Conformance guideline for recording "DVD-Download disc" and "DVD-Download for DL disc"

Revision 1.0

December 2008
INDEX

Revision 1.0 .............................................................................................................................................. 1

1. Scope .................................................................................................................................................. 1

2. Models for DVD-Download Disc ..................................................................................................... 3
   2.1 MOD and EST ....................................................................................................................................... 3
      2.1.1 MOD-1 (as a typical example) ...................................................................................................... 4
      2.1.2 MOD-2 (as a typical example) ...................................................................................................... 5
      2.1.3 EST-1 (as a typical example) ....................................................................................................... 6
      2.1.4 EST-2 (as a typical example) ....................................................................................................... 7

3. DVD Format/Logo Licenses .............................................................................................................. 9
   3.1 DVD Specifications ............................................................................................................................... 9
   3.2 DVD Format/Logo License and the Licensed Products ........................................................................ 9
   3.3 Verifications ......................................................................................................................................... 11

4. Special Remarks ................................................................................................................................ 12
   4.1 For DVD-Download Disc .................................................................................................................. 12
   4.2 For MOD service .................................................................................................................................. 12
   4.3 For EST service ...................................................................................................................................... 12
   4.4 For Region control of DVD-Download Disc for Home use ............................................................... 13
   4.5 For DVD Playback Device manufacturers ........................................................................................ 13
   4.6 CSS License ......................................................................................................................................... 13

©Copyright 2008 The DVD Forum. All rights reserved.
Note for DVD Download Disc for CSS Managed Recording Rev. 1.0 Subscribers

This Conformance guideline was revised according to the issuance of DVD-Download Ver. 1.0 and DVD-Download for DL Ver. 2.0. Note that the previous "Conformance guideline for recording DVD Download Disc for CSS Managed Recording" posted on the DVD Forum Website is still valid for the products conformed to "DVD Download Disc for CSS Managed Recording Rev. 1.0" specifications.
1. Scope

This guideline provides information to help understanding of all those who are involved in DVD-Download businesses, including DVD Book Subscribers, the manufacturers of the DVD-Download related products, DVD Format/Logo Licensees and the Service Providers who create discs which record DVD-Video content protected by CSS onto DVD-Download Version 1.0 disc and/or DVD-Download for DL Version 2.0 disc (hereafter "DVD-Download Disc") for sale to consumers and others.

This guideline also provides recommendation to avoid compatible problems in the market.
This page is intentionally left blank.
2. Models for DVD-Download Disc

The CSS Managed Recording is a general term to create a disc which records DVD-Video content protected by CSS onto DVD-Download Disc, hereafter named “DVD-Download Video Disc”. Although there are various kinds of approaches to create the DVD-Download Video Disc some typical models are introduced in this chapter.

*Note that the models introduced here are not exhaustive.*

2.1 MOD and EST

In general, two kinds of approaches are considerable, named MOD (Manufacturing On Demand) and EST (Electronic Sell Through). The difference between MOD and EST is what (or who) creates DVD-Download Video Disc.

In case of MOD, the disc is created by Service Provider himself or by a special machine managed by Service Provider. This means that the disc is never created by Consumer's machine such as Home PC and other device at homes. Two kinds of typical MOD models are introduced named MOD-1 and MOD-2.

**MOD-1**: Service Provider creates the DVD-Download Video Disc and then distributed the disc to Consumer.

**MOD-2**: Service Provider prepares the CSS protected image data of DVD-Video content into their special machine and Consumer selects one or more content(s) and creates the disc(s) by using the machine.

While in case of EST, DVD-Download Video Disc is created by Consumer's machine. This means that Service Provider provides only the content electronically to Consumer, e.g. through Internet. Two kinds of typical EST models are introduced named EST-1 and EST-2.

**EST-1**: Service Provider provides CSS Protected image data of DVD-Video content to Consumer and the data is recorded onto DVD-Download Disc without any processing by Consumer’s machine.

**EST-2**: Service Provider provides elementary Video data of DVD-Video content and its scenario to Consumer. The image data of DVD-Video content is created by Consumer’s machine by using the elementary data according to the provided scenario and then the image data is protected by CSS by using the machine. The CSS Protected image data is recorded onto blank DVD-Download Disc by Consumer’s machine.
2.1.1 MOD-1 (as a typical example)

As shown in [Figure 2.1.1-1], the following roles are necessary for each party.

1) Content Holder provides Video data for content and its scenario to Service Provider.

2) Disc Manufacturer provides DVD-Download Disc to Service Provider.
   - Both discs which include CSS Disc Key and does not include the Key are possible to be used by Service Provider. However, if Service Provider uses the disc without the Key, Service Provider must record the Key by himself into the disc.

3) Service Provider processes the followings to create DVD-Download Video Disc:
   - Create the image data of DVD-Video content (data image in Volume Space and Lead-in data (if necessary)) using the Video data and content scenario provided by Content Holder by **DVD-Video Authoring tool**.
   - Protect the image data by **CSS processing tool**.
   - Burn the protected image data by **DVD-Download Drive**.

4) Consumer purchases DVD-Download Video Disc in the store or from Service Provider directly.

**Figure 2.1.1-1: Distribution flow of MOD-1**
2.1.2 MOD-2 (as a typical example)
As shown in [Figure 2.1.2-1], the following roles are necessary for each party.
1) Content Holder provides Video data for content and its scenario to Service Provider.
2) Disc Manufacturer provides DVD-Download Disc to Service Provider.
   - Both discs which include CSS Disc Key and does not include the Key are possible to be used by Service Provider. However, if Service Provider uses the disc without the Key, Service Provider must record the Key by himself into the disc.
3) Service Provider processes the followings to create DVD-Download Video Disc:
   - Create the image data of DVD-Video content (data image in Volume Space and Lead-in data (if necessary)) using the Video data and content scenario provided by Content Holder by DVD-Video Authoring tool.
   - Protect the image data by CSS processing tool.
   - Supply the CSS protected image data of DVD-Video contents into Burning machine(s) which is/are located in the stores, through network or HDD, etc. The burning machine is managed by Service Provider and the machine must include DVD-Download Drive.
4) Consumer selects and purchases DVD-Download Video Disc using the machine in the store.

Figure 2.1.2-1: Distribution flow of MOD-2
2.1.3 EST-1 (as a typical example)
As shown in [Figure 2.1.3-1], the following roles are necessary for each party.

1) Content Holder provides Video data for content and its scenario to Service Provider.

2) Disc Manufacturer provides DVD-Download Disc to Retailers for Consumers.
   - Such discs must have CSS Disc Key.

3) Service Provider processes the followings to create DVD-Download Video Disc:
   - Create the image data of DVD-Video content (data image in Volume Space) using the Video
data and content scenario provided by Content Holder by **DVD-Video Authoring tool**.
   - Protect the image data with content protection approved by publisher.
   - Directly provides the protected image data of DVD-Video contents to Consumer through
   Internet... etc once Consumer requests.
   For recommended download format, see DVD Forum Guideline for DVD-Video Image File
Set for CSS Managed Recording and refer to **Chapter 4**.

4) Consumer purchases and downloads the protected image data of DVD-Video content through
Internet, etc. and the data may be stored in his/ her machine temporarily in accordance with the
DVD CCA CSS Procedural Specifications and Managed Recording Amendment. Then consumer
burns the data onto blank DVD-Download Disc with CSS processing by his/ her machine which
must include **CSS Processing tool** and **DVD-Download Drive**.

Figure 2.1.3-1: Distribution flow of EST-1
2.14 EST-2 (as a typical example)
As shown in [Figure 2.1.4-1], the following roles are necessary for each party.

1) Content Holder provides video data for content and its scenario to Service Provider.

2) Disc Manufacturer provides DVD-Download Disc to Retailers for Consumers.
   - Such discs must have CSS Disc Key.

3) Service Provider provide video data for content and its content scenario to Consumer
   - Note that the video data may be compressed by each Service Provider.
   - Note that Service Provider, the DVD Forum and/or other body may set some rules, such as
     DRM compliance and playback compatibility. As for more information, refer to Chapter 4.

4) Consumer purchases and downloads video data for content and its scenario and then creates
   DVD-Download Video Disc by his/her machine in accordance with the DVD CCA CSS
   Procedural Specifications and Managed Recording Amendment. The following processes are
   done by the machine.
   - Create the image data of DVD-Video content (data image in Volume) using the Video data
     and content scenario by DVD-Video Authoring tool.
   - Protect the image data by CSS processing tool.
   - Burn the protected image data onto blank DVD-Download Disc by DVD-Download Drive.

Figure 2.1.4-1: Distribution flow of EST-2
3. DVD Format/Logo Licenses

Following DVD Specifications and the relevant DVD Format/Logo Licenses are needed to create DVD-Download Video Disc.

3.1 DVD Specifications

Following DVD Specifications are needed to create DVD-Download Video Disc.

1) For DVD-Download Disc and DVD-Download Drive:
   *For 4.70Gbytes/ side single layer disc*
   DVD Specifications for Download Disc (DVD-Download)
   Part 1 Physical Specifications Version 1.0
   Part 2 File System Specifications Version 1.0

   *For 8.54Gbytes/ side dual layer disc*
   DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL)
   Part 1 Physical Specifications Version 2.0
   Part 2 File System Specifications Version 2.0
   Note that the Part2 Version 2.0 will be issued in January 2009.

2) For DVD-Video content:
   DVD Specifications for Read-Only Disc
   Part 3 Video Specifications Version 1.1
   Note that the Supplemental Information has been issued to support DVD-Download Disc in September 2008.

3.2 DVD Format/Logo License and the Licensed Products

DVD Format/Logo License is required to manufacture the following products (Licensed Products).

1) **DVD-Download Disc** (Product Category 1)
   - For Professional Use (Disc without CSS Disc Key: non pre-recorded Control Data Zone)
   - For Home Use (Disc with CSS Disc Key: pre-recorded Control Data Zone)

2) **DVD-Download Drive** (Product Category 2)
   - For Professional Use (need capability to record CSS Disc Key)
   - For Home Use (no capability to record CSS Disc Key and need capability to record sector header)

3) **DVD Encoder** (Product Category 2)
   - PC Video Format Authoring Software

4) **Authoring Software for Professional use** (Product Category 3)
   - DVD-Video Format

5) **IC Chips for DVD-Download Drive** (Product Category 3)
3. DVD Format/Logo Licenses

Note that the DVD Format/Logo License is also required to the following product, but it is not available yet.

1) **DVD-Download Recorder** (Product Category 2)
   - DVD-Download Video Format Recorder

For your reference, the Licensed Products necessary for MOD-1, MOD-2, EST-1 and EST-2 are shown in [Table 3.2-1].

**Table 3.2-1: Licensed Products necessary for MOD-1/ MOD-2/ EST-1/ EST-2**

<table>
<thead>
<tr>
<th></th>
<th>MOD-1</th>
<th>MOD-2</th>
<th>EST-1</th>
<th>EST-2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Category 1</strong></td>
<td>DVD-Download Disc (either Professional Use or Home Use)</td>
<td>DVD-Download Disc (only Home Use)</td>
<td>DVD-Download Disc (only Home Use)</td>
<td></td>
</tr>
<tr>
<td><strong>Product Category 2</strong></td>
<td>DVD-Download Drive (either Professional Use or Home Use)</td>
<td>DVD-Download Drive (only Home Use)</td>
<td>DVD-Download Drive (only Home Use)</td>
<td>DVD Encoder (PC Video Format Authoring Software)</td>
</tr>
<tr>
<td><strong>Product Category 3</strong></td>
<td>Authoring Software for Professional use (DVD-Video Format)</td>
<td>Not necessary</td>
<td></td>
<td>IC Chips for DVD-Download Drive</td>
</tr>
</tbody>
</table>

*1: The License is not available yet.

As for the details of the DVD Format/Logo License, refer to the DVD FLLC website as below: [http://www.dvdfllc.co.jp/license/l_pro.html](http://www.dvdfllc.co.jp/license/l_pro.html)
3.3 Verifications
The relevant Licensees are required to submit the First Production Model to the Class-A Verification Laboratory.
1) DVD-Download Disc (both Professional Use and Home Use)
2) DVD-Download Drive (both Professional Use and Home Use)
3) DVD Encoder (PC Video Format Authoring Software)

Note that Verification for Authoring Software for Professional use (DVD-Video Format) is not available and DVD Logos are not permitted for such product.

As for the details of Verifications including the Test Specifications for each product, refer to the DVD FLLC website as below:

http://www.dvdfllc.co.jp/verification/vr_next.html
4. Special Remarks

There is some important information or recommendations to create DVD-Download Video Disc. This chapter introduces such information and recommendations.

4.1 For DVD-Download Disc
Since DVD-Download Disc is newly introduced to record DVD-Video content protected by CSS, the disc may not be properly recorded by the existing DVD recording hardware. Also some existing hardware which includes recording capability may not play back DVD-Download Video Disc because the disc is intended to be played in DVD-Video play-only hardware.

In order to avoid such potential issues, it is highly recommended to provide notice to Consumer.

As for details, refer to “Important Notice to the Subscribers of the DVD Specifications for Download Disc Ver. 1.0 and DVD Specifications for Download Disc for Dual Layer Ver. 2.0” on the DVD Forum website as below:

http://www.dvdforum.org/mi-current_DVD.htm

4.2 For MOD service
In case of MOD service, Service Provider will create DVD-Download Video Disc by using the DVD Format/Logo Licensed Products i.e. DVD-Video Authoring Software, DVD-Download Drive and DVD-Download Disc that have been verified at Class A Verification Laboratories. As long as the DVD-Download Video Disc is created based on the DVD Licensed Products, Service Provider may not be required to submit the first product of DVD-Download Video Disc to Verification process.

However, in order to avoid playability issues in the market, it is highly recommended to submit the DVD-Download Video Disc to the Class-A Verification Laboratory for conformance tests.

4.3 For EST service
In case of EST service, the data of content is electronically distributed from Service Provider to Consumer through Internet, etc. In the EST distribution flow, it may be necessary to specify the data format and its protocol between Service Provider and Consumer, and some security with DRM (Digital Right Management) for the distributed content. They may be basically specified by each Service Provider and therefore Hardware/Software manufacturers may contact with each Service Provider when they plan to create Consumer's products.

In case of EST-1 model, the DVD Forum plans to introduce a guideline for a data format on Internet, named “DVD-Video Image File Set for CSS Managed Recording”.

It is highly recommended to be supported by Service Provider and Hardware/Software manufacturer. As for the guideline, see the website of DVD Forum. DVD Forum has no plans to specify the content protection method to be used for download or storage of the DVD-Video Image data. Download and storage content protection can be determined by each service provider.
4.4 For Region control of DVD-Download Disc for Home use

DVD-Download Disc for Home use has the pre-recorded Control Data Zone which contains the RMA value of “00000000b”, meaning “all regions enabled”. Therefore it is required that Region Management fields in VIDEO_TS.IFO file are also set to “all regions enabled” to record discs compliant with DVD-Video specifications. Refer to 3.2.

4.5 For DVD Playback Device manufacturers

It is not a subject of Verification process, however DVD playback device manufacturers are strongly recommended to make their products to be shipped compatible with DVD-Download Disc.

4.6 CSS License

When DVD-Video content is recorded onto DVD-Download Disc, the DVD-Video content is protected by CSS under its License.

Note that the conformance tests for the DVD-Download Video Disc may be required by DVD CCA.

Note that “CSS processing” in this document means changing the original data to scrambled data in compliant with CSS Procedural Specifications.

As for CSS license, refer to the DVD CCA website as below:

http://www.dvdcca.org/
Conformance guideline for recording “DVD-Download disc and DVD-Download for DL disc”:

Revision 1.0 — December 2008