new Specialized Tools come into the market, such that if such tools had been so available at the time of design of such DVD Products, such availability would have caused such DVD Products to fail to comply with Sections 6.2.5.1 and 6.2.5.2, and

(2) it is reasonable to conclude, based on facts made known to Licensee, that such availability is substantially likely to pose meaningful harm to other CSS Licensees or Eligible Content Providers in the commercially foreseeable future.

The occurrence of the circumstances described in this Section 6.2.5.5(a) shall be referred to herein as "New Circumstances".

(b) Upon Licensee having (1) actual notice of New Circumstances, (2) actual knowledge of New Circumstances, or (3) learned information that should reasonably have led it to believe – based on the information having been learned by individuals in the business unit responsible for Licensee's design or production of DVD Products – that New Circumstances exist, Licensee promptly shall redesign or replace its affected DVD Products and, as soon as "reasonably practicable," incorporate such redesign or replacement into its affected DVD Products, cease manufacturing affected DVD Products and cease sales of affected DVD Products. A "reasonably practicable" time period shall be determined by taking into account, without

regard to the actual resources of Licensee, (A) the substantiality of actual and potential harm resulting from the New Circumstances and (B) the technological difficulty of designing an engineering solution, or the feasibility of obtaining a license, to (i) cure the failure arising from the New Circumstances, (ii) redesign or replace the affected DVD Products, or (iii) incorporate such redesign or replacement into affected DVD Products.

- (c) In general, and subject to Section 6.2.5.5(d),
 - (1) such incorporation of the redesign or replacement shall be presumed to require no more than fifteen (15) months after the occurrence of any of the events set out in Sections 6.2.5.5(b)(1)-(3); and
 - (2) cessation of manufacture and sale of the affected DVD Products shall be presumed to require no more than three (3) additional months after such incorporation of the redesign or replacement.
- (d) Where Licensee seeks to extend the time periods set out in Section 6.2.5.5(c), Licensee shall have the burden of proof. Where an Eligible Content Provider seeks to reduce such time periods, it shall have the burden of proof.
- (e) Notwithstanding the foregoing, in the event of New Circumstances, nothing in this Section 6.2.5 shall obligate Licensee to redesign or replace any individual units of DVD Products that have been sold or shipped.

6.2.5.6 (a) If a Motion Picture Company demonstrates to Licensee that it has reasonable grounds for requesting technical information regarding Licensee's compliance with this Section 6.2.5 in connection with Licensee's Hardware Implementation in Licensee's DVD Product that is available for sale in the market, Licensee will provide to an independent expert who is retained at such Motion Picture Company's expense and who is acceptable to Licensee (which acceptance shall not be unreasonably withheld) such technical information as is either available in the service manual for such DVD Product, if any, provided to professional service personnel on the basis of a non-disclosure agreement or, if no service manual containing such technical information is available for such DVD Product, such information as Licensee determines is available and necessary to evaluate such DVD Product for compliance with this Section 6.2.5.

(1) Such technical information will be provided only upon execution of appropriate non-disclosure agreements by such independent expert and such other reasonable terms, including the location of such disclosure, as Licensee may require. Licensee may, at its discretion, provide answers to technical questions from such expert or permit such expert to consult, at a mutually acceptable location, with such engineering staff of Licensee as Licensee may designate.

(2) Such expert shall agree to report to such Motion Picture Company and Licensee its opinion as to whether the terms of this Section 6.2.5 have been complied with and a statement of the grounds for such opinion (but not a description of the underlying details that are confidential); and Licensee shall not be precluded or estopped from challenging the opinions of such expert in any forum. Nothing in this Section 6.2.5.6 shall limit the role or testimony of such expert, if any, in a judicial proceeding under such protective orders as a court may impose.

(3) No single Motion Picture Company may invoke the procedure in this Section 6.2.5.6. more than once per implementation. Licensee reserves the right to refuse a Motion Picture Company's request for disclosure of information or consultation with such expert if it receives a cumulative number of requests that are unreasonable under the circumstances. If Licensee so refuses, it must do so in writing within fifteen days of receipt of such request; Licensee's notice of refusal shall contain the reason for this refusal, including how many requests for disclosure or consultation it has received and how many such requests it has already granted for such implementation.

(b) If a Motion Picture Company, for the purpose of verifying or ascertaining Licensee's compliance with Section 6.2.5, can demonstrate to Licensee that it requires information in addition to that made available pursuant to the procedure set forth in Section 6.2.5.6(a), then, upon such Motion Picture Company satisfying its burden of proof therefor, Licensee shall make such information available in accordance with the terms of Section 6.2.5.6(a).

(c) Notwithstanding any other provision of Section 6.2.5, Licensee will not be required to divulge any Highly Confidential Information.

6.2.6. Copy Protection Function Robustness. The terms of this Section 6.2.6 apply to implementations of the Copy Protection Functions described in Section 1.8(1), as such implementations are incorporated into DVD Products that are required to implement such functions (such DVD Products hereinafter referred to as “Complete Products”).

6.2.6.1. In General. Licensee’s implementations of Copy Protection Functions subject to this Section 6.2.6 shall be clearly designed in a manner that would effectively frustrate attempts to defeat such Copy Protection Functions, to any point up to and including an authorized output that complies with the requirements of Section 6.2, including any upgrades or modifications thereto adopted in accordance with Section 4.2 of the CSS License Agreement. Any implementation of such Copy Protection Functions that allows the defeat or circumvention of such Copy Protection Functions to be accomplished through the use of service menus, remote control commands, panel switches and buttons, or toggle switches shall be deemed per se not to effectively frustrate attempts to defeat such Copy Protection Function and, therefore, to be in violation of these Procedural Specification requirements. Moreover, any hardware implementation of such Copy Protection Functions shall be accomplished through soldered connections to circuit boards and not through socketed connections to circuit boards.

6.2.6.2. Specifically. Except as provided in Section 6.2.6.5, below, Licensee’s implementations of Complete Products shall be designed such that recordable media playback controls, digital video output protection, regional playback control functions to the extent not covered by Section 6.2.6.5, digital audio output protection, analog output protection, only with difficulty be defeated or circumvented using Widely Available Tools (as defined in Section 6.2.5.2(a)(i)).

6.2.6.3. Safe Harbor. Without implying whether any other implementation does or does not comply with this Section 6.2.6, implementations satisfy the terms of Sections 6.2.6.1 and 6.2.6.2 if they include physical barriers to user actions, such as solder and permanent covers that, using User Tools (as defined in Section 6.2.5.2(a)(i)), can only be removed with difficulty.

6.2.6.4. New Circumstances.

(a) The provisions of this Section 6.2.6.4 shall apply in the event that

(i) Licensee's DVD Products are in compliance with the criteria set forth in Sections 6.2.6.1, 6.2.6.2, and 6.2.6.5 at the time such DVD Products are designed and at any time thereafter

(A) new Widely Available Tools or new Specialized Tools (as defined in Section 6.2.5.2(a)(i)) come into the market, such that if such tools had been so available at the time of the design or such DVD Products, such availability would have caused such DVD Products to fail to comply with Sections 6.2.6.1, 6.2.6.2, or 6.2.6.5; and

(B) it is reasonable to conclude, based on facts made known to Licensee, that such availability is substantially likely to pose meaningful harm in the commercially foreseeable future to other CSS Licensees or Motion Picture Companies; or

(ii) there has been a "New Circumstances" determination as provided in Section 6.2.6.5(b)(iii) or Section 6.2.6.5(c)(iv).

The occurrence of the circumstances described in this Section 6.2.6.4(a)(i) or (ii) shall be referred to herein as "New Circumstances."

(b) Upon (1) Licensee having actual notice of New Circumstances, (2) Licensee having actual knowledge of New Circumstances, (3) learned information that should reasonably have led it to believe – based on the information having been learned by individuals in the business unit responsible for Licensee's design or production of DVD Products – that New Circumstances exist or (4) the occurrence of a determination of New Circumstances by Licensee or the Task Force pursuant to Section 6.2.6.5, Licensee shall promptly redesign or replace its affected DVD Products and, as soon as "reasonably practicable," incorporate such redesign or replacement into its affected DVD Products, cease manufacturing affected DVD Products, and cease sales of affected DVD Products. A "reasonably practicable" time period shall be determined by taking into account, without regard to the actual resources of Licensee, (A) the substantiality of the actual and potential harm resulting from the New Circumstances, and (B) the technological

difficulty of designing an engineering solution, or the feasibility of obtaining a license, to (i) cure the failure arising from the New Circumstances, (ii) redesign or replace the affected DVD Products, and/or (iii) incorporate such redesign or replacement into affected DVD Products.

(c) In general, and subject to Section 6.2.6.4(d),

(i) such incorporation of the redesign or replacement shall be presumed to require no more than fifteen (15) months after the occurrence of either of the events set out in Sections 6.2.6.4(b)(1) or (2); and

(ii) cessation of manufacture and sale of the affected DVD Products shall be presumed to require no more than three (3) additional months after such incorporation of the redesign or replacement;

(d) Where Licensee seeks to extend the time periods set out in Section 6.2.6.4(c), Licensee shall have the burden of proof. Where a Motion Picture Company seeks to reduce such time periods, it shall have the burden of proof.

(e) Notwithstanding the foregoing, in the event of New Circumstances, nothing in this Section 6.2.6 shall obligate Licensee to redesign or replace any individual units of DVD Products that have been sold or shipped.

6.2.6.5. Special Rule. With respect to the regional playback control function of a DVD Player required by Section 6.2.1.4 (for purposes of this Section 6.2.6.5, hereafter referred to as “RPC function”), Section 6.2.6.1 shall apply and the following requirements shall also apply. In addition to the provisions below, and in addition to the list of per se violations contained in Section 6.2.6.1, it shall be a per se violation of these Procedural Specifications for an implementation of RPC functions subject to this Section 6.2.6.5 to be capable of being defeated or circumvented through reprogramming provided in a disc played on the DVD Player after Licensee has sold or transferred the DVD Player.

(a) Licensee’s implementation of the RPC function in a DVD Player shall be designed such that the RPC function cannot be defeated or circumvented except with difficulty using Professional Tools, as defined in Section 6.2.5.2(a)(ii), or

(b) If Licensee's implementation of the RPC function in a DVD Player does not meet the test set forth in Section 6.2.6.5(a), Licensee shall not be in violation of this Section 6.2.6 if its implementation cannot be defeated or circumvented except with difficulty using User Tools and if

--

(i) Licensee notifies DVD CCA promptly after it has actual knowledge of a particular means of defeating the RPC function, with difficulty using User Tools, in such implementation, such actual knowledge to include notice from an Eligible Content Provider of specific circumstances involving Licensee's particular implementation,

(ii) Licensee describes the nature of such means,

(iii) Licensee states that it (1) has determined that such means, or such other means (as notified to it by the Ombudsman, as chairman of the Task Force) of defeating or circumventing its implementation of an RPC function in a DVD Player, with difficulty using User Tools, constitutes a New Circumstance within the meaning of Section 6.2.6.4(a), or (2) is willing to participate in good faith in, and abide by the results of, an evaluation process to be conducted by a special technical task force that is constituted and operates in accordance with Section 6.2.6.5(c) (the "Task Force"), including treating any recommended modification to such implementation as a New Circumstance subject to the requirements of Section 6.2.6.4; and

(iv) Licensee accomplishes a modification to its implementation in DVD Players manufactured on or after the date that is eighteen (18) months after the date on which Licensee had actual knowledge as described in (i), above .

(c) DVD CCA agrees to establish the Task Force for the purpose of conducting the evaluations referenced in (b)(iii), above, as follows.

(i) The Task Force shall be (1) composed of technical representatives of CSS Licensees that have manufacture DVD Players, (2) open to all such CSS Licensees, and (3) chaired by the DVD CCA Ombudsman.

(ii) The Task Force shall evaluate identified means of defeating or circumventing the RPC functions of DVD Players in a fair, reasonable, and non-discriminatory manner and shall establish

obligations and procedures regarding confidentiality that are sufficient to protect from unauthorized disclosure or use information provided by a CSS Licensee concerning such of its implementations that are the subject of the evaluation and any other information obtained from a CSS Licensee or otherwise developed during the course of the evaluation.

(iii) When presented with a claim that there is a particular means of defeating or circumventing the RPC function of a DVD Player that meets the test set forth in (b), the Task Force shall (1) determine whether there is such a mean, (2) whether such means raise a question as to whether a DVD Player of a CSS Licensee that is subject to such means fails to meet the test set forth in (a), and (3) evaluate the circumstances related to such means, the ease of reproducing the means, the actual or potential financial loss to content providers as a result of the existence of such means, and the difficulty and/or cost of redesign by CSS Licensees, or taking such other steps as may be necessary to defeat or avoid the means.

(iv) As a result of its evaluation of a particular means, the Task Force shall produce a report addressing either a specific implementation of the RPC function in a DVD Player or in multiple implementations, as the Task Force determines appropriate, and describing the nature of the means of circumventing or defeating the RPC function in such implementation or implementations, any generally agreed method for designing products to avoid such means, any generally agreed information concerning the underlying design issues that may be of assistance to CSS Licensees in avoiding similar means, whether and to what extent the CSS Licensee, or CSS Licensees, whose implementation or implementations were subject to such means has participated in the Task Force's activities, and the Task Force's determination as to whether or not the means of defeating or circumventing the RPC function constitutes a New Circumstance subject to the provisions of Section 6.2.6.4, including any determination of the Task Force concerning the time periods that should be applicable to redesigning or reprogramming of products to defeat or avoid such means. The Task Force may send its report to all CSS Licensees that manufacture DVD Players;

(v) The Task Force shall provide periodic reports to Eligible Content Providers concerning its activities, provided that such reports shall not convey any confidential information of any Licensee's implementation that is subject to the Task Force's activities.

(d) Whether or not Licensee is a participant in the Task Force,

- (1) Licensee agrees that it will not seek discovery of Licensor or of members of the Task Force, with respect to any information actually supplied to, created for, or discussed by the Task Force, regarding another CSS Licensee's implementation RPC functions, in an evaluation conducted pursuant to (b) and (c), above, and,
- (2) absent an applicable order of a court of competent jurisdiction, Licensee agrees that it will not disclose or use any such information, in any legal action against such other CSS Licensee.

Licensee further agrees that, to the extent that it participates in the Task Force, it will adhere to the confidentiality obligations imposed by DVD CCA in relation to such evaluation.

6.2.6.6 The provisions of Section 6.2.5.6 shall apply with respect to Licensee's implementations of the Copy Protection Functions covered by this Section 6.2.6.

6.2.7. Relationship Among Sections 6.2.4, 6.2.5, and 6.2.6

6.2.7.1. Except as otherwise specifically stated, Sections 6.2.4, 6.2.5, and 6.2.6 above, are each to be interpreted independently of each other. Neither Licensee nor Licensor, nor any other party, shall draw any inferences or conclusions from the fact that similar functions, subjects or obligations are described in different terms in Sections 6.2.4, 6.2.5, and 6.2.6.

6.2.7.2. The terms of this Section 6.2.7.2 shall apply to implementations of Authenticators and Descramblers that include both Hardware and Software.

- (a) The terms of Section 6.2.4 shall apply with respect to such elements of the Authenticators or Descramblers that are implemented in Software.
- (b) The terms of Section 6.2.5 shall apply with respect to the elements of the Authenticators or Descramblers that are implemented in Hardware.
- (c) With respect to the interface between the elements of the Authenticators and Descramblers that are implemented in Hardware and the elements of the

Authenticators and Descramblers that are implemented in Software, the terms of Sections 6.2.4 and 6.2.5 shall both apply, provided however, that if there is a conflict between any of the terms of such sections, the terms that establish a more restrictive standard for Licensee's implementations shall control.

6.2.8. Integrated Products.

6.2.8.1. Compliance with Requirements Applicable to Incorporated Devices. To the extent that an Integrated Product incorporates a DVD Player, DVD Drive, Authenticator, Descrambler, or CSS Decryption Module, such Integrated Product shall comply with the requirements applicable to each component incorporated.

6.2.8.2. Outputs or Connections Not Part of Incorporated DVD Products.

(1) Digital Outputs or Connections.

(a) Video. Integrated Products that include digital outputs or connections that are not part of incorporated DVD Products must not permit the transmission of descrambled CSS Video Data through such outputs or connections, except in decompressed form and except where such outputs or connections are linked with, or where such CSS Video Data are directed to, either (1) display devices that are part of or necessary for the normal use of the same Integrated Product or (2) devices that store the data on a temporary basis solely as a necessary part of the original playback and display of the content of which the data are a part and that are themselves linked with display devices that are part of the same Integrated Product. Licensee should note that Licensor may alter or rescind the above authorization for future products, recognition of the availability of copy protection technologies applicable to computer monitor interfaces. In addition, and subject to the notice requirement below, Integrated Products may transmit CSS Video Data, in compressed or decompressed form as permitted by the specific technology, to the following digital outputs:

- (1) IEEE 1394 equipped with DTCP;
- (2) USB equipped with DTCP;
- (3) DVI equipped with HDCP;

Provided that such outputs are authorized only upon receipt of a notice from Licensor, such notice to be issued no earlier than November 1, 2000, and only upon receipt of written statements of endorsement of DTCP technology, HDCP technology, or both, by Motion Picture Companies that are CSS Licensees that, collectively, account for more than 50% of the CSS encrypted DVD Disks produced for the U.S. market by all of the Motion Picture Companies that are CSS Licensees (measured either by total number of different titles released or by total number of DVD Disks produced and including all titles released and disks produced by each such Motion Picture Company, without regard to when such Motion Picture Company became a CSS Licensee); and provided further that, approval of these outputs is subject to the on-continuing requirement that such technology and related license-based obligations must not be modified in a manner that has a material adverse effect on the integrity or security of the technology or the protections provided to content providers by such technology or pursuant to the license-based obligations associated with such technology. With respect to this last requirement, Licensor will suspend or terminate the authorization for Integrated Products to transmit CSS Video Data to these digital outputs if the continuing requirement is not met, and no cure is accomplished within a reasonable period of time, at any given time in the future.

(b) Audio. Integrated Products shall not transmit CSS Audio Data unless (1) such data are descrambled, (2) such data are transmitted using a compressed audio format or using Linear PCM format in which the transmission information is sampled at no more than 48 khz and no more than 16 bits (without regard to the recorded levels encoded on a DVD Disc), and (3) such Integrated Products or systems do not actively strip out or actively alter any Serial Copy Management System information contained in the CSS Audio Data. Integrated Products may make other transmissions of CSS Audio Data

at such time as the CSS Specifications are amended to provide an adequate copy control system for use with such transmissions.

(2) Analog Outputs.

(a) Standard Resolution Outputs. Integrated Products that incorporate analog outputs that are not part of incorporated DVD Products must, in any transmission through a standard definition NTSC, YUV, SECAM, PAL, or SCART connector analog output (including an S-video output for listed formats and including transmissions to any internal recording device) of a signal constituting the content converted from CSS Data, generate copy control signals and/or information in response to the instructions provided in the digital data on a prerecorded DVD Disc. Absent an amendment to these CSS Procedural Specifications, and except pursuant to (c), below, the only technologies that provide the requisite copy control signals and/or information are the standard definition versions of the following outputs:

(i) For interlaced format outputs --

(A) NTSC analog outputs, the NTSC-format specifications, respectively, for the Automatic Gain Control and Colorstripe copy control systems (contained in the document " Specification of the Macrovision Copy Protection Process for DVD Products, Revision 7.1.D1, September 30, 1999 ") provided that both of these technologies must be utilized in order to meet this requirement;

(B) YUV, PAL or SECAM outputs, the YUV-format or PAL-format or SECAM-format specifications, respectively, for the Automatic Gain Control copy control system (contained in the document entitled " Specification of the Macrovision Copy

Protection Process for DVD Products, Revision
7.1.D1, September 30, 1999"),

(C) For devices using analog outputs which transmit a component signal dependant on a composite signal for synchronization over a SCART connector, the Automatic Gain Control specifications for the composite signal carried by that connector, provided that the connector must be configured so that the RGB signal carried by the connector must always be accompanied by a composite signal and such composite signal must provide the synchronization for the RGB signal.

(D) For other RGB outputs (other than as permitted as part of a SCART connector pursuant to (c), above) or other analog outputs not specified above that are part of an Integrated Product for which CSS Data is decrypted and decoded by a DVD Player, such Integrated Product or system shall not transmit through such analog outputs the content converted from CSS Data until such time as the Specifications are amended in accordance with Licensor's By Laws, to provide for an adequate copy control system for use with such outputs;

(ii) For 525P (480P) progressive scan outputs not otherwise permitted as computer monitor outputs, the "Specification of the Macrovision AGC Copy Protection Waveforms for DVD Applications with 525p (480p) Progressive Scan Outputs, Rev 1.03 (December 22, 1999)". Integrated Products with such a progressive scan output must also contain an interlaced format output capable of carrying the signal containing the same content originally encrypted using CSS as carried by the progressive scan output.

(b) Higher Resolution Outputs. Absent an amendment to these CSS Procedural Specifications, and except pursuant to (c) below, analog outputs with higher resolution than standard definition are not authorized to be used for CSS Video Data, except to the extent that the content encrypted using CSS that is contained on a particular DVD

Disc is itself recorded on that DVD Disc in a higher resolution and the copy protection information in the data recorded onto the disc (in the form of CGMS information or information to trigger the use of the Automatic Gain Control copy protection technology) affirmatively indicates that no analog copy protection is intended to be invoked by the content provider, in which case outputs with resolution equivalent to that recorded onto the DVD Disc are authorized for such content. Licensee should be aware that copy protection technologies and related requirements for higher resolution outputs may be adopted in the future. At that time, appropriate requirements will be added to these CSS Procedural Specifications.

(c) No provision of this Section 6.2 shall be interpreted to limit the ability of Integrated Products to be connected, through analog interfaces, with computer monitor display devices, for example, using RGB, SVGA, VGA, or similar proprietary video signals, or the ability of Integrated Products that are in compliance with this Agreement to display on such monitor display devices content originally encrypted using CSS.

(d) Licensee understands that a Content Marking System will be considered in connection with the evaluation and adoption within these CSS Specifications of a Content Marking System, as described in Section 6.2.13.2, and, if the CSS Specifications are amended to incorporate such system, Licensee agrees to utilize such system in the analog outputs of its Integrated Products manufactured on or after the effective date of the revision incorporating such system, provided that such revision shall be adopted in accordance with the By Laws.

6.2.9. Verification Products.

6.2.9.1. Compliance with Requirements Applicable to Incorporated Devices.

To the extent that it incorporates other DVD Products, a Verification Product shall comply with the requirements applicable to Authenticators, Scramblers, DVD Decryption Modules, DVD Drives, and any other DVD Products incorporated therein. A Verification

Product shall additionally conform to the CSS Procedural Specifications pertaining to Software Authentication and Descrambling set forth in Section 6.2.4.

6.2.9.2. Use of Scrambling Capabilities. Licensees producing or using a Type 1 Verifier agree not to use the product to compare the scrambled content with the descrambled content, except where such comparison is specifically necessary to discover if and where a mistake has been made in the original scrambling process or in the playback of the originally scrambled content to facilitate the manufacture of CSS compliant DVD disks. Licensees producing or using a Type 2 Verifier shall not use the scrambling capabilities for any purpose other than comparison of scrambled content from a prerecorded CSS encrypted DVD disk with scrambled content from an original tape (whether contained on an original tape, DVD disc, or hard drive) to facilitate the manufacture of CSS Compliant DVD discs. All Licensees are specifically directed and agree to abide by the obligations pertaining to reverse engineering set forth in Section 5.3 of the Amended and Restated CSS Interim License.

6.2.9.3. Control of Distribution of Verification Products. Licensee shall timely provide Licensor with the name and address of each person to whom a Verification Product is sold, leased, or otherwise made available.

6.2.10. Licensing of Proprietary Technology.

6.2.10.1. Technology Proprietary to Non-CSS Licensees. To the extent that technologies required by the CSS Specifications are proprietary to companies that are not CSS Licensees and their Affiliates, this Agreement provides no grant of authority to use such technologies, and Licensee is advised to make its own arrangements regarding the use of any such proprietary technologies.

6.2.10.2. Technology Proprietary to CSS Licensees. To the extent that technologies that meet these conditions are proprietary to CSS Licensees and their Affiliates, Licensee is referred to Section 5 of the CSS License Agreement.

6.2.11. Effective Dates. All requirements contained in this Section 6.2 are effective from the effective date of this Agreement, except as otherwise provided in relation to a specific requirement.

6.2.12. No Circumvention. Licensee shall not produce or sell devices or software (a) under color of this Agreement, or (b) using CSS Confidential or Highly Confidential Information, where such devices or software are designed to circumvent the requirements of this Section 6.2.

6.2.13. Changes in Copy Control, Regional Code, and Related Technologies. Licensees should be aware that there may from time to time be changes to technologies required by this subsection. Such changes will be made in accordance with the By Laws and Sections 4.2 and 10.7 of the License Agreement. In particular:

6.2.13.1 Copy control technologies may be adopted and/or modified for RGB outputs, digital video and audio outputs, and non-RGB analog outputs;

6.2.13.2. A system for marking content is expected to be adopted so as to identify in a secure manner the fact that the content was originally protected using CSS and/or the fact that the content is prohibited from being copied, or is restricted in the manner of copying and/or number of copies that are authorized, by the content owner (“Content Marking System”). Licensee is hereby notified of the following:

(a) evaluation and adoption of such a Content Marking System is a matter of very high priority by Licensor, work to finalize the evaluation and adoption of such a system will be pursued vigorously and expeditiously by Licensor, and such evaluation process may be a subject of the Licensee’s obligations as described in Section 5.6 of the CSS License document;

(b) once a Content Marking System is adopted, and after a suitable transition period (expected, but not guaranteed, to be twenty-four (24) months from the date on which such a Content Marking System is finally selected), Licensor will adopt necessary and appropriate requirements for the use of such a system, such requirements to include the following (subject to modification or adaptation, as appropriate, based on the particular Content Marking System adopted): in order to be CSS Compliant, all DVD Players and/or DVD Drives will be required to :

(i) Recognize content marks on discs containing unencrypted content where such marks indicate that the content was originally encrypted using CSS;

(ii) Respond to such content marks by refusing to play recordable (whether write once or rewritable) DVD discs containing such marks indicating that the content was never to be copied.

(iii) To the extent such DVD Player or DVD Drive incorporates a digital recording capability, when such digital recording capability is being used, recognize the information concerning CSS Data in such Content Marking System indicating that the CSS Data are not to be copied, and respond to such information by refusing to copy such CSS Data, and

(iv) With respect to DVD Drives, perform the functions described in (i), (ii), and (iii), above, in the DVD Drive itself, unless an alternative means of performing these functions is authorized based on Licensor's finding that such alternative is both subject to legal requirements of this CSS License Agreement and subject to functional requirements that make such performance as secure as performance of such requirement in the DVD Drive itself.

6.3. Motion Picture Scrambling. The following requirements shall apply only when CSS is used with respect to DVD Discs. For every Video Object Unit ("VOBU"), the following conditions must be satisfied: (i) the average rate for scrambled sectors must not exceed 150 scrambled sectors/second, when averaged over the duration of the VOBU; (ii) the fraction of sectors which are scrambled must not exceed 50% of the total number of sectors in the VOBU; (iii) navigation pack sectors must not be scrambled; and (iv) the scrambling flag in the main data must be set according to the DVD specification.

CSS SPECIFICATIONS

II. TECHNICAL SPECIFICATIONS

The Technical Specifications are provided to Licensee based on Licensee's membership in one or more of the following categories. Licensee receives only those portions applicable to the categories for which it is a member.

- (i) CSS Disc Formatter Manufacturers;
- (ii) DVD Player Manufacturers;
- (iii) DVD Drive Manufacturers;
- (iv) CSS Decryption Module Manufacturers;
- (v) (vi) Descrambler Manufacturers
(Hardware and/or Software)
- (vii) Authentication Module Manufacturers for DVD
Drives;
- (viii) Authenticator Module Manufacturers for CSS Decryption
Modules (Hardware and/or Software).