



DVD-Download Disc

(for SL & DL, Blank Disc)

TEST SPECIFICATION

Version 1.2
January 2009

Amendment for DVD-Download Disc (for SL & DL, Blank Disc) TS Version 1.2 (January 2009)

The following pages were amended without changing the version number of the TS.

- **Minor amendment (January 2010)**

Page	Location	Amendment
Page 21	Annex A	<ul style="list-style-type: none">• Class-A Lab information of "Industrial Technology Research Institute", "PIONEER CORPORATION" and "Victor Company of Japan, Limited" were updated.

- **Amendment 1 (January 2012)**

Page	Location	Amendment
Pages 21 to 22	Annex A	<ul style="list-style-type: none">• "Toshiba Corporation" was deleted from the Class-A Lab list.• The company name "Victor Company of Japan, Limited" was changed to "JVC KENWOOD Corporation".

- **Amendment 2 (June 2012)**

Page	Location	Amendment
Page 21	Annex A	<ul style="list-style-type: none">• "Industrial Technology Research Institute" was deleted from the Class-A Lab list.

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Version-up to 1.1, to add the test procedure and items for DVD-Download Disc (Blank Disc) with pre-recorded Lead-in, was approved by Test Specification Task Force members.
- January 9, 2009
Version-up to 1.2, to add the test procedure and items for SL Disc based on Book Version 1.0, and for DL Disc based on Book Version 2.0, was approved by Test Specification Task Force members.

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1. General

1.1 Scope

The scope of this Test Specification is the testing DVD-Download Disc (Blank Disc) for compliance with DVD Specifications mentioned in **1.2**. Hereinafter, DVD-Download Disc (Blank Disc) conformed to DVD-Download Book Revision 1.0 or Version 1.0 may be called DVD-Download Disc or SL Disc, and DVD-Download Disc (Blank Disc) conformed to DVD-Download for DL Book Version 2.0 may be called DVD-Download Disc for DL or DL Disc.

The test procedure described herein could be used by Class-A Verification Labs, Class-B Verification Labs and Quality Assurance Departments of DVD-Download Disc manufacturers. The scope of this Test Specification is limited to product's compliance to the DVD Specifications and not to evaluate performance of products.

1.2 Normative References

- a) DVD-R for General Part 1, Optional Specifications: DVD Download Disc for CSS Managed Recording (DVD-Download) Revision 1.0
- b) DVD Specifications for Download Disc (DVD-Download)
Part 1: Physical Specifications Version 1.0
- c) DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL)
Part 1: Physical Specifications Version 2.0

Note: The Book Revision 1.0 was updated to the Book Version 1.0 in September 2008.

1.3 Scope of Products Covered

Single Layer (SL) Disc without pre-recorded Lead-in based on Book Rev.1.0

12cm Disc (4.7 Gbytes type)
8x/6x-speed DVD-Download Disc (Blank Disc)

Single Layer (SL) Disc with pre-recorded Lead-in based on Book Rev.1.0

12cm Disc (4.7 Gbytes type)
8x/2x-speed DVD-Download Disc (Blank Disc)

Single Layer (SL) Disc without pre-recorded Control data zone based on Book Ver.1.0

12cm Disc (4.7 Gbytes type)
8x/6x-speed DVD-Download Disc (Blank Disc)

Single Layer (SL) Disc with pre-recorded Control data zone based on Book Ver.1.0

12cm Disc (4.7 Gbytes type)
8x/2x-speed DVD-Download Disc (Blank Disc)

Dual Layer (DL) Disc without pre-recorded Control data zone

12cm Disc (8.54 Gbytes type)

8x/6x-speed DVD-Download Disc for DL (Blank Disc)

Dual Layer (DL) Disc with pre-recorded Control data zone

12cm Disc (8.54 Gbytes type)

8x/2x-speed DVD-Download Disc for DL (Blank Disc)

Note 1: "Ax/Bx-speed" means the maximum recording speed is Ax-speed and the minimum recording speed is Bx-speed. A disc shall support all other recording speeds already specified between the minimum recording speed (Bx) and the maximum recording speed (Ax).

Note 2: Rev.1.0 product means that it complies with the "DVD-R for General Part 1, Optional Specifications: DVD Download Disc for CSS Managed Recording (DVD-Download) Revision 1.0". Since the Revision 1.0 Specification was updated to "DVD Specifications for Download Disc (DVD-Download) Part 1 Version 1.0" in September 2008, it is strongly recommended to change the product so as to comply with the Version 1.0 as soon as possible.

2. DVD Logo

DVD Format/Logo Licensing Corporation owns the rights to license the DVD Logo. To be able to use the DVD Logo, DVD manufacturer must have:

- License to use the Logo and
- DVD specification compliance of the product for logo consideration must be validated by the test specifications as defined in this document.

Licensing terms for the DVD Logo are available from the DVD Format/Logo Licensing Corporation.

This chapter describes the mechanism to be used for product compliance testing.

2.1 Definition of Terms Used

First Production Model - The **First Production Model** must be tested and approved by any of the appropriate Class-A Verification Labs (see definition of Class-A Labs below) for compliance with DVD Specifications. Class-A Labs will use the test specifications described in this document for compliance verification.

The following parameters must be used to determine a **First Production Model** for DVD-Download Disc (SL Disc) and DVD-Download Disc for DL (DL Disc) independently:

- DVD Specifications Version n.x changing to n+1.x.
- Initial or the latest production model at the start of Logo Program for each licensee.
- Production model with increased Maximum recording speed.
- Production model with decreased Maximum recording speed.
- Production model with decreased Minimum recording speed.
- Production model with increased Minimum recording speed.
- Adding or removing pre-recorded Lead-in or Control data zone.

Table 2.1-1 : List of Possible Production Model

Possible Production Model \ Recording Speed	Min. Recording Speed	Max. Recording Speed
8x/6x-speed DVD-Download Disc without pre-recorded Lead-in	6	8
8x/2x-speed DVD-Download Disc with pre-recorded Lead-in	2	8
8x/6x-speed DVD-Download Disc without pre-recorded Control data zone	6	8
8x/2x-speed DVD-Download Disc with pre-recorded Control data zone	2	8
8x/6x-speed DVD-Download Disc for DL without pre-recorded Control data zone	6	8
8x/2x-speed DVD-Download Disc for DL with pre-recorded Control data zone	2	8

Next Production Model - A **Next Production Model** does not require compliance verification from a Class-A Verification Lab but must be tested by licensee in its QA department for compliance with DVD Specifications. Licensee's QA department must have the test tools required to perform the tests specified in this document and must, at minimum, use the test procedure referred to in this document (licensee is free to have its own QA procedure, equipment and tools as long as it is a superset of the specification described in this document). A Licensee without own QA department can get the product tested by a certified Third Party Class-B Verification Lab (see definition of Class-B Labs below).

The following parameters must be used to determine a **Next Production Model**:

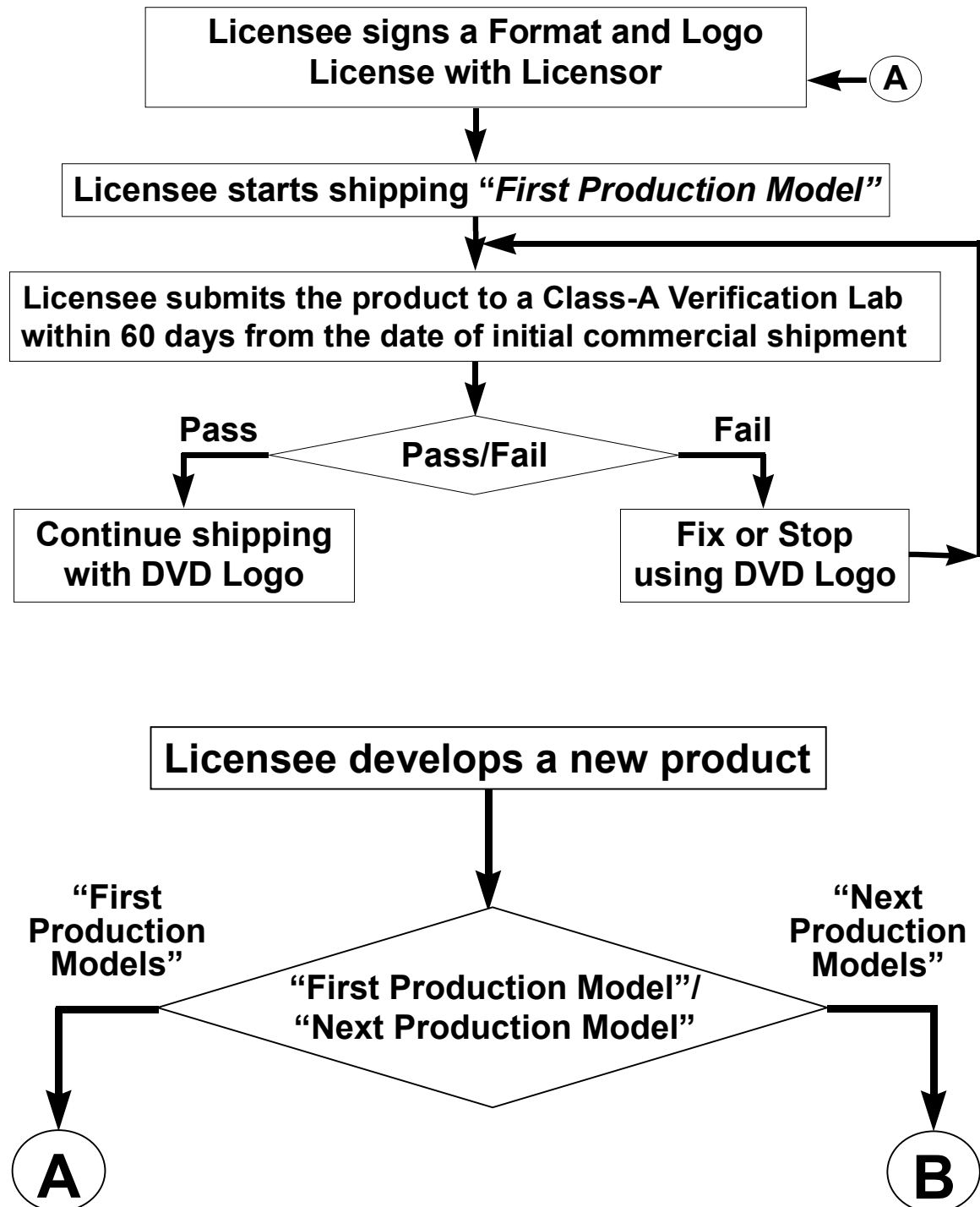
- DVD Specifications Version n.x changing to n.x+1
- Single Sided or Double Sided
- Production of SL Disc based on Book Version 1.0 when the applicant has already passed compliance verification of the SL Disc based on Book Revision 1.0.
- Significant changes to the Material and/or Manufacturing process related to DVD Format.

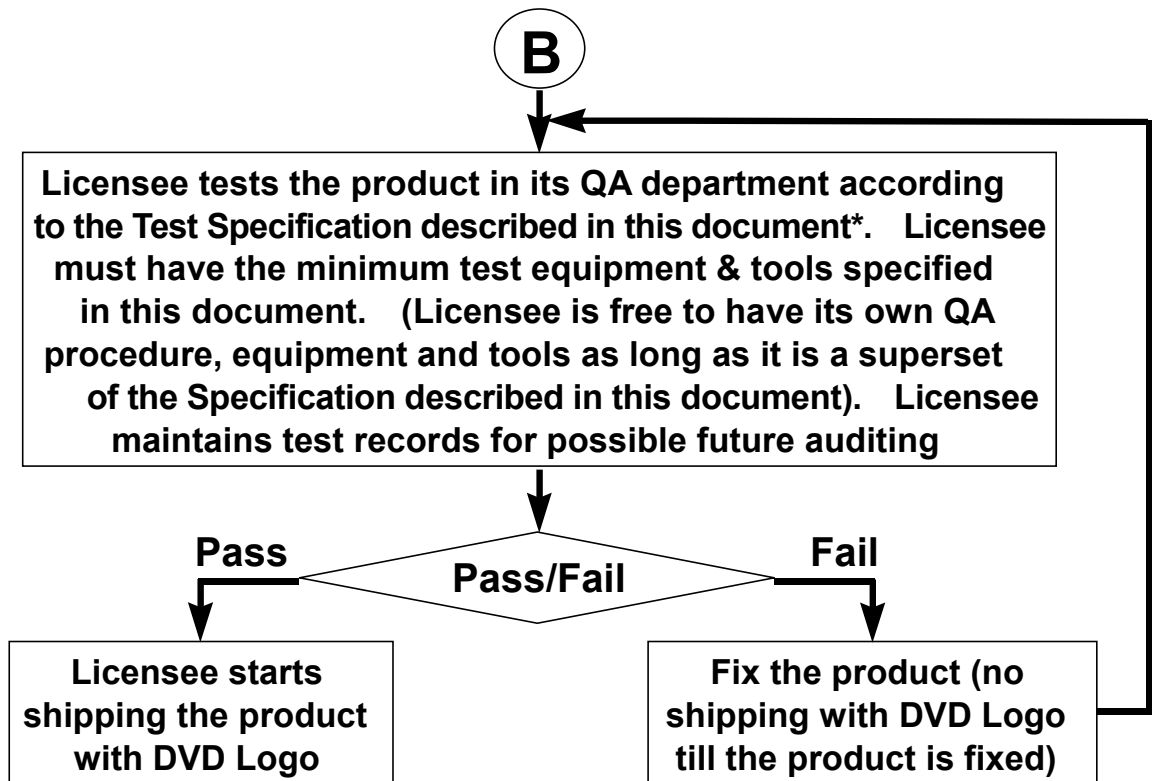
Class-A Verification Labs – Class-A Verification Labs are experts in DVD technology and provide independent expert assessment of Licensee's product compliance with DVD Specifications. Class-A Labs also provide additional services such as interpretation of DVD Specifications, Test Tool development, and Class-B Labs and Licensees auditing, etc.

Class-B Verification Labs – DVD-Download Disc (Blank Disc) Class-B Verification Labs provide DVD-Download Disc testing strictly according to **DVD-Download Disc (for SL & DL, Blank Disc) Test Specification** (They can not interpret specifications).

2.2 DVD Logo Mechanism

The DVD Logo mechanism is described in the following flow chart:





*: Licensee without own QA department can get the product tested by a DVD-Download Disc (Blank Disc) Class-B Verification Lab.

3. Test Tools and Test Specifications for SL Disc

This chapter covers the test specifications and tool requirements for the physical and logical compliance testing, which are common to the SL Disc based on Book Rev.1.0 and Book Ver.1.0. For some differences between Rev.1.0 and Ver.1.0, refer to the notes in the Forms.

3.1 General Requirements

3.1.1 Test Tools

The following tools are required to perform the tests specified and shall be available before executing the test procedures.

SL Disc evaluation system consists of mainly 4 parts; Mechanical test system, Optical test system, DVD-Download Disc measuring system (Recording PU) and DVD-Download Disc measuring system (Playback PU).

These test tools are to be equipped by each Lab and applicant individually for executing the tests specified in this document.

3.1.1.1 DVD-Download Disc measuring system (Recording PU)

- The discs tested shall be recorded by DVD-Download Disc measuring system (Recording PU).
Its recording beam condition is defined in 2.2.3.2 of Optional Specifications DVD Download Disc for CSS Managed Recording (DVD-Download) Revision 1.0 or DVD Specification for Download Disc (DVD-Download) Part 1: Physical Specifications Version 1.0.
- **For 2x & 4x & 6x & 8x speed recording**, the Write Strategy specified in Annex K.1.5 and 2.2.3.9 of Optional Specifications DVD Download Disc for CSS Managed Recording (DVD-Download) Revision 1.0 or DVD Specification for Download Disc (DVD-Download) Part 1: Physical Specifications Version 1.0 shall be used.

3.1.1.2 DVD-Download Disc measuring system (Playback PU)

- The discs tested shall be played back by DVD-Download Disc measuring system (Playback PU). Its reading beam condition is defined in 2.1.3.2 of Optional Specifications DVD Download Disc for CSS Managed Recording (DVD-Download) Revision 1.0 or DVD Specification for Download Disc (DVD-Download) Part 1: Physical Specifications Version 1.0 and its scanning velocity shall be 3.49 m/s (1x-speed).

3.1.2 Test requirements

This section describes the test requirements for DVD-Download Disc products described in **1.3 Scope of Products Covered, Single Layer (SL) Disc**.

The SL Disc has to be in compliance with the physical DVD requirements as indicated in **1.2 Normative References**.

This shall be confirmed by parameters as mentioned in **Form 3.2SS-1 to Form 3.6SS-4**. Final judgment shall be made by **Form 5SS**.

- Test shall be carried out according to the nomination of "Maximum recording speed", "Minimum recording speed" and "Pre-recorded data" applied in **Form 2SS** (1/3).

Test procedure of each recording speed is described in the following sections from **3.2 to 3.6**.

Table 3.1.2-1 shows the relation between "Product type" and "Section number" to be executed. When "✓" is marked in the column of a section, the test in the section shall be carried out.

Table 3.1.2-1 : "Product type" and "Section number/Recording speed" to be executed.

Product type		Section numbers/Recording speed						Samples to be submitted
		3.2		3.3	3.4	3.5	3.6	
		Before		2x	4x	6x	8x	
		3.2.1, 3.2.2	3.2.3, 3.2.4, 3.2.5					
A	8x/6x-speed SL Disc without pre-recorded Lead-in or Control data zone	✓	–	–	–	✓	✓	20
B	8x/2x-speed SL Disc with pre-recorded Lead-in or Control data zone	✓	✓	✓	✓	✓	✓	20

- An applicant is requested to submit the test samples with the test results, which may be obtained by self-verification or verification conducted by Class-B Lab.

3.2 Test Specifications for Before recording of SL Disc

The tests described in this section are for SL Disc. Refer to **Table 3.1.2-1**.

3.2.1 Unrecorded disc specifications

- **Mechanical Parameters** described in **Form 3.2SS-1** shall be measured using Mechanical test system.
- **Optical parameters** before recording described in **Form 3.2SS-2** shall be measured using each Optical test system.
- Items described in **Form 3.2SS-3** shall be measured using DVD-Download Disc measuring system (Recording PU) with 2x or 6x-speed scanning for Recording parameters and with 1x-speed scanning for Operational signals.
- Items described in **Form 3.2SS-4** shall be measured using DVD-Download Disc measuring system (Recording PU) with nominated maximum recording-speed scanning.

3.2.2 Contents of Pre-pit data block configuration

- Items described in the **Form 3.2SS-5** shall be measured using DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system.

3.2.3 Control data zone specifications (Pre-recorded data)

- Items described in the **Form 3.2SS-6** shall be measured using DVD-Download Disc measuring system (Playback PU).

3.2.4 Contents of Pre-recorded Physical format information

- Items described in the **Form 3.2SS-7** shall be measured using DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system.

3.2.5 Contents of Extended pre-recorded information

- Items described in the **Form 3.2SS-8** shall be measured using DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system.

3.3 Test Specifications for 2x-speed recording of SL Disc

3.3.1 Recording condition for testing

- Random or equivalent signals shall be written in the user area of the disc.
- For 2x-speed recording, the Write Strategy code recorded on the disc to be tested shall be used. OPC should be applied.
- Servo transfer function specified in Annex K of Optional Specifications DVD Download Disc for CSS Managed Recording (DVD-Download) Revision 1.0 or DVD Specifications for Download Disc (DVD-Download) Part 1: Physical Specifications Version 1.0 shall be used.
- For the items that the evaluation radius is specified, the writing zones shall be at least 2 mm band in radius including measuring points. The measurement shall be performed around the center of the band.

3.3.2 Unrecorded disc specifications

- Items described in **Form 3.3SS-1** shall be recorded with 2x-speed using DVD-Download Disc measuring system (Recording PU). And fill in the Form with the recording condition values.
- Items described in **Form 3.3SS-2** shall be recorded with 2x-speed and measured with 1x-speed scanning using DVD-Download Disc measuring system (Recording PU).

3.3.3 Recorded disc specifications

- The measurement shall be done with 1x-speed scanning velocity for 2x-speed Recorded disc on which random or equivalent signals are recorded in user area using DVD-Download Disc measuring system (Recording PU).
- Items described in **Form 3.3SS-3 and 3.3SS-4** shall be measured by DVD-Download Disc measuring system (Playback PU).

3.4 Test Specifications for 4x-speed recording of SL Disc

3.4.1 Recording condition for testing

- Random or equivalent signals shall be written in the user area of the disc.
- For 4x-speed recording, the Write Strategy code recorded on the disc to be tested shall be used. OPC should be applied.
- Servo transfer function specified in Annex K of Optional Specifications DVD Download Disc for CSS Managed Recording (DVD-Download) Revision 1.0 or DVD Specifications for Download Disc (DVD-Download) Part 1: Physical Specifications Version 1.0 shall be used.
- For the items that the evaluation radius is specified, the writing zones shall be at least 2 mm band in radius including measuring points. The measurement shall be performed around the center of the band.

3.4.2 Unrecorded disc specifications

- Items described in **Form 3.4SS-1** shall be recorded with 4x-speed using DVD-Download Disc measuring system (Recording PU). And fill in the Form with the recording condition values.
- Items described in **Form 3.4SS-2** shall be recorded with 4x-speed and measured with 1x-speed scanning using DVD-Download Disc measuring system (Recording PU).

3.4.3 Recorded disc specifications

- The measurement shall be done with 1x-speed scanning velocity for 4x-speed Recorded disc on which random or equivalent signals are recorded in user area using DVD-Download Disc measuring system (Recording PU).
- Items described in **Form 3.4SS-3 and 3.4SS-4** shall be measured by DVD-Download Disc measuring system (Playback PU).

3.5 Test Specifications for 6x-speed recording of SL Disc

3.5.1 Recording condition for testing

- Random or equivalent signals shall be written in the user area of the disc.
- For 6x-speed recording, the Write Strategy code recorded on the disc to be tested shall be used. OPC should be applied.
- Servo transfer function specified in 2.1.3.7 or 2.2.3.6 of Optional Specifications DVD Download Disc for CSS Managed Recording (DVD-Download) Revision 1.0 or DVD Specifications for Download Disc (DVD-Download) Part 1: Physical Specifications Version 1.0 shall be used.
- For the items that the evaluation radius is specified, the writing zones shall be at least 2 mm band in radius including measuring points. The measurement shall be performed around the center of the band.

3.5.2 Unrecorded disc specifications

- Items described in **Form 3.5SS-1** shall be recorded with 6x-speed using DVD-Download Disc measuring system (Recording PU). And fill in the Form with the recording condition values.
- Items described in **Form 3.5SS-2** shall be recorded with 6x-speed and measured with 1x-speed scanning using DVD-Download Disc measuring system (Recording PU).

3.5.3 Recorded disc specifications

- The measurement shall be done with 1x-speed scanning velocity for 6x-speed Recorded disc on which random or equivalent signals are recorded in user area using DVD-Download Disc measuring system (Recording PU).
- Items described in **Form 3.5SS-3 and 3.5SS-4** shall be measured by DVD-Download Disc measuring system (Playback PU).

3.6 Test Specifications for 8x-speed recording of SL Disc

3.6.1 Recording condition for testing

- Random or equivalent signals shall be written in the user area of the disc.
- For 8x-speed recording, the Write Strategy code recorded on the disc to be tested shall be used. OPC should be applied.
- Servo transfer function specified in 2.1.3.7 or 2.2.3.6 of Optional Specifications DVD Download Disc for CSS Managed Recording (DVD-Download) Revision 1.0 or DVD Specifications for Download Disc (DVD-Download) Part 1: Physical Specifications Version 1.0 shall be used.
- For the items that the evaluation radius is specified, the writing zones shall be at least 2 mm band in radius including measuring points. The measurement shall be performed around the center of the band.

3.6.2 Unrecorded disc specifications

- Items described in **Form 3.6SS-1** shall be recorded with 8x-speed using DVD-Download Disc measuring system (Recording PU). And fill in the Form with the recording condition values.
- Items described in **Form 3.6SS-2** shall be recorded with 8x-speed and measured with 1x-speed scanning using DVD-Download Disc measuring system (Recording PU).

3.6.3 Recorded disc specifications

- The measurement shall be done with 1x-speed scanning velocity for 8x-speed Recorded disc on which random or equivalent signals are recorded in user area using DVD-Download Disc measuring system (Recording PU).
- Items described in **Form 3.6SS-3 and 3.6SS-4** shall be measured by DVD-Download Disc measuring system (Playback PU).

4. Test Tools and Test Specifications for DL Disc

This chapter covers the test specifications and tool requirements for the physical and logical compliance testing for DL Disc.

4.1 General Requirements

4.1.1 Test Tools

The following tools are required to perform the tests specified and shall be available before executing the test procedures.

DL Disc evaluation system consists of mainly 4 parts; Mechanical test system, Optical test system, DVD-Download Disc measuring system (Recording PU) and DVD-Download Disc measuring system (Playback PU).

These test tools are to be equipped by each Lab and applicant individually for executing the tests specified in this document.

4.1.1.1 DVD-Download Disc measuring system (Recording PU)

- The discs tested shall be recorded by DVD-Download Disc measuring system (Recording PU). Its recording beam condition is defined in 2.2.3.2 of DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.
- **For 2x & 4x & 6x & 8x speed recording**, the Write Strategy specified in Annex P.1.5 and 2.2.3.9 of DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0 shall be used.

4.1.1.2 DVD-Download Disc measuring system (Playback PU)

- The discs tested shall be played back by DVD-Download Disc measuring system (Playback PU). Its reading beam condition is defined in 2.1.3.2 of DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0 and its scanning velocity shall be 3.84 m/s (1x-speed).

4.1.2 Test requirements

This section describes the test requirements for DVD-Download Disc products described in **1.3 Scope of Products Covered, Dual Layer (DL) Disc**.

The DL Disc has to be in compliance with the physical DVD requirements as indicated in **1.2 Normative References**.

This shall be confirmed by parameters as mentioned in **Form 4.2SS-1 to Form 4.6SS-4**. Final judgment shall be made by **Form 5SS**.

- Test shall be carried out according to the nomination of "Maximum recording speed", "Minimum recording speed" and "Pre-recorded data" applied in **Form 2SS** (1/3).

Test procedure of each recording speed is described in the following sections from **4.2 to 4.6**.

Table 4.1.2-1 shows the relation between "Product type" and "Section number" to be executed. When "✓" is marked in the column of a section, the test in the section shall be carried out.

Table 4.1.2-1 : "Product type" and "Section number/ Recording speed" to be executed.

Product type		Section numbers/Recording speed						Samples to be submitted
		4.2		4.3	4.4	4.5	4.6	
		Before		2x	4x	6x	8x	
		4.2.1, 4.2.2, 4.2.6	4.2.3, 4.2.4, 4.2.5					
C	8x/6x-speed DL Disc without pre-recorded Control data zone	✓	–	–	–	✓	✓	20
D	8x/2x-speed DL Disc with pre-recorded Control data zone	✓	✓	✓	✓	✓	✓	20

- An applicant is requested to submit the test samples with the test results, which may be obtained by self-verification or verification conducted by Class-B Lab.

4.2 Test Specifications for Before recording of DL Disc

The tests described in this section are for DL Disc. Refer to **Table 4.1.2-1**.

4.2.1 Unrecorded disc specifications

- **Mechanical Parameters** described in **Form 4.2SS-1** shall be measured using Mechanical test system.
- **Optical parameters** before recording described in **Form 4.2SS-2** shall be measured using each Optical test system.
- Items described in **Form 4.2SS-3** shall be measured using DVD-Download Disc measuring system (Recording PU) with 2x or 6x-speed scanning for Recording parameters and with 1x-speed scanning for Operational signals.
- Items described in **Form 4.2SS-4** shall be measured using DVD-Download Disc measuring system (Recording PU) with nominated maximum recording-speed scanning.
- Items described in **Form 4.2SS-5** shall be measured using test tools that are adequate to perform this test.

4.2.2 Contents of Pre-pit data block configuration

- Items described in the **Form 4.2SS-6** shall be measured using DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system.

4.2.3 Control data zone specifications (Pre-recorded data)

- Items described in the **Form 4.2SS-7** shall be measured using DVD-Download Disc measuring system (Playback PU).

4.2.4 Contents of Pre-recorded Physical format information

- Items described in the **Form 4.2SS-8** shall be measured using DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system.

4.2.5 Contents of Extended pre-recorded information

- Items described in the **Form 4.2SS-9** shall be measured using DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system.

4.2.6 Extension of tracks

- Items described in the **Form 4.2SS-10** shall be measured using test tools that are adequate to perform this test.

4.3 Test Specifications for 2x-speed recording of DL Disc

4.3.1 Recording condition for testing

- Random or equivalent signals shall be written in the user area of the disc.
- For 2x-speed recording, the Write Strategy code recorded on the disc to be tested shall be used. OPC should be applied.
- Servo transfer function specified in Annex P of DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0 shall be used.
- For the items that the evaluation radius is specified, the writing zones shall be at least 2 mm band in radius including measuring points. The measurement shall be performed around the center of the band.
- The recording order shall be kept for recording of Layer 1 (refer to Annex AA of DVD Specifications for Download Disc for Dual Layer (DVD- Download for DL) Part 1: Physical Specifications Version 2.0).

4.3.2 Unrecorded disc specifications

- Items described in **Form 4.3SS-1** shall be recorded with 2x-speed using DVD-Download Disc measuring system (Recording PU). And fill in the Form with the recording condition values.
- Items described in **Form 4.3SS-2** shall be recorded with 2x-speed and measured with 1x-speed scanning using DVD-Download Disc measuring system (Recording PU).

4.3.3 Recorded disc specifications

- The measurement shall be done with 1x-speed scanning velocity for 2x-speed Recorded disc on which random or equivalent signals are recorded in user area using DVD-Download Disc measuring system (Recording PU).
- Items described in **Form 4.3SS-3 and 4.3SS-4** shall be measured by DVD-Download Disc measuring system (Playback PU).

4.4 Test Specifications for 4x-speed recording of DL Disc

4.4.1 Recording condition for testing

- Random or equivalent signals shall be written in the user area of the disc.
- For 4x-speed recording, the Write Strategy code recorded on the disc to be tested shall be used. OPC should be applied.
- Servo transfer function specified in Annex P of DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0 shall be used.
- For the items that the evaluation radius is specified, the writing zones shall be at least 2 mm band in radius including measuring points. The measurement shall be performed around the center of the band.
- The recording order shall be kept for recording of Layer 1 (refer to Annex AA of DVD Specifications for Download Disc for Dual Layer (DVD- Download for DL) Part 1: Physical Specifications Version 2.0).

4.4.2 Unrecorded disc specifications

- Items described in **Form 4.4SS-1** shall be recorded with 4x-speed using DVD-Download Disc measuring system (Recording PU). And fill in the Form with the recording condition values.
- Items described in **Form 4.4SS-2** shall be recorded with 4x-speed and measured with 1x-speed scanning using DVD-Download Disc measuring system (Recording PU).

4.4.3 Recorded disc specifications

- The measurement shall be done with 1x-speed scanning velocity for 4x-speed Recorded disc on which random or equivalent signals are recorded in user area using DVD-Download Disc measuring system (Recording PU).
- Items described in **Form 4.4SS-3 and 4.4SS-4** shall be measured by DVD-Download Disc measuring system (Playback PU).

4.5 Test Specifications for 6x-speed recording of DL Disc

4.5.1 Recording condition for testing

- Random or equivalent signals shall be written in the user area of the disc.
- For 6x-speed recording, the Write Strategy code recorded on the disc to be tested shall be used. OPC should be applied.
- Servo transfer function specified in 2.1.3.7 or 2.2.3.6 of DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0 shall be used.
- For the items that the evaluation radius is specified, the writing zones shall be at least 2 mm band in radius including measuring points. The measurement shall be performed around the center of the band.
- The recording order shall be kept for recording of Layer 1 (refer to Annex AA of DVD Specifications for Download Disc for Dual Layer (DVD- Download for DL) Part 1: Physical Specifications Version 2.0).

4.5.2 Unrecorded disc specifications

- Items described in **Form 4.5SS-1** shall be recorded with 6x-speed using DVD-Download Disc measuring system (Recording PU). And fill in the Form with the recording condition values.
- Items described in **Form 4.5SS-2** shall be recorded with 6x-speed and measured with 1x-speed scanning using DVD-Download Disc measuring system (Recording PU).

4.5.3 Recorded disc specifications

- The measurement shall be done with 1x-speed scanning velocity for 6x-speed Recorded disc on which random or equivalent signals are recorded in user area using DVD-Download Disc R measuring system (Recording PU).
- Items described in **Form 4.5SS-3 and 4.5SS-4** shall be measured by DVD-Download Disc measuring system (Playback PU).

4.6 Test Specifications for 8x-speed recording of DL Disc

4.6.1 Recording condition for testing

- Random or equivalent signals shall be written in the user area of the disc.
- For 8x-speed recording, the Write Strategy code recorded on the disc to be tested shall be used. OPC should be applied.
- Servo transfer function specified in 2.1.3.7 or 2.2.3.6 of DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0 shall be used.
- For the items that the evaluation radius is specified, the writing zones shall be at least 2 mm band in radius including measuring points. The measurement shall be performed around the center of the band.
- The recording order shall be kept for recording of Layer 1 (refer to Annex AA of DVD Specifications for Download Disc for Dual Layer (DVD- Download for DL) Part 1: Physical Specifications Version 2.0).

4.6.2 Unrecorded disc specifications

- Items described in **Form 4.6SS-1** shall be recorded with 8x-speed using DVD-Download Disc measuring system (Recording PU). And fill in the Form with the recording condition values.
- Items described in **Form 4.6SS-2** shall be recorded with 8x-speed and measured with 1x-speed scanning using DVD-Download Disc measuring system (Recording PU).

4.6.3 Recorded disc specifications

- The measurement shall be done with 1x-speed scanning velocity for 8x-speed Recorded disc on which random or equivalent signals are recorded in user area using DVD-Download Disc measuring system (Recording PU).
- Items described in **Form 4.6SS-3 and 4.6SS-4** shall be measured by DVD-Download Disc measuring system (Playback PU).

Annex A

List of Class-A Verification Labs

This List is correct at the time of publication. However, when the Class-A Lab information contained here differs from such information cited in our website www.dvdfllc.co.jp, the List with more current date prevails. Also, please refer to the website for the latest Verification Service of each Class-A Lab.

(SL Disc without pre-recorded Lead-in based on Book Rev.1.0 and
SL Disc with pre-recorded Lead-in based on Book Rev.1.0 and
SL Disc without pre-recorded Control data zone based on Book Ver.1.0 and
SL Disc with pre-recorded Control data zone based on Book Ver.1.0 and
DL Disc without pre-recorded Control data zone and
DL Disc with pre-recorded Control data zone)

JVC KENWOOD Corporation

DVD Verification Lab.

12, 3 Chome, Moriya-cho, Kanagawa-ku, Yokohama, Kanagawa, 221-8528 Japan

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Annex B

Glossary of Terms used

(May be defined)

Annex C

Procedure for Class-A Verification Lab Product Submission

The procedure for submitting a product to a Class-A Verification Lab is as follows:

Preliminary Application

Applicant must complete **Form 1SS** to provide preliminary information.

Self Test

Applicant must test the product in accordance with this Test Specification prior to submitting samples to a Class-A Verification Lab. The applicant must complete the **necessary Forms** according to the list of **Form 2SS** (2/3, 3/3) to provide test results.

Mutual Non-Disclosure Agreement (NDA)

Applicant, in order to maintain the confidentiality of the applicant's product and Verification Lab's information, must sign a Mutual Non-Disclosure Agreement.

Application

Applicant must submit following product samples along with said necessary Forms and the NDA.
In case of DVD-Download Disc and DVD-Download Disc for DL, 20 pieces shall be submitted.

Test Results

Upon completion of testing, Verification Lab will complete **Form 6SS** to inform the applicant and DVD Format/Logo Licensing Corporation of the test results.