



# **HD DVD-Video Product Requirement & Guideline**

**Version 1.03**

**September 2006**

## **Conditions for publication**

### **Copyright Holder**

DVD Forum\*

\* The DVD Forum is a voluntary, ad hoc association of hardware manufacturers, software firms and other users of digital versatile discs (the "DVD Format"), created for the purpose of exchanging and disseminating ideas and information about the DVD Format and its technical capabilities and improvements and innovations.

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## Revision history

- September 2005  
The Version 1.0 was issued.
  
- December 2005  
The Version 1.0 was updated to Version 1.01 for the following reasons:
  - To accommodate for the issuance of "DVD Specifications for High Definition VIDEO RECORDING Version 1.0" (Sections **1.3.3**, **3.2.2** and **3.3.2** were revised.)
  - To clarify the requirements for PC software HD DVD-Video Player (Section **3.3.2** was revised.)
  
- February 2006  
The Version 1.01 was updated to Version 1.02 for the following reasons:
  - To add requirements of content to HD DVD-Video Disc. (Sections **2.2.2**, **2.3.2** were added.)
  - To clarify and add the requirements for HD DVD-Video Player (Sections **3.2.2**, **3.3.2** were revised.)
  
- September 2006  
The Version 1.02 was updated to Version 1.03 for the following reason:
  - To add the requirements for HD DVD-Video Player. (Sections **3.2.2**, **3.3.2** were revised.)

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## 1. General

### 1.1 Scope

This document defines the minimum requirements for HD DVD-Video products\* for manufactures from a consumer's point of view and the minimum requirements for a typical HD DVD-Video product\* bearing HD DVD-Video Logo.

HD DVD-Video product shall comply with the requirements described in the "HD DVD-Video Product Requirement & Guideline".

\*: The products which refer to the HD DVD-Video specifications.

## 1.2 HD DVD-Video Product Category

HD DVD-Video Product Requirement & Guideline defined in this document applies to the following product categories and specifications.

### 1.2.1 HD DVD-Video Disc

- 1) HD DVD-Video Disc using HD DVD-ROM\*\*
- 2) HD DVD-Video Disc using 3x-speed DVD-ROM

**\*\*:** *HD DVD-ROM/DVD-ROM Twin format disc is included.*

### 1.2.2 HD DVD-Video Player

- 1) Standalone HD DVD-Video Player for consumer use
- 2) PC software HD DVD-Video Player with HD DVD-ROM drive

### 1.3 Normative References

HD DVD-Video product shall comply with all of relevant specifications listed here.

Notes: In the event of minor updates to the applicable specifications which is defined as a change of second digit or third digit of version number, such as from 1.1 to 1.2, all HD DVD-Video products shall comply with the updated specifications after a reasonable time period, even if this HD DVD-Video Product Requirement & Guideline is not updated. The latest version of each of the applicable specifications will be informed on the DVD FLLC web site, [www.dvdfllc.co.jp](http://www.dvdfllc.co.jp).

In the event of major updates to the applicable specifications, which is defined as a change of first digit of version number such as from 1.0 to 2.0, or the creation of a new format, HD DVD-Video products are not required to comply with these updates or the new format until the HD DVD-Video Product Requirement & Guideline document is updated. Major specification revisions or new format specifications will be informed on the DVD FLLC web site, [www.dvdfllc.co.jp](http://www.dvdfllc.co.jp).

#### 1.3.1 Physical specifications

- 1) DVD Specifications for High Density Read-Only Disc  
Part 1: PHYSICAL SPECIFICATIONS Version 1.2\*1

*\*1: HD DVD-ROM/DVD-ROM Twin format disc is defined in Annex P (Normative).*

- 2) DVD Specifications for Read-Only Disc  
Part 1: PHYSICAL SPECIFICATIONS Version 1.0  
Optional specifications: 3x-speed DVD-ROM Revision 1.1

#### 1.3.2 File system specifications

- 1) DVD Specifications for High Density Read-Only Disc  
Part 2: FILE SYSTEM SPECIFICATIONS Version 1.0
- 2) DVD Specifications for Read-Only Disc  
Part 2: FILE SYSTEM SPECIFICATIONS Version 1.0  
Optional specifications: FILE SYSTEM for HD DVD-Video on 3x-speed DVD-ROM Revision 1.0

#### 1.3.3 Application specifications

- 1) DVD Specifications for High Definition VIDEO Version 1.0
- 2) HD DVD-Video Guideline for Player and Content\*2
- 3) DVD Specifications for High Definition VIDEO RECORDING Version 1.0

*\*2: This guideline defines the restrictions for content programming and player performance which comply with HD DVD-Video specifications.*

**1.4 Copy Protection**

The basic policy of the DVD Forum is to respect copyrights and to enable copy protection systems. According to the basic policy stated above, an appropriate copy protection system for HD DVD content and media has been adopted as follows.

CP system	Media / Content	Proposer
AACS	HD DVD-Video Disc using HD DVD-ROM HD DVD-Video Disc using 3x-speed DVD ROM	AACS*

\*Contact: AACS license information is available from the AACS LA, LLC, [www.aacsla.com](http://www.aacsla.com).  
AACS specification updates will be informed by DVD Forum or check web site of DVD Forum or AACS LA, LLC.

Since the copy protection system is not a DVD Forum specification, it is not subject to DVD Forum verification but compliance to the specification is recommended by DVD Forum.



## 1.5 Terminology

### **Twin format disc:**

A DVD disc specified by "DVD Specifications for High Density Read-Only Disc".

### **Interoperable Content:**

Content specified by "DVD Specifications for High Definition VIDEO" and "DVD Specifications for High Definition VIDEO RECORDING".

## 1.6 Abbreviations

AACS                      Advanced Access Content System

## 2. HD DVD-Video Disc

### 2.1 General Descriptions

This specification covers two categories as follows:

- 1) HD DVD-Video Disc using HD DVD-ROM\*
- 2) HD DVD-Video Disc using 3x-speed DVD-ROM

\*: *HD DVD-ROM/DVD-ROM Twin format disc is included.*

## 2.2 Requirements of HD DVD-Video Disc using HD DVD-ROM

### 2.2.1 Technical requirements

The technical requirements for HD DVD-Video Disc using HD DVD-ROM are listed as below.

- 1) DVD Specifications for High Density Read-Only Disc
  - Part 1: PHYSICAL SPECIFICATIONS Version 1.2
  - Part 2: FILE SYSTEM SPECIFICATIONS Version 1.0
- 2) DVD Specifications for High Definition VIDEO Version 1.0

It is recommended to comply with AAC3 Specifications.

### 2.2.2 Requirements of content

Content of HD DVD-Video Disc shall not be designed to send illegitimate data to the Internet, and to harm software or hardware of HD DVD-Video Player.

Note: This section may be revised in the near future.

## 2.3 Requirements of HD DVD-Video Disc using 3x-speed DVD-ROM

### 2.3.1 Technical requirements

The technical requirements for HD DVD-Video Disc using 3x-speed DVD-ROM are listed as below.

1) DVD Specifications for Read-Only Disc

Part 1: PHYSICAL SPECIFICATIONS Version 1.0

Optional specifications: 3x-speed DVD-ROM Revision 1.1

Part 2: FILE SYSTEM SPECIFICATIONS Version 1.0 /

Optional specifications: FILE SYSTEM for HD DVD-Video on 3x-speed DVD-ROM  
Revision 1.0

2) DVD Specifications for High Definition VIDEO Version 1.0

*Note: Combination of HD DVD-Video with DVD-Video on the same disc layer shall not be allowed.*

It is recommended to comply with AACCS Specifications.

### 2.3.2 Requirements of content

Content of HD DVD-Video Disc shall not be designed to send illegitimate data to the Internet, and to harm software or hardware of HD DVD-Video Player.

Note: This section may be revised in the near future.

### 3. HD DVD-Video Player

#### 3.1 General Descriptions

This specification covers two categories as follows:

- 1) Standalone HD DVD-Video Player for consumer use
- 2) PC software HD DVD-Video Player with HD DVD-ROM Drive

### 3.2 Requirements of Standalone HD DVD-Video Player for consumer use

The technical requirements for Standalone HD DVD-Video Player for consumer use are listed as below.

#### 3.2.1 Specifications

Standalone HD DVD-Video Player for consumer use shall comply with the following specifications:

- 1) DVD Specifications for High Density Read-Only Disc
  - Part 1: PHYSICAL SPECIFICATIONS Version 1.2
  - Part 2: FILE SYSTEM SPECIFICATIONS Version 1.0
- 2) DVD Specifications for Read-Only Disc
  - Part 1: PHYSICAL SPECIFICATIONS Version 1.0
  - Optional specifications: 3x-speed DVD-ROM Revision 1.1
  - Part 2: FILE SYSTEM SPECIFICATIONS Version 1.0
  - Optional specifications: FILE SYSTEM for HD DVD-Video on 3x-speed DVD-ROM Revision 1.0
- 3) DVD Specifications for High Definition VIDEO Version 1.0

### 3.2.2 Required functions

Standalone HD DVD-Video Player for consumer use shall comply with the following functions:

1) Playback disc

The player shall play HD DVD-ROM discs and 3x-speed DVD-ROM discs containing HD DVD-Video content specified in DVD Specifications for High Definition VIDEO.

Refer to **2. HD DVD-Video Disc**.

2) HD DVD-Video/DVD-Video Twin format disc

If HD DVD-Video player has a capability to play DVD layer, the player shall play Twin format disc in a manner of following operation (a) or (b).

(a) The player shall playback HD DVD layer at first as default setting.

The user can override the default setting and access the DVD layer by user operation.

(b) A dialog box or same effect menu prompting user to choose HD DVD layer or DVD layer playback shall appear. Time-out auto playback of default layer is optional.

3) Interoperable Contents

Interoperable Contents recorded on HD DVD Recordable/Rewritable media is strongly recommended to be played back by HD DVD-Video Player.

Note: Item 3) may be made mandatory at the appropriate timing.

4) Video output

At least one video output is required except for integrated player/display.

5) Audio output

At least one analog 2ch stereo audio output is required.

6) Copy protection

Until now, AACS is the only approved content protection method for HD DVD-Video Disc. Therefore it is recommended for HD DVD-Video player to comply with AACS Specifications. If HD DVD-Video player complies with AACS Specifications, it shall treat a content of HD DVD-Video Disc protected by AACS as Trusted Content. (Refer to **3.4 Restricted Mode for Advanced Content** of DVD Specifications for High Definition VIDEO.)



### 3.3 Requirements of PC software HD DVD-Video Player with HD DVD-ROM Drive

The technical requirements for PC software HD DVD-Video Player with HD DVD-ROM Drive are listed as below.

#### 3.3.1 Specifications

PC software HD DVD-Video Player with HD DVD-ROM Drive shall comply with the following specifications:

- 1) DVD Specifications for High Density Read-Only Disc
  - Part 1: PHYSICAL SPECIFICATIONS Version 1.2
  - Part 2: FILE SYSTEM SPECIFICATIONS Version 1.0
- 2) DVD Specifications for Read-Only Disc
  - Part 1: PHYSICAL SPECIFICATIONS Version 1.0
  - Optional specifications: 3x-speed DVD-ROM Revision 1.1
  - Part 2: FILE SYSTEM SPECIFICATIONS Version 1.0
  - Optional specifications: FILE SYSTEM for HD DVD-Video on 3x-speed DVD-ROM Revision 1.0
- 3) DVD Specifications for High Definition VIDEO Version 1.0

### 3.3.2 Required functions

PC software HD DVD-Video Player with HD DVD-ROM Drive shall comply with the following functions:

1) Playback disc

PC HD DVD-Video playback system shall play HD DVD-ROM disc and 3x-speed DVD-ROM disc containing HD DVD-Video content specified in HD DVD-Video book: DVD Specifications for High Definition VIDEO.

*Refer to 2. HD DVD-Video Disc.*

2) HD DVD-Video/DVD-Video Twin format disc

If PC HD DVD-Video playback system has a capability to play DVD layer, the player shall play Twin format disc in a manner of following operation (a) or (b).

(a) The system shall playback HD DVD layer at first as default setting.

The user can override the default setting and access the DVD layer by user operation.

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Interoperable Contents recorded on HD DVD Recordable/Rewritable media is strongly recommended to be played back by HD DVD-Video Player.

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At least one video output is required except for integrated player/display.

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At least one 2ch stereo audio output is required.

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4. Additional Description for products other than related specifications (Informative)

4.1 Logo on HD DVD-Video Disc and disc package

**4. Additional Description for products other than related specifications  
(Informative)**

**4.1 Logo on HD DVD-Video Disc and disc package**

Logo on the HD DVD-Video disc: Refer to DVD Logo Manual

Logo on disc package: Refer to DVD Logo Manual

Note: Refer to the latest DVD Logo Manual issued by DVD FLLC.

## 4.2 Content Format Description

Guidelines for using the HD DVD Logo with a Content Format Description (CFD) on HD DVD-Video Disc packaging:

- a) When the HD DVD logo is used on HD DVD-Video Discs, it is strongly recommended that consumer packaging include an associated Content Format Description (e.g., a table or text) that accurately describes the video resolution and line structure as well as the audio type and number of audio channels of the content contained on the packaged disc.
- b) The layout of the Content Format Description is the design decision of the content provider and may vary depending on the HD DVD-Video disc package layout and available space.
- c) The Content Format Description (CFD) is strongly recommended and should be included to inform consumers regarding the technical details of the disc contents.
- d) It is recommended that the CFD accurately identify the technical characteristics of the disc content, for example:

Video: MPEG-2, MPEG-4 AVC, VC-1, Aspect Ratio (16:9, letter box, 4:3), 1080i, 720p etc.

Audio: DD+, DTS-HD, MLP, Linear PCM, Number of channels, Sampling frequency, quantization bits, subtitle audio languages, subtitle languages, etc.

4. Additional Description for products other than related specifications (Informative)

4.2 Content Format Description

The following eight examples of a Content Format Description are provided for illustration purposes only.

- | (1)                      | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3" style="text-align: left; padding: 2px;">TECHNICAL SPECIFICATIONS</th> </tr> <tr> <td style="width: 20px; padding: 2px;"></td> <th style="width: 40%; padding: 2px;">MAIN FEATURE</th> <th style="width: 40%; padding: 2px;">SPECIAL FEATURES</th> </tr> <tr> <td style="padding: 2px;"><b>VIDEO</b></td> <td></td> <td></td> </tr> <tr> <td style="padding: 2px;"><b>AUDIO</b></td> <td></td> <td></td> </tr> </table> | TECHNICAL SPECIFICATIONS |              |                          |  | MAIN FEATURE | SPECIAL FEATURES | <b>VIDEO</b>        |  |  | <b>AUDIO</b>            |                          |  | (2) | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3" style="text-align: left; padding: 2px;">TECHNICAL SPECIFICATIONS</th> </tr> <tr> <td style="width: 20px; padding: 2px;"></td> <th style="width: 40%; padding: 2px;">MAIN FEATURE</th> <th style="width: 40%; padding: 2px;">SPECIAL FEATURES</th> </tr> <tr> <td style="padding: 2px;"><b>VIDEO</b></td> <td></td> <td></td> </tr> <tr> <td style="padding: 2px;"><b>AUDIO</b></td> <td></td> <td></td> </tr> </table> | TECHNICAL SPECIFICATIONS |  |  |  | MAIN FEATURE | SPECIAL FEATURES | <b>VIDEO</b>        |  |  | <b>AUDIO</b>            |  |  |
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| TECHNICAL SPECIFICATIONS |  |                          |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
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| <b>VIDEO</b>             |  |                          |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
| <b>AUDIO</b>             |  |                          |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
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| <b>VIDEO</b>             |  |                          |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
| <b>AUDIO</b>             |  |                          |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
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| <b>SPECIAL FEATURES</b>  |  |                          |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
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| <b>MAIN FEATURE</b>      |  |                          |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
| <b>SPECIAL FEATURES</b>  |  |                          |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
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|                          |  | SPECIAL FEATURES         |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
|                          | MAIN FEATURE   | TECHNICAL SPECIFICATIONS |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
|                          |  | SPECIAL FEATURES         |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
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|                          |  | SPECIAL FEATURES         |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
|                          | MAIN FEATURE   | TECHNICAL SPECIFICATIONS |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |
|                          |  | SPECIAL FEATURES         |              |                          |  |              |                  |                     |  |  |                         |                          |  |     |  |                          |  |  |  |              |                  |                     |  |  |                         |  |  |

The following are examples of a Content Format Description, with video and audio descriptions for the content of a hypothetical HD DVD-Video Disc.

- | (a)                      | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3" style="text-align: left; padding: 2px;">TECHNICAL SPECIFICATIONS</th> </tr> <tr> <td style="width: 20px; padding: 2px;"></td> <th style="width: 40%; padding: 2px;">MAIN FEATURE</th> <th style="width: 40%; padding: 2px;">SPECIAL FEATURES</th> </tr> <tr> <td style="padding: 2px;"><b>VIDEO</b></td> <td style="padding: 2px;">1080i High Definition</td> <td style="padding: 2px;">Partially 1080i High Definition<br/>Partially 480p Standard Definition</td> </tr> <tr> <td style="padding: 2px;"><b>AUDIO</b></td> <td style="padding: 2px;">MLP 5.1</td> <td style="padding: 2px;">Dolby Digital 2.0 and Mono</td> </tr> </table> | TECHNICAL SPECIFICATIONS   |                          |  |  | MAIN FEATURE  | SPECIAL FEATURES   | <b>VIDEO</b> | 1080i High Definition | Partially 1080i High Definition<br>Partially 480p Standard Definition | <b>AUDIO</b> | MLP 5.1 | Dolby Digital 2.0 and Mono |
|--------------------------|--|--|--------------------------|--|--|---|--|--------------|-----------------------|---|--------------|---------|----------------------------|
| TECHNICAL SPECIFICATIONS |  |  |                          |  |  |   |  |              |                       |   |              |         |                            |
|                          | MAIN FEATURE   | SPECIAL FEATURES   |                          |  |  |   |  |              |                       |   |              |         |                            |
| <b>VIDEO</b>             | 1080i High Definition  | Partially 1080i High Definition<br>Partially 480p Standard Definition                  |                          |  |  |   |  |              |                       |   |              |         |                            |
| <b>AUDIO</b>             | MLP 5.1  | Dolby Digital 2.0 and Mono   |                          |  |  |   |  |              |                       |   |              |         |                            |
| (b)                      | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; padding: 2px;"></td> <td colspan="2" style="padding: 2px; text-align: center;">TECHNICAL SPECIFICATIONS</td> </tr> <tr> <td></td> <td style="padding: 2px;">MAIN FEATURE is Remastered in 1080i High Definition with Dolby Digital +7.1</td> <td style="padding: 2px;">SPECIAL FEATURES are Partially in High Definition and Partially in Standard Definition</td> </tr> </table>  |  | TECHNICAL SPECIFICATIONS |  |  | MAIN FEATURE is Remastered in 1080i High Definition with Dolby Digital +7.1 | SPECIAL FEATURES are Partially in High Definition and Partially in Standard Definition |              |                       |   |              |         |                            |
|                          | TECHNICAL SPECIFICATIONS   |  |                          |  |  |   |  |              |                       |   |              |         |                            |
|                          | MAIN FEATURE is Remastered in 1080i High Definition with Dolby Digital +7.1  | SPECIAL FEATURES are Partially in High Definition and Partially in Standard Definition |                          |  |  |   |  |              |                       |   |              |         |                            |
| (c)                      | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3" style="padding: 2px; text-align: center;">TECHNICAL SPECIFICATIONS</td> </tr> <tr> <td></td> <td style="padding: 2px;">MAIN FEATURE is Remastered in 1080i High Definition with Dolby Digital +7.1</td> <td style="padding: 2px;">SPECIAL FEATURES are Partially in High Definition and Partially in Standard Definition</td> </tr> </table>   | TECHNICAL SPECIFICATIONS   |                          |  |  | MAIN FEATURE is Remastered in 1080i High Definition with Dolby Digital +7.1 | SPECIAL FEATURES are Partially in High Definition and Partially in Standard Definition |              |                       |   |              |         |                            |
| TECHNICAL SPECIFICATIONS |  |  |                          |  |  |   |  |              |                       |   |              |         |                            |
|                          | MAIN FEATURE is Remastered in 1080i High Definition with Dolby Digital +7.1  | SPECIAL FEATURES are Partially in High Definition and Partially in Standard Definition |                          |  |  |   |  |              |                       |   |              |         |                            |

### 4.3 Logo on HD DVD-Video Player

Logo on HD DVD-Video Player: Refer to DVD Logo Manual.

Note: Please refer to the latest DVD Logo Manual issued by DVD FLLC.

**The following Technical Coordination Group members of the DVD Forum participated in making this requirement & guideline.**

Hitachi, Ltd.  
IBM Corporation  
Industrial Technology Research Institute  
Intel Corporation  
LG Electronics Inc.  
Microsoft Corporation  
NEC Corporation  
SANYO Electric Co., Ltd.  
SAMSUNG ELECTRONICS CO., LTD.  
SHARP CORPORATION  
Thomson  
Toshiba Corporation  
Victor Company of Japan, Limited  
Walt Disney Pictures and Television  
Warner Bros. Entertainment Inc.

**HD DVD-Video Product Requirement & Guideline:**

**Version 1.0** — September 2005

**Version 1.01** — December 2005

**Version 1.02** — February 2006

**Version 1.03** — September 2006