



January 2009

# **Forms for DVD Format Verification of DVD-Download Disc (for SL & DL, Blank Disc)**

## **Form 1SS to 6SS Version 1.2**

*Notice:*

- *These Forms will be revised on occasion for improvement or Version-up of the related Test Specification.*
- *The latest Forms shall be used to fill up the necessary information for application to Verification Lab, according to the related Test Specification.*
- *You can fill up the shaded space in every Form.*
- *"Adobe® Acrobat®" will be necessary for making your own files.*

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*Exemption: None will be liable for any damages from use of this document.*

## Preliminary Information for DVD Format Verification

Application No. (Lab use)	:	
Application date (mm. dd, yyyy)	:	
Lab receipt date (mm. dd, yyyy)	:	
Lab name	:	

**DVD-Download Disc described below is for DVD Format Verification of the First Production Model.**

- ☐ 8x/6x-speed DVD-Download Disc without pre-recorded Lead-in
- ☐ 8x/2x-speed DVD-Download Disc with pre-recorded Lead-in
- ☐ 8x/6x-speed DVD-Download Disc without pre-recorded Control data zone
- ☐ 8x/2x-speed DVD-Download Disc with pre-recorded Control data zone
- ☐ 8x/6x-speed DVD-Download Disc for DL without pre-recorded Control data zone
- ☐ 8x/2x-speed DVD-Download Disc for DL with pre-recorded Control data zone

Product name	Disc number	Notes
Remarks:		

**DVD-Download Disc described above will be applied for DVD Format Verification by the following applicant.**

Name of applicant	
Title of applicant	
Company & Factory name	
Factory address	
Phone number	
Fax number	
E-mail	

Applicant's Signature:

## Test Information of DVD Format Verification

### DVD Format Verification Lab record (Verification Lab use only)

- Name of Verification Lab :
- Name of inspector :
- Application date :
- Date of test completed :
- Verification number :

### Information of applicant

- Applicant's name :
- Company name :
- Company address :
- Phone number :
- Fax number :

### DVD-Download Disc details

- Brand/Trade name :
- Product name :
- Disc number :
- Single or Dual Layer : ☐ Single Layer (DVD-Download) Revision 1.0  
☐ Single Layer (DVD-Download) Version 1.0  
☐ Dual Layer (DVD-Download for DL)
- Maximum recording speed : ☐ 8x
- Minimum recording speed : ☐ 2x    ☐ 6x
- Pre-recorded data : ☐ Yes    ☐ None
- Disc type : ☐ Single Sided    ☐ Double Sided    ☐ Others
- Capacity : ☐ 4.7 Gbytes/side  
☐ 8.54 Gbytes/side
- Label : ☐ Yes    ☐ None
- Other DVD-Download Discs that the applicant already had the approval of verification.
  - ☐ 8x/6x-speed DVD-Download Disc without pre-recorded Lead-in
  - ☐ 8x/2x-speed DVD-Download Disc with pre-recorded Lead-in
  - ☐ 8x/6x-speed DVD-Download Disc without pre-recorded Control data zone
  - ☐ 8x/2x-speed DVD-Download Disc with pre-recorded Control data zone
  - ☐ 8x/6x-speed DVD-Download Disc for DL without pre-recorded Control data zone
  - ☐ 8x/2x-speed DVD-Download Disc for DL with pre-recorded Control data zone

## Check list of Forms for Submission

Forms	Title of Forms	Applicant			Lab
		R=25	R=40	R=55	
1SS	Preliminary Information	<input type="checkbox"/>	—	—	<input type="checkbox"/>
2SS	Test Information	<input type="checkbox"/>	—	—	<input type="checkbox"/>
<b>Before recording of SL Disc (Section 3.2)</b>					
3.2SS-1	Unrecorded disc for SL (Mechanical parameters)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
3.2SS-2	Unrecorded disc for SL (Optical parameters)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
3.2SS-3	Unrecorded disc for SL (Recording parameters before Recording)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
3.2SS-4	Unrecorded disc for SL (Max-speed Recording parameters before Recording)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
3.2SS-5	Contents of Pre-pit data block configuration for SL	<input type="checkbox"/>	—	—	<input type="checkbox"/>
3.2SS-6	Control data zone for SL (Pre-recorded data)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
3.2SS-7	Contents of Pre-recorded Physical format information for SL	<input type="checkbox"/>	—	—	<input type="checkbox"/>
3.2SS-8	Contents of Extended pre-recorded information for SL	<input type="checkbox"/>	—	—	<input type="checkbox"/>
<b>2x-speed recording of SL Disc (Section 3.3)</b>					
3.3SS-1	Unrecorded disc for SL (2x-speed Optical/Recording parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3SS-2	Unrecorded disc for SL (2x-speed Operational signals after Recording)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3SS-3	2x-speed Recorded disc for SL (Optical parameters/Operational signals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3SS-4	2x-speed Recorded disc for SL (Recorded parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>4x-speed recording of SL Disc (Section 3.4)</b>					
3.4SS-1	Unrecorded disc for SL (4x-speed Optical/Recording parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4SS-2	Unrecorded disc for SL (4x-speed Operational signals after Recording)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4SS-3	4x-speed Recorded disc for SL (Optical parameters/Operational signals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4SS-4	4x-speed Recorded disc for SL (Recorded parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>6x-speed recording of SL Disc (Section 3.5)</b>					
3.5SS-1	Unrecorded disc for SL (6x-speed Optical/Recording parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.5SS-2	Unrecorded disc for SL (6x-speed Operational signals after Recording)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.5SS-3	6x-speed Recorded disc for SL (Optical parameters/Operational signals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.5SS-4	6x-speed Recorded disc for SL (Recorded parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>8x-speed recording of SL Disc (Section 3.6)</b>					
3.6SS-1	Unrecorded disc for SL (8x-speed Optical/Recording parameters)	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.6SS-2	Unrecorded disc for SL (8x-speed Operational signals after Recording)	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.6SS-3	8x-speed Recorded disc for SL (Optical parameters/Operational signals)	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.6SS-4	8x-speed Recorded disc for SL (Recorded parameters)	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Forms	Title of Forms	Applicant			Lab
		R=25	R=40	R=55	
<b>Before recording of DL Disc (Section 4.2)</b>					
4.2SS-1	Unrecorded disc for DL (Mechanical parameters)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
4.2SS-2	Unrecorded disc for DL (Optical parameters)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
4.2SS-3	Unrecorded disc for DL (Recording parameters before Recording)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
4.2SS-4	Unrecorded disc for DL (Max-speed Recording parameters before Recording)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
4.2SS-5	Unrecorded disc for DL (Relative deviation of tracks between L0 and L1)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
4.2SS-6	Contents of Pre-pit data block configuration for DL	<input type="checkbox"/>	—	—	<input type="checkbox"/>
4.2SS-7	Control data zone for DL (Pre-recorded data)	<input type="checkbox"/>	—	—	<input type="checkbox"/>
4.2SS-8	Contents of Pre-recorded Physical format information for DL	<input type="checkbox"/>	—	—	<input type="checkbox"/>
4.2SS-9	Contents of Extended pre-recorded information for DL	<input type="checkbox"/>	—	—	<input type="checkbox"/>
4.2SS-10	Extension of tracks for DL	<input type="checkbox"/>	—	—	<input type="checkbox"/>
<b>2x-speed recording of DL Disc (Section 4.3)</b>					
4.3SS-1	Unrecorded disc for DL (2x-speed Optical/Recording parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3SS-2	Unrecorded disc for DL (2x-speed Operational signals after Recording)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3SS-3	2x-speed Recorded disc for DL (Optical parameters/Operational signals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3SS-4	2x-speed Recorded disc for DL (Recorded parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>4x-speed recording of DL Disc (Section 4.4)</b>					
4.4SS-1	Unrecorded disc for DL (4x-speed Optical/Recording parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.4SS-2	Unrecorded disc for DL (4x-speed Operational signals after Recording)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.4SS-3	4x-speed Recorded disc for DL (Optical parameters/Operational signals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.4SS-4	4x-speed Recorded disc for DL (Recorded parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>6x-speed recording of DL Disc (Section 4.5)</b>					
4.5SS-1	Unrecorded disc for DL (6x-speed Optical/Recording parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5SS-2	Unrecorded disc for DL (6x-speed Operational signals after Recording)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5SS-3	6x-speed Recorded disc for DL (Optical parameters/Operational signals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5SS-4	6x-speed Recorded disc for DL (Recorded parameters)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>8x-speed recording of DL Disc (Section 4.6)</b>					
4.6SS-1	Unrecorded disc for DL (8x-speed Optical/Recording parameters)	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6SS-2	Unrecorded disc for DL (8x-speed Operational signals after Recording)	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6SS-3	8x-speed Recorded disc for DL (Optical parameters/Operational signals)	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6SS-4	8x-speed Recorded disc for DL (Recorded parameters)	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5SS	List of the Test results	<input type="checkbox"/>	—	—	<input type="checkbox"/>

# Test results of Unrecorded disc for SL (Mechanical parameters)

(Test Tool: Mechanical test system)

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.4 Mechanical parameters						
O	*2.2.4.2 Outer diameter (D1)	12cm disc	120.00 ± 0.30 mm			
O	2.2.4.5 Center hole diameter (Both sides put together)		15.00 mm min.			
	*2.2.4.6 Edge shape					
O	2.2.4.7 Thickness of a disc (L1) (12cm disc)	R = 25 mm	1.20 <sup>+0.30</sup> <sub>-0.06</sub> mm			
		R = 40 mm				
		R = 55 mm				
O	2.2.4.11 Thickness of a disc in Clamping area (L2)		1.20 <sup>+0.20</sup> <sub>-0.10</sub> mm			
	*2.2.4.12 Mass of a disc	12cm disc	13 g to 20 g			
	*2.2.4.13 Moment of inertia	12cm disc	0.040 g•m <sup>2</sup> max.			
O	2.2.4.14 Dynamic imbalance	12cm disc	0.0025 g•m max.			

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

\*: Applicant submits the data and Class-A Lab checks the data. A Class-A Lab will not measure these parameters in general.

## Test results of Unrecorded disc for SL (Optical parameters)

(Test Tool: Optical test system)

Class-B Lab.*1	Items*2	Specification	Measurement		Judgment (Lab use)	
			Applicant	Lab		
2.2.5 Optical parameters						
O	2.2.5.1 Thickness of a transparent substrate	Max.	0.600 ± 0.030 mm			
		Min.				
	2.2.5.3 Limits for the angular deviation of the reflected beam (alpha angle)					
O	Radial deviation	Max.	± 0.80 degree			
		Min.				
O	Tangential deviation	Max.	± 0.30 degree			
		Min.				
O	2.2.5.4 Birefringence of transparent substrate	Max.	100 nm max.			
		Min.				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of Unrecorded disc for SL (Recording parameters/Operational signals before Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.6 Recording parameters (measured by 2x or 6x-speed scanning)*3						
	2.2.6.5 Limits of the deviation from the recordable layer perpendicular to the Reference plane					
O	Allowed error ( $< 10$ kHz)	R = 25 mm	$\pm 0.23 \mu\text{m}$			
		R = 40 mm				
		R = 55 mm				
2.2.6.6 Limits of the radial deviation from the track						
O	Allowed error ( $< 1.1$ kHz)	R = 25 mm	$\pm 0.022 \mu\text{m}$			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 25 mm	$\pm 0.016 \mu\text{m max.}$			
		R = 40 mm				
		R = 55 mm				
2.2.7 Operational signals (measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPb signal amplitude	R = 25 mm	$0.20 < \text{PPb} < 0.40$			
		R = 40 mm				
		R = 55 mm				
O	Variation in PPb signal		$\Delta\text{PPb} < 15 \%$			
2.2.7.3 Addressing signals						
	Land Pre-Pit signal					
O	Signal amplitude before recording	R = 25 mm	$0.16 < \text{LPPb} < 0.25$			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio before recording	R = 25 mm	$\text{BLERb} < 3 \%$			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

\*3: Measured at 6x-speed for disc without pre-recorded area, and 2x-speed for disc with pre-recorded area.



Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
	Groove wobble signal					
O	CNR of WOb (RBW = 1 kHz)	R = 25 mm	> 35 dB			
		R = 40 mm				
		R = 55 mm				
O	Normalized Wobble signal (NWO)	R = 25 mm	0.07 < NWO < 0.14			
		R = 40 mm				
		R = 55 mm				
O	Relation in phase between wobble and Land Pre-Pit	R = 25 mm	− 90 ± 10 deg.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of Unrecorded disc for SL (Max-speed Recording parameters before Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.6 Recording parameters (measured by nominated maximum recording speed scanning)						
	2.2.6.5 Limits of the deviation from the recordable layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm*3	± 0.15 mm			
		R = 40 mm*4				
		R = 55 mm*4				
	2.2.6.6 Limits of the radial deviation from the track					
O	Radial run-out	R = 25 mm*3	40 μm p-p			
		R = 40 mm*4				
		R = 55 mm*4				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

\*3: Measurement shall be carried out at 6x-speed.

\*4: Measurement shall be carried out at 8x-speed.

## Test results of the contents of Pre-pit data block configuration for SL

(Test Tool: DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system)

### 4.2.3.4 Field ID0

Item*1	Applicant		Lab		Judgment
Address (Decrease)	<input type="checkbox"/> OK	<input type="checkbox"/> NG	<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### 4.2.3.5 Field ID1

Item*1	Applicant	Lab		Judgment
Application code*2		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Disc Physical code		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Extension code		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### 4.2.3.6 Field ID2

Item*1	Applicant	Lab		Judgment
LPP Version number*3		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### 4.2.3.7 Field ID3 and ID4

Item*1	Applicant	Lab		Judgment
Manufacturer ID (ASCII)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### 4.2.3.9 Field ID6 to ID9

Item*1	Applicant	Lab		Judgment
6x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
6x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
6x-speed Write Strategy code (Hex)	ID7	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	ID8			
	ID9			

\*1: Refer to 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.

\*2: In the case of the disc based on Book Revision 1.0, Application code is different from the disc based on Book Version 1.0.

\*3: In the case of the disc based on Book Revision 1.0, the name of this item is "LPP Revision number".

## 4.2.3.9 Field ID10 to ID13

Item*1		Applicant	Lab		Judgment
8x-speed OPC suggested code ( value) (Hex)			<input type="checkbox"/> OK	<input type="checkbox"/> NG	
8x-speed OPC suggested code (Recording power)			<input type="checkbox"/> OK	<input type="checkbox"/> NG	
8x-speed Write Strategy code (Hex)	ID11		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	ID12				
	ID13				

\*1: Refer to 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.

## The results of Control data zone for SL (Pre-recorded data)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2	Specification	Measurement		Judgment (Lab use)
			Applicant	Lab	
2.1.5 Optical parameters					
O	2.1.5.5 Reflectivity PUH with PBS	45 to 85 %		*3	
2.1.7 Operational signals					
	2.1.7.1 High Frequency (HF) signal				
O	a. Jitter	< 8.0 %		*3	
	b. Modulation amplitude				
O	I14/I14H	0.60 min.		*3	
O	I3/I14	0.15 min.		*3	
O	c. Signal asymmetry	− 0.05 to 0.15		*3	

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

\*3: Licensee submits these data and Class-A Lab checks the data. Class-A Lab will not measure these parameters in general.

**Test results of the contents of Pre-recorded Physical format information for SL**

(Test Tool: DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system)

**K.2 Pre-recorded Physical format information**

Item*1	Applicant	Lab		Judgment
Book type and Compatible Part version		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Disc size and Maximum transfer rate of the disc		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Disc structure		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Recorded density		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
NBCA descriptor		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Disc identifier		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

**3.2.4.1 CPR\_MAI of each reserved sector in the Control data block**

Item*1	Applicant	Lab		Judgment
CPS_TY		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

\*1: Refer to 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.

## Test results of the contents of Extended pre-recorded information for SL

(Test Tool: DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system)

### K 2.1.3 PFI Field ID1

Item*1	Applicant	Lab		Judgment
Application code*2		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Disc Physical code		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Extension code		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### K 2.1.3 PFI Field ID2

Item*1	Applicant	Lab		Judgment
LPP Version number*3		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### K 2.1.3 PFI Field ID3 and ID4

Item*1	Applicant	Lab		Judgment
Manufacturer ID (ASCII)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### K 2.1.4 PFI Field ID6 to ID9

Item*1	Applicant	Lab		Judgment
2-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
2-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
2x-speed Write Strategy code (Hex)	ID6	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	ID7			
	ID8			

### K 2.1.4 PFI Field ID10 to ID13

Item*1	Applicant	Lab		Judgment
4x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
4x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
4x-speed Write Strategy code (Hex)	ID10	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	ID11			
	ID12			

\*1: Refer to 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.

\*2: In the case of the disc based on Book Revision 1.0, Application code is different from the disc based on Book Version 1.0.

\*3: In the case of the disc based on Book Revision 1.0, the name of this item is "LPP Revision number".

**K 2.1.4 PFI Field ID14 to ID17**

Item*1		Applicant	Lab		Judgment
6-speed OPC suggested code ( value) (Hex)			<input type="checkbox"/> OK	<input type="checkbox"/> NG	
6-speed OPC suggested code (Recording power)			<input type="checkbox"/> OK	<input type="checkbox"/> NG	
6x-speed Write Strategy code (Hex)	ID14		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	ID15				
	ID16				

**K 2.1.4 PFI Field ID18 to ID21**

Item*1		Applicant	Lab		Judgment
8x-speed OPC suggested code ( value) (Hex)			<input type="checkbox"/> OK	<input type="checkbox"/> NG	
8x-speed OPC suggested code (Recording power)			<input type="checkbox"/> OK	<input type="checkbox"/> NG	
8x-speed Write Strategy code (Hex)	ID18		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	ID19				
	ID20				

\*1: Refer to 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.



## Test results of Unrecorded disc for SL (2x-speed Optical/Recording parameters)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.5 Optical parameters (by 2x-speed recording conditions)						
	2.2.5.6 Recording sensitivity fluctuation over the surface		Po ± 0.05Po	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
2.2.6 Recording parameters (by 2x-speed recording conditions)						
	2.2.6.7 Recording conditions					
O	Optimum recording power range*3	R = 25 mm	6.0 ≤ Po ≤ 20.0 mW			
		R = 40 mm				
		R = 55 mm				
O		Bias Power (Pb)	R = 40 mm	Pb ≤ 0.7 mW		

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

\*3: Refer to K.1.6 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.

## Test results of Unrecorded disc for SL (2x-speed Operational signals after Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.7 Operational signals (recorded by 2x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 25 mm	PPa < 0.40			
		R = 40 mm				
		R = 55 mm				
O	Push-Pull ratio	R = 25 mm	0.5 < PPr < 1.0			
		R = 40 mm				
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 25 mm	AR > 10 %			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio after recording	R = 25 mm	BLERa < 5 %			
		R = 40 mm				
		R = 55 mm				
	Groove wobble signal					
O	CNR of WOba (RBW = 1 kHz)	R = 25 mm	> 31 dB			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of 2x-speed Recorded disc for SL (Optical parameters/Operational signals)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.1.5 Optical Parameters						
	2.1.5.5 Reflectivity					
O	PUH with PBS	R = 25 mm	45 to 85 %			
		R = 40 mm				
		R = 55 mm				
	PUH without PBS*3	R = 25 mm	60 to 85 %			
		R = 40 mm				
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 25 mm	< 8.0 %			
		R = 40 mm				
		R = 55 mm				
	Modulation amplitude					
O	I14/I14H	R = 25 mm	0.60 min.			
		R = 40 mm				
		R = 55 mm				
O	I3/I14	R = 25 mm	0.15 min.			
		R = 40 mm				
		R = 55 mm				
	(I14H max. – I14H min.)/I14H max.					
O	Within one revolution (PUH with PBS)	R = 25 mm	0.15 max.			
		R = 40 mm				
		R = 55 mm				
O	Within one read-out side of a disc (PUH with PBS)		0.33 max.			
	Within one revolution (PUH without PBS)*3	R = 25 mm	0.10 max.			
		R = 40 mm				
		R = 55 mm				
	Within one read-out side of a disc (PUH without PBS)*3		0.20 max.			
O	Signal asymmetry	R = 25 mm	– 0.05 to 0.15			
		R = 40 mm				
		R = 55 mm				

\*1, \*2, \*3: See the next page.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
O	Track crossing signal	R = 25 mm	0.10 min.			
		R = 40 mm				
		R = 55 mm				
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 25 mm	0.5 to 1.1			
		R = 40 mm				
		R = 55 mm				
O	Asymmetry	R = 25 mm	0.2 max.			
		R = 40 mm				
		R = 55 mm				
O	Tangential push-pull signal	R = 25 mm	0.9 max.			
		R = 40 mm				
		R = 55 mm				
	2.1.7.3 Defects					
O	PI errors in any consecutive 8 ECC blocks	R = 25 mm	$\leq 280$			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

\*3: Class-A Lab will check these values when required.

## Test results of 2x-speed Recorded disc for SL (Recorded parameters)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.1.6 Recorded parameters						
	2.1.6.11 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm	± 0.15 mm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 25 mm	± 0.23 $\mu\text{m}$			
		R = 40 mm				
		R = 55 mm				
	2.1.6.12 Limits of the radial deviation from the track					
O	Radial run-out	R = 25 mm	40 $\mu\text{m}$ p-p			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 25 mm	± 0.022 $\mu\text{m}$			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 25 mm	± 0.016 $\mu\text{m}$ max.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of Unrecorded disc for SL (4x-speed Optical/Recording parameters)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.5 Optical parameters (by 4x-speed recording conditions)						
	2.2.5.6 Recording sensitivity fluctuation over the surface		Po ± 0.05Po	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
2.2.6 Recording parameters (by 4x-speed recording conditions)						
	2.2.6.7 Recording conditions					
O	Optimum recording power range*3	R = 25 mm	6.0 ≤ Po ≤ 20.0 mW			
		R = 40 mm				
		R = 55 mm				
O		Bias Power (Pb)	R = 40 mm	Pb ≤ 0.7 mW		

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

\*3: Refer to K.1.6 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.

## Test results of Unrecorded disc for SL (4x-speed Operational signals after Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.7 Operational signals (recorded by 4x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 25 mm	PPa < 0.40			
		R = 40 mm				
		R = 55 mm				
O	Push-Pull ratio	R = 25 mm	0.5 < PPr < 1.0			
		R = 40 mm				
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 25 mm	AR > 10 %			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio after recording	R = 25 mm	BLERa < 5 %			
		R = 40 mm				
		R = 55 mm				
	Groove wobble signal					
O	CNR of WOa (RBW = 1 kHz)	R = 25 mm	> 31 dB			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of 4x-speed Recorded disc for SL (Optical parameters/Operational signals)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.1.5 Optical Parameters						
	2.1.5.5 Reflectivity					
O	PUH with PBS	R = 25 mm	45 to 85 %			
		R = 40 mm				
		R = 55 mm				
	PUH without PBS*3	R = 25 mm	60 to 85 %			
		R = 40 mm				
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 25 mm	< 8.0 %			
		R = 40 mm				
		R = 55 mm				
	Modulation amplitude					
O	I14/I14H	R = 25 mm	0.60 min.			
		R = 40 mm				
		R = 55 mm				
O	I3/I14	R = 25 mm	0.15 min.			
		R = 40 mm				
		R = 55 mm				
	(I14H max. – I14H min.)/I14H max.					
O	Within one revolution (PUH with PBS)	R = 25 mm	0.15 max.			
		R = 40 mm				
		R = 55 mm				
O	Within one read-out side of a disc (PUH with PBS)		0.33 max.			
	Within one revolution (PUH without PBS)*3	R = 25 mm	0.10 max.			
		R = 40 mm				
		R = 55 mm				
	Within one read-out side of a disc (PUH without PBS)*3		0.20 max.			
O	Signal asymmetry	R = 25 mm	–0.05 to 0.15			
		R = 40 mm				
		R = 55 mm				

\*1, \*2, \*3: See the next page.



Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
O	Track crossing signal	R = 25 mm	0.10 min.			
		R = 40 mm				
		R = 55 mm				
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 25 mm	0.5 to 1.1			
		R = 40 mm				
		R = 55 mm				
O	Asymmetry	R = 25 mm	0.2 max.			
		R = 40 mm				
		R = 55 mm				
O	Tangential push-pull signal	R = 25 mm	0.9 max.			
		R = 40 mm				
		R = 55 mm				
	2.1.7.3 Defects					
O	PI errors in any consecutive 8 ECC blocks	R = 25 mm	$\leq 280$			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

\*3: Class-A Lab will check these values when required.

## Test results of 4x-speed Recorded disc for SL (Recorded parameters)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.1.6 Recorded parameters						
	2.1.6.11 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm	± 0.15 mm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 25 mm	± 0.23 μm			
		R = 40 mm				
		R = 55 mm				
	2.1.6.12 Limits of the radial deviation from the track					
O	Radial run-out	R = 25 mm	40 μm p-p			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 25 mm	± 0.022 μm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 25 mm	± 0.016 μm max.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of Unrecorded disc for SL (6x-speed Optical/Recording parameters)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.5 Optical parameters (by 6x-speed recording conditions)						
	2.2.5.6 Recording sensitivity fluctuation over the surface		Po ± 0.05Po	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
2.2.6 Recording parameters (by 6x-speed recording conditions)						
	2.2.6.7 Recording conditions					
O	Optimum recording power range	R = 25 mm	15.0 ≤ Po ≤ 32.0 mW			
		R = 40 mm				
		R = 55 mm				
O		Bias Power (Pb)	R = 40 mm	Pb ≤ 0.7 mW		

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of Unrecorded disc for SL (6x-speed Operational signals after Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.7 Operational signals (recorded by 6x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 25 mm	PPa < 0.40			
		R = 40 mm				
		R = 55 mm				
O	Push-Pull ratio	R = 25 mm	0.5 < PPr < 1.0			
		R = 40 mm				
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 25 mm	AR > 10 %			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio after recording	R = 25 mm	BLERa < 5 %			
		R = 40 mm				
		R = 55 mm				
	Groove wobble signal					
O	CNR of W0a (RBW = 1 kHz)	R = 25 mm	> 31 dB			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of 6x-speed Recorded disc for SL (Optical parameters/Operational signals)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.1.5 Optical Parameters						
	2.1.5.5 Reflectivity					
O	PUH with PBS	R = 25 mm	45 to 85 %			
		R = 40 mm				
		R = 55 mm				
	PUH without PBS*3	R = 25 mm	60 to 85 %			
		R = 40 mm				
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 25 mm	< 8.0 %			
		R = 40 mm				
		R = 55 mm				
	Modulation amplitude					
O	I14/I14H	R = 25 mm	0.60 min.			
		R = 40 mm				
		R = 55 mm				
O	I3/I14	R = 25 mm	0.15 min.			
		R = 40 mm				
		R = 55 mm				
	(I14H max. – I14H min.)/I14H max.					
O	Within one revolution (PUH with PBS)	R = 25 mm	0.15 max.			
		R = 40 mm				
		R = 55 mm				
O	Within one read-out side of a disc (PUH with PBS)		0.33 max.			
	Within one revolution (PUH without PBS)*3	R = 25 mm	0.10 max.			
		R = 40 mm				
		R = 55 mm				
	Within one read-out side of a disc (PUH without PBS)*3		0.20 max.			
O	Signal asymmetry	R = 25 mm	– 0.05 to 0.15			
		R = 40 mm				
		R = 55 mm4				

\*1, \*2, \*3: See the next page.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
O	Track crossing signal	R = 25 mm	0.10 min.			
		R = 40 mm				
		R = 55 mm				
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 25 mm	0.5 to 1.1			
		R = 40 mm				
		R = 55 mm				
O	Asymmetry	R = 25 mm	0.2 max.			
		R = 40 mm				
		R = 55 mm				
O	Tangential push-pull signal	R = 25 mm	0.9 max.			
		R = 40 mm				
		R = 55 mm				
	2.1.7.3 Defects					
O	PI errors in any consecutive 8 ECC blocks	R = 25 mm	$\leq 280$			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

\*3: Class-A Lab will check these values when required.

## Test results of 6x-speed Recorded disc for SL (Recorded parameters)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.1.6 Recorded parameters						
	2.1.6.11 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm	± 0.15 mm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 25 mm	± 0.23 μm			
		R = 40 mm				
		R = 55 mm				
2.1.6.12 Limits of the radial deviation from the track						
O	Radial run-out	R = 25 mm	40 μm p-p			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 25 mm	± 0.022 μm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 25 mm	± 0.016 μm max.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of Unrecorded disc for SL (8x-speed Optical/Recording parameters)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.5 Optical parameters (by 8x-speed recording conditions)						
	2.2.5.6 Recording sensitivity fluctuation over the surface		Po ± 0.05Po	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
2.2.6 Recording parameters (by 8x-speed recording conditions)						
	2.2.6.7 Recording conditions					
O	Optimum recording power range	R = 40 mm	15.0 ≤ Po ≤ 32.0 mW			
		R = 55 mm				
O	Bias Power (Pb)	R = 40 mm	Pb ≤ 0.7 mW			

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.



## Test results of Unrecorded disc for SL (8x-speed Operational signals after Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.7 Operational signals (recorded by 8x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 40 mm	PPa < 0.40			
		R = 55 mm				
O	Push-Pull ratio	R = 40 mm	0.5 < PPr < 1.0			
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 40 mm	AR > 10 %			
		R = 55 mm				
O	Block error ratio after recording	R = 40 mm	BLERa < 5 %			
		R = 55 mm				
	Groove wobble signal					
O	CNR of WOba (RBW = 1 kHz)	R = 40 mm	> 31 dB			
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of 8x-speed Recorded disc for SL (Optical parameters/Operational signals)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.1.5 Optical parameters						
	2.1.5.5 Reflectivity					
O	PUH with PBS	R = 40 mm	45 to 85 %			
		R = 55 mm				
	PUH without PBS*3	R = 40 mm	60 to 85 %			
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 40 mm	< 8.0 %			
		R = 55 mm				
	Modulation amplitude					
O	I <sub>14</sub> /I <sub>14H</sub>	R = 40 mm	0.60 min.			
		R = 55 mm				
O	I <sub>3</sub> /I <sub>14</sub>	R = 40 mm	0.15 min.			
		R = 55 mm				
	(I <sub>14H</sub> max. – I <sub>14H</sub> min.)/I <sub>14H</sub> max.					
O	Within one revolution (PUH with PBS)	R = 40 mm	0.15 max.			
		R = 55 mm				
O	Within one read-out side of a disc (PUH with PBS)		0.33 max.			
	Within one revolution (PUH without PBS)*3	R = 40 mm	0.10 max.			
		R = 55 mm				
	Within one read-out side of a disc (PUH without PBS)*3		0.20 max.			
O	Signal asymmetry	R = 40 mm	–0.05 to 0.15			
		R = 55 mm				
O	Track crossing signal	R = 40 mm	0.10 min.			
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

\*3: Class-A Lab will check these values when required.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
○	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 40 mm	0.5 to 1.1			
		R = 55 mm				
○	Asymmetry	R = 40 mm	0.2 max.			
		R = 55 mm				
○	Tangential push-pull signal	R = 40 mm	0.9 max.			
		R = 55 mm				
	2.1.7.3 Defects					
○	PI errors in any consecutive 8 ECC blocks	R = 40 mm	$\leq 280$			
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

# Test results of 8x-speed Recorded disc for SL (Recorded parameters)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.1.6 Recorded parameters						
	2.1.6.11 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 40 mm	± 0.15 mm			
		R = 55 mm				
O	Allowed error (< 10 kHz)	R = 40 mm	± 0.23 μm			
		R = 55 mm				
	2.1.6.12 Limits of the radial deviation from the track					
O	Radial run-out	R = 40 mm	40 μm p-p			
		R = 55 mm				
O	Allowed error (< 1.1 kHz)	R = 40 mm	± 0.022 μm			
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 40 mm	± 0.016 μm max.			
		R = 55 mm				
	2.1.6.13 Read conditions					
O	Read stability (0.7 mW at 25℃)	R = 40 mm	> 10 <sup>6</sup> times			

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to 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.

## Test results of Unrecorded disc for DL (Mechanical parameters)

(Test Tool: Mechanical test system)

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.4 Mechanical parameters						
O	*2.2.4.2 Outer diameter (D1)	12cm disc	120.00 ± 0.30 mm			
O	2.2.4.5 Center hole diameter (Both sides put together)		15.00 mm min.			
	*2.2.4.6 Edge shape					
O	2.2.4.7 Thickness of a disc (L1) (12cm disc)	R = 25 mm	1.20 <sup>+0.30</sup> <sub>-0.06</sub> mm			
		R = 40 mm				
		R = 55 mm				
O	2.2.4.11 Thickness of a disc in the Clamping area (L2)		1.20 <sup>+0.20</sup> <sub>-0.10</sub> mm			
	*2.2.4.12 Mass of a disc	12cm disc	13 g to 20 g			
	*2.2.4.13 Moment of inertia	12cm disc	0.040 g•m <sup>2</sup> max.			
O	2.2.4.14 Dynamic imbalance	12cm disc	0.0025 g•m max.			

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*: Applicant submits the data and Class-A Lab checks the data. A Class-A Lab will not measure these parameters in general.

## Test results of Unrecorded disc for DL (Optical parameters)

(Test Tool: Optical test system)

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.5 Optical parameters						
○	2.2.5.1 Thickness of a transparent substrate	Max.	Refer to Fig 2.1.5-1 in DVD-Download for DL Book Part 1			
		Min.				
	2.2.5.2 Thickness of space layer	Max.	55 +15 -10 μm			
		Min.				
	2.2.5.5 Limits for the angular deviation of the reflected beam (alpha angle)					
○	Radial deviation	Max.	± 0.80 degree			
		Min.				
○	Tangential deviation	Max.	± 0.30 degree			
		Min.				
○	2.2.5.6 Birefringence of transparent substrate	Max.	100 nm max.			
		Min.				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of Unrecorded disc for DL (Recording parameters/Operational signals before Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.2.6 Recording parameters (measured by 2x or 6x-speed scanning)*6						
	2.2.6.6 Limits of the deviation from the recordable layer perpendicular to the Reference plane					
O	Allowed error ( $< 10$ kHz)	R = 25 mm	$\pm 0.23 \mu\text{m}$			
		R = 40 mm				
		R = 55 mm				
	2.2.6.7 Limits of the radial deviation from the track					
O	Allowed error ( $< 2.2$ kHz)	R = 25 mm	$\pm 0.022 \mu\text{m}$			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (2.2-10 kHz)	R = 25 mm	$\pm 0.016 \mu\text{m max.}$			
		R = 40 mm				
		R = 55 mm				
2.2.7 Operational signals (measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPb signal amplitude	R = 25 mm	$3.2/(\text{Reflectivity; \%})$ $\leq \text{PPb} < 0.36$ *3,*4			
		R = 40 mm				
		R = 55 mm				
O	PPb signal amplitude	R = 25 mm	$3.2/(\text{Reflectivity; \%})$ $\leq \text{PPb} < 0.36$ *3,*5			
		R = 40 mm				
		R = 55 mm				
O	Variation in PPb signal		$\Delta\text{PPb} < 15 \%$			
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Signal amplitude before recording	R = 25 mm	$0.16 < \text{LPPb} < 0.25$			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio before recording	R = 25 mm	$\text{BLERb} < 3 \%$			
		R = 40 mm				
		R = 55 mm				

\*1, \*2, \*3, \*4, \*5, \*6: See the next page.

Class-B Lab.*1	Items*2	Specification	Measurement		Judgment (Lab use)	
			Applicant	Lab		
Layer 0						
	Groove wobble signal					
O	CNR of WOb (RBW = 1 kHz)	R = 25 mm	> 35 dB			
		R = 40 mm				
		R = 55 mm				
O	Normalized Wobble signal (NWO)	R = 25 mm	0.07 < NWO < 0.14			
		R = 40 mm				
		R = 55 mm				
O	Relation in phase between wobble and Land Pre-Pit	R = 25 mm	− 90 ± 10 deg.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Reflectivity =  $R_{14H} \times 100$

\*4: Reflectivity measurement shall be carried out at 2x-speed.

\*5: Reflectivity measurement of R=25mm shall be carried out at 6x-speed.

Then, Reflectivity measurement of R=40mm and R=55mm shall be carried out at 8x-speed.

\*6: Measured at 6x-speed for disc without pre-recorded area, and 2x-speed for disc with pre-recorded area.



Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.2.6 Recording parameters (measured by 2x or 6x-speed scanning)*6						
	2.2.6.6 Limits of the deviation from the recordable layer perpendicular to the Reference plane					
O	Allowed error ( $< 10$ kHz)	R = 25 mm	$\pm 0.23 \mu\text{m}$			
		R = 40 mm				
		R = 55 mm				
	2.2.6.7 Limits of the radial deviation from the track					
O	Allowed error ( $< 2.2$ kHz)	R = 25 mm	$\pm 0.022 \mu\text{m}$			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (2.2-10 kHz)	R = 25 mm	$\pm 0.016 \mu\text{m max.}$			
		R = 40 mm				
		R = 55 mm				
2.2.7 Operational signals (measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPb signal amplitude	R = 25 mm	$3.2/(\text{Reflectivity; \%})$ $\leq \text{PPb} < 0.36 *3,*4$			
		R = 40 mm				
		R = 55 mm				
O	PPb signal amplitude	R = 25 mm	$3.2/(\text{Reflectivity; \%})$ $\leq \text{PPb} < 0.36 *3,*5$			
		R = 40 mm				
		R = 55 mm				
O	Variation in PPb signal		$\Delta\text{PPb} < 15 \%$			
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Signal amplitude before recording	R = 25 mm	$0.16 < \text{LPPb} < 0.25$			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio before recording	R = 25 mm	$\text{BLERb} < 3 \%$			
		R = 40 mm				
		R = 55 mm				

\*1, \*2, \*3, \*4, \*5, \*6: See the next page.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
	Groove wobble signal					
O	CNR of WOb (RBW = 1 kHz)	R = 25 mm	> 35 dB			
		R = 40 mm				
		R = 55 mm				
O	Normalized Wobble signal (NWO)	R = 25 mm	$0.07 < \text{NWO} < 0.14$			
		R = 40 mm				
		R = 55 mm				
O	Relation in phase between wobble and Land Pre-Pit	R = 25 mm	$-90 \pm 10 \text{ deg.}$			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Reflectivity =  $R_{14H} \times 100$

\*4: Reflectivity measurement shall be carried out at 2x-speed.

\*5: Reflectivity measurement of R=25mm shall be carried out at 6x-speed.

Then, Reflectivity measurement of R=40mm and R=55mm shall be carried out at 8x-speed.

\*6: Measured at 6x-speed for disc without pre-recorded area, and 2x-speed for disc with pre-recorded area.

## Test results of Unrecorded disc for DL (Max-speed Recording parameters before Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.2.6 Recording parameters (measured by nominated maximum recording speed scanning)						
	2.2.6.6 Limits of the deviation from the recordable layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm*3	± 0.15 mm			
		R = 40 mm*4				
		R = 55 mm*4				
	2.2.6.7 Limits of the radial deviation from the track					
O	Radial run-out	R = 25 mm*3	40 μm p-p			
		R = 40 mm*4				
		R = 55 mm*4				
Layer 1						
O	Radial run-out	R = 25 mm*3	60 μm p-p			
		R = 40 mm*4				
		R = 55 mm*4				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Measurement shall be carried out at 6x-speed.

\*4: Measurement shall be carried out at 8x-speed.

## Test results of Unrecorded disc for DL (Relative deviation of tracks between L0 and L1)

(Test Tool: Adequate tools for this test, refer to Annex Z.3)

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Annex Z : Relative deviation of tracks between Layer 0 and Layer 1 (for keeping the condition described in 2.1.6.5, 2.1.6.6)						
O	Relative deviation (12cm)	Inner radius	L0 :FF CFFFh L1 :00 3000h	0.168 - 0.348 mm		*3
		Outer radius	*4	*4		*3

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Licensee submits these data and Class-A Lab checks the data. Class-A Lab will not measure these parameters in general.

\*4: Refer to Figure Z.3-1 in DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of the contents of Pre-pit data block configuration for DL

(Test Tool: DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system)

### 4.2.3.4 Field ID0

Item*1	Applicant		Lab		Judgment
Address (Decrease)	<input type="checkbox"/> OK	<input type="checkbox"/> NG	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Layer Information code			<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### 4.2.3.5 Field ID1

Item*1	Applicant	Lab		Judgment
Application code		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Disc Physical code		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Extension code		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### 4.2.3.6 Field ID2

Item*1	Applicant	Lab		Judgment
LPP Version number		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### 4.2.3.7 Field ID3 and ID4

Item*1	Applicant	Lab		Judgment
Manufacturer ID (ASCII)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### 4.2.3.9 Field ID6 to ID13

Item*1		Applicant	Lab		Judgment
For Layer 0	6x-speed OPC suggested code (value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	6x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	6x-speed Write Strategy code (Hex)	ID7	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID8			
		ID9			
For Layer 1	6x-speed OPC suggested code (value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	6x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	6x-speed Write Strategy code (Hex)	ID11	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID12			
		ID13			

\*1: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## 4.2.3.9 Field ID14 to ID21

Item*1		Applicant	Lab		Judgment
For Layer 0	8x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	8x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	8x-speed Write Strategy code (Hex)	ID15	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID16			
		ID17			
For Layer 1	8x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	8x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	8x-speed Write Strategy code (Hex)	ID19	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID20			
		ID21			

\*1: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## The results of Control data zone for DL (Pre-recorded data)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2	Specification	Measurement		Judgment (Lab use)
			Applicant	Lab	
2.1.5 Optical parameters					
O	2.1.5.7 Reflectivity PUH with PBS	18 to 30 %		*3	
2.1.7 Operational signals					
	2.1.7.1 High Frequency (HF) signal				
O	a. Jitter	< 8.0 %		*3	
	b. Modulation amplitude				
O	I14/I14H	0.60 min.		*3	
O	I3/I14	0.20 min.		*3	
O	c. Signal asymmetry	− 0.05 to 0.15		*3	

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Licensee submits these data and Class-A Lab checks the data. Class-A Lab will not measure these parameters in general.

**Test results of the contents of Pre-recorded Physical format information for DL**

(Test Tool: DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system)

**P.2 Pre-recorded Physical format information**

Item*1	Applicant	Lab		Judgment
Book type and Compatible Part version		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Disc size and Maximum transfer rate of the disc		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Disc structure		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Recorded density		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
NBCA descriptor		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Disc identifier		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

**3.2.4.1 CPR\_MAI of each reserved sector in the Control data block**

Item*1	Applicant	Lab		Judgment
CPS_TY		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

\*1: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.



## Test results of the contents of Extended pre-recorded information for DL

(Test Tool: DVD-Download Disc measuring system (Playback PU or Recording PU) or equivalent system)

### P 2.1.3 PFI Field ID1

Item*1	Applicant	Lab		Judgment
Application code		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Disc Physical code		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
Extension code		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### P 2.1.3 PFI Field ID2

Item*1	Applicant	Lab		Judgment
LPP Version number		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### P 2.1.3 PFI Field ID3 and ID4

Item*1	Applicant	Lab		Judgment
Manufacturer ID (ASCII)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	

### P 2.1.4 PFI Field ID6 to ID13

Item*1		Applicant	Lab		Judgment
For Layer 0	2x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	2x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	2x-speed Write Strategy code (Hex)	ID6	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID7			
		ID8			
For Layer 1	2x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	2x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	2x-speed Write Strategy code (Hex)	ID10	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID11			
		ID12			

\*1: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

**P 2.1.4 PFI Field ID14 to ID21**

Item*1		Applicant	Lab		Judgment
For Layer 0	4x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	4x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	4x-speed Write Strategy code (Hex)	ID14	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID15			
		ID16			
For Layer 1	4x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	4x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	4x-speed Write Strategy code (Hex)	ID18	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID19			
		ID20			

**P 2.1.4 PFI Field ID22 to ID29**

Item*1		Applicant	Lab		Judgment
For Layer 0	6x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	6x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	6x-speed Write Strategy code (Hex)	ID22	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID23			
		ID24			
For Layer 1	6x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	6x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	6x-speed Write Strategy code (Hex)	ID26	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID27			
		ID28			

\*1: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## P 2.1.4 PFI Field ID30 to ID37

Item*1		Applicant	Lab		Judgment
For Layer 0	8x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	8x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	8x-speed Write Strategy code (Hex)	ID30	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID31			
		ID32			
For Layer 1	8x-speed OPC suggested code ( value) (Hex)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	8x-speed OPC suggested code (Recording power)		<input type="checkbox"/> OK	<input type="checkbox"/> NG	
	8x-speed Write Strategy code (Hex)	ID34	<input type="checkbox"/> OK	<input type="checkbox"/> NG	
		ID35			
		ID36			

\*1: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of Extension of tracks for DL

(Test Tool: Adequate tools for this test.)

Class-B Lab.*1	Items*2	Measurement		Judgment (Lab use)
		Applicant	Lab	
	4.1.4 Physical sector layout			
Layer 0				
O	ECC block address is allocated from FFE196h to FDC664h at minimum in a disc diameter.	12cm disc	<input type="checkbox"/> OK <input type="checkbox"/> NG *3	
Layer 1				
O	ECC block address is allocated from 023BD9h to 0020A7h at minimum in a disc diameter.	12cm disc	<input type="checkbox"/> OK <input type="checkbox"/> NG *3	

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Licensee submits these data and Class-A Lab checks the data. Class-A Lab will not measure these parameters in general.

## Test results of Unrecorded disc for DL (2x-speed Optical/Recording parameters)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2	Specification	Measurement		Judgment (Lab use)
			Applicant	Lab	
<b>Layer 0</b>					
<b>2.2.5 Optical parameters (by 2x-speed recording conditions)</b>					
	2.2.5.8 Recording sensitivity fluctuation over the surface	$P_o \pm 0.05P_o$	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
<b>2.2.6 Recording parameters (by 2x-speed recording conditions)</b>					
<b>2.2.6.8 Recording conditions</b>					
O	Optimum recording power range*3	R = 25 mm	$10.0 \leq P_o \leq 42.0 \text{ mW}$		
		R = 40 mm			
		R = 55 mm			
O	Bias Power (Pb)	R = 40 mm	$P_b \leq 0.7 \text{ mW}$		
<b>Layer 1</b>					
<b>2.2.5 Optical parameters (by 2x-speed recording conditions)</b>					
	2.2.5.8 Recording sensitivity fluctuation over the surface	$P_o \pm 0.05P_o$	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
<b>2.2.6 Recording parameters (by 2x-speed recording conditions)</b>					
<b>2.2.6.8 Recording conditions</b>					
O	Optimum recording power range*3	R = 25 mm	$10.0 \leq P_o \leq 42.0 \text{ mW}$		
		R = 40 mm			
		R = 55 mm			
O	Bias Power (Pb)	R = 40 mm	$P_b \leq 0.7 \text{ mW}$		

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Refer to P.1.6 of DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of Unrecorded disc for DL (2x-speed Operational signals after Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.2.7 Operational signals (recorded by 2x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 25 mm	PPa < 0.40			
		R = 40 mm				
		R = 55 mm				
O	Push-Pull ratio	R = 25 mm	0.5 < PPr < 1.0			
		R = 40 mm				
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 25 mm	AR > 10 %			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio after recording	R = 25 mm	BLERa < 5 %			
		R = 40 mm				
		R = 55 mm				
	Groove wobble signal					
O	CNR of WOba (RBW = 1 kHz)	R = 25 mm	> 31 dB			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.2.7 Operational signals (recorded by 2x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 25 mm	PPa < 0.40			
		R = 40 mm				
		R = 55 mm				
O	Push-Pull ratio	R = 25 mm	0.5 < PPr < 1.0			
		R = 40 mm				
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 25 mm	AR > 10 %			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio after recording	R = 25 mm	BLERa < 5 %			
		R = 40 mm				
		R = 55 mm				
	Groove wobble signal					
O	CNR of W0a (RBW = 1 kHz)	R = 25 mm	> 31 dB			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of 2x-speed Recorded disc for DL (Optical parameters/Operational signals)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.1.5 Optical Parameters						
	2.1.5.7 Reflectivity					
O	PUH with PBS	R = 25 mm	18 to 30 %			
		R = 40 mm				
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 25 mm	< 8.0 %			
		R = 40 mm				
		R = 55 mm				
	Modulation amplitude					
O	I14/I14H	R = 25 mm	0.60 min.			
		R = 40 mm				
		R = 55 mm				
O	I3/I14	R = 25 mm	0.20 min.			
		R = 40 mm				
		R = 55 mm				
	(I14H max. – I14H min.)/I14H max. *4					
O	Within one revolution (PUH with PBS)	R = 25 mm	0.15 max.			
		R = 40 mm				
		R = 55 mm				
	Within one revolution (PUH without PBS)*3	R = 25 mm	0.10 max.			
		R = 40 mm				
		R = 55 mm				
O	Signal asymmetry	R = 25 mm	– 0.05 to 0.15			
		R = 40 mm				
		R = 55 mm				
O	Track crossing signal	R = 25 mm	0.10 min.			
		R = 40 mm				
		R = 55 mm				

\*1, \*2, \*3, \*4: See the next page.



Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude (Δt/T at 0.1 μm radial offset)	R = 25 mm	0.5 to 1.1			
		R = 40 mm				
		R = 55 mm				
O	Asymmetry	R = 25 mm	0.2 max.			
		R = 40 mm				
		R = 55 mm				
O	Tangential push-pull signal	R = 25 mm	0.9 max.			
		R = 40 mm				
		R = 55 mm				
	2.1.7.3 Defects					
O	PI errors in any consecutive 8 ECC blocks	R = 25 mm	≤ 280			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Class-A Lab will check these values when required.

\*4: The result of within one read-out side of a disc is described in the Form for Layer 1.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.1.5 Optical Parameters						
	2.1.5.7 Reflectivity					
O	PUH with PBS	R = 25 mm	18 to 30 %			
		R = 40 mm				
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 25 mm	< 8.0 %			
		R = 40 mm				
		R = 55 mm				
	Modulation amplitude					
O	I14/I14H	R = 25 mm	0.60 min.			
		R = 40 mm				
		R = 55 mm				
O	I3/I14	R = 25 mm	0.20 min.			
		R = 40 mm				
		R = 55 mm				
	(I14H max. – I14H min.)/I14H max.					
O	Within one revolution (PUH with PBS)	R = 25 mm	0.15 max.			
		R = 40 mm				
		R = 55 mm				
O	Within one read-out side of a disc (PUH with PBS), including L0 & L1		0.33 max.			
	Within one revolution (PUH without PBS)*3	R = 25 mm	0.10 max.			
		R = 40 mm				
		R = 55 mm				
	Within one read-out side of a disc (PUH without PBS), including L0 & L1*3		0.20 max.			
O	Signal asymmetry	R = 25 mm	–0.05 to 0.15			
		R = 40 mm				
		R = 55 mm				
O	Track crossing signal	R = 25 mm	0.10 min.			
		R = 40 mm				
		R = 55 mm				

\*1, \*2, \*3: See the next page.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 25 mm	0.5 to 1.1			
		R = 40 mm				
		R = 55 mm				
O	Asymmetry	R = 25 mm	0.2 max.			
		R = 40 mm				
		R = 55 mm				
O	Tangential push-pull signal	R = 25 mm	0.9 max.			
		R = 40 mm				
		R = 55 mm				
2.1.7.3 Defects						
O	PI errors in any consecutive 8 ECC blocks	R = 25 mm	$\leq 280$			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Class-A Lab will check these values when required.

## Test results of 2x-speed Recorded disc for DL (Recorded parameters)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2	Specification	Measurement		Judgment (Lab use)	
			Applicant	Lab		
Layer 0						
2.1.6 Recorded parameters						
	2.1.6.13 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm	± 0.15 mm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 25 mm	± 0.23 μm			
		R = 40 mm				
		R = 55 mm				
	2.1.6.14 Limits of the radial deviation from the track					
O	Radial run-out	R = 25 mm	40 μm p-p			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 25 mm	± 0.022 μm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 25 mm	± 0.016 μm max.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.1.6 Recorded parameters						
	2.1.6.13 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm	± 0.15 mm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 25 mm	± 0.23 μm			
		R = 40 mm				
		R = 55 mm				
	2.1.6.14 Limits of the radial deviation from the track					
O	Radial run-out	R = 25 mm	60 μm p-p			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 25 mm	± 0.022 μm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 25 mm	± 0.016 μm max.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of Unrecorded disc for DL (4x-speed Optical/Recording parameters)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2	Specification	Measurement		Judgment (Lab use)
			Applicant	Lab	
<b>Layer 0</b>					
<b>2.2.5 Optical parameters (by 4x-speed recording conditions)</b>					
	2.2.5.8 Recording sensitivity fluctuation over the surface	$P_o \pm 0.05P_o$	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
<b>2.2.6 Recording parameters (by 4x-speed recording conditions)</b>					
2.2.6.8 Recording conditions					
O	Optimum recording power range*3	R = 25 mm	$10.0 \leq P_o \leq 42.0 \text{ mW}$		
		R = 40 mm			
		R = 55 mm			
O	Bias Power (Pb)	R = 40 mm	$P_b \leq 0.7 \text{ mW}$		
<b>Layer 1</b>					
<b>2.2.5 Optical parameters (by 4x-speed recording conditions)</b>					
	2.2.5.8 Recording sensitivity fluctuation over the surface	$P_o \pm 0.05P_o$	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
<b>2.2.6 Recording parameters (by 4x-speed recording conditions)</b>					
2.2.6.8 Recording conditions					
O	Optimum recording power range*3	R = 25 mm	$10.0 \leq P_o \leq 42.0 \text{ mW}$		
		R = 40 mm			
		R = 55 mm			
O	Bias Power (Pb)	R = 40 mm	$P_b \leq 0.7 \text{ mW}$		

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Refer to P.1.6 of DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of Unrecorded disc for DL (4x-speed Operational signals after Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.2.7 Operational signals (recorded by 4x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 25 mm	PPa < 0.40			
		R = 40 mm				
		R = 55 mm				
O	Push-Pull ratio	R = 25 mm	0.5 < PPr < 1.0			
		R = 40 mm				
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 25 mm	AR > 10 %			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio after recording	R = 25 mm	BLERa < 5 %			
		R = 40 mm				
		R = 55 mm				
	Groove wobble signal					
O	CNR of WOba (RBW = 1 kHz)	R = 25 mm	> 31 dB			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.2.7 Operational signals (recorded by 4x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 25 mm	PPa < 0.40			
		R = 40 mm				
		R = 55 mm				
O	Push-Pull ratio	R = 25 mm	0.5 < PPr < 1.0			
		R = 40 mm				
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 25 mm	AR > 10 %			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio after recording	R = 25 mm	BLERa < 5 %			
		R = 40 mm				
		R = 55 mm				
	Groove wobble signal					
O	CNR of WOba (RBW = 1 kHz)	R = 25 mm	> 31 dB			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.



## Test results of 4x-speed Recorded disc for DL (Optical parameters/Operational signals)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.1.5 Optical Parameters						
	2.1.5.7 Reflectivity					
O	PUH with PBS	R = 25 mm	18 to 30 %			
		R = 40 mm				
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 25 mm	< 8.0 %			
		R = 40 mm				
		R = 55 mm				
	Modulation amplitude					
O	I14/I14H	R = 25 mm	0.60 min.			
		R = 40 mm				
		R = 55 mm				
O	I3/I14	R = 25 mm	0.20 min.			
		R = 40 mm				
		R = 55 mm				
	(I14H max. – I14H min.)/I14H max. *4					
O	Within one revolution (PUH with PBS)	R = 25 mm	0.15 max.			
		R = 40 mm				
		R = 55 mm				
	Within one revolution (PUH without PBS)*3	R = 25 mm	0.10 max.			
		R = 40 mm				
		R = 55 mm				
O	Signal asymmetry	R = 25 mm	– 0.05 to 0.15			
		R = 40 mm				
		R = 55 mm				
O	Track crossing signal	R = 25 mm	0.10 min.			
		R = 40 mm				
		R = 55 mm				

\*1, \*2, \*3, \*4: See the next page.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 25 mm	0.5 to 1.1			
		R = 40 mm				
		R = 55 mm				
O	Asymmetry	R = 25 mm	0.2 max.			
		R = 40 mm				
		R = 55 mm				
O	Tangential push-pull signal	R = 25 mm	0.9 max.			
		R = 40 mm				
		R = 55 mm				
2.1.7.3 Defects						
O	PI errors in any consecutive 8 ECC blocks	R = 25 mm	$\leq 280$			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Class-A Lab will check these values when required.

\*4: The result of within one read-out side of a disc is described in the Form for Layer 1.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.1.5 Optical Parameters						
	2.1.5.7 Reflectivity					
O	PUH with PBS	R = 25 mm	18 to 30 %			
		R = 40 mm				
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 25 mm	< 8.0 %			
		R = 40 mm				
		R = 55 mm				
	Modulation amplitude					
O	I14/I14H	R = 25 mm	0.60 min.			
		R = 40 mm				
		R = 55 mm				
O	I3/I14	R = 25 mm	0.20 min.			
		R = 40 mm				
		R = 55 mm				
	(I14H max. – I14H min.)/I14H max.					
O	Within one revolution (PUH with PBS)	R = 25 mm	0.15 max.			
		R = 40 mm				
		R = 55 mm				
O	Within one read-out side of a disc (PUH with PBS), including L0 & L1		0.33 max.			
	Within one revolution (PUH without PBS)*3	R = 25 mm	0.10 max.			
		R = 40 mm				
		R = 55 mm				
	Within one read-out side of a disc (PUH without PBS), including L0 & L1*3		0.20 max.			
O	Signal asymmetry	R = 25 mm	– 0.05 to 0.15			
		R = 40 mm				
		R = 55 mm				
O	Track crossing signal	R = 25 mm	0.10 min.			
		R = 40 mm				
		R = 55 mm				

\*1, \*2, \*3: See the next page.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 25 mm	0.5 to 1.1			
		R = 40 mm				
		R = 55 mm				
O	Asymmetry	R = 25 mm	0.2 max.			
		R = 40 mm				
		R = 55 mm				
O	Tangential push-pull signal	R = 25 mm	0.9 max.			
		R = 40 mm				
		R = 55 mm				
	2.1.7.3 Defects					
O	PI errors in any consecutive 8 ECC blocks	R = 25 mm	$\leq 280$			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Class-A Lab will check these values when required.

# Test results of 4x-speed Recorded disc for DL (Recorded parameters)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2	Specification	Measurement		Judgment (Lab use)	
			Applicant	Lab		
Layer 0						
2.1.6 Recorded parameters						
	2.1.6.13 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm	± 0.15 mm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 25 mm	± 0.23 μm			
		R = 40 mm				
		R = 55 mm				
	2.1.6.14 Limits of the radial deviation from the track					
O	Radial run-out	R = 25 mm	40 μm p-p			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 25 mm	± 0.022 μm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 25 mm	± 0.016 μm max.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.1.6 Recorded parameters						
	2.1.6.13 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm	± 0.15 mm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 25 mm	± 0.23 μm			
		R = 40 mm				
		R = 55 mm				
	2.1.6.14 Limits of the radial deviation from the track					
O	Radial run-out	R = 25 mm	60 μm p-p			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 25 mm	± 0.022 μm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 25 mm	± 0.016 μm max.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of Unrecorded disc for DL (6x-speed Optical/Recording parameters)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2	Specification	Measurement		Judgment (Lab use)
			Applicant	Lab	
<b>Layer 0</b>					
<b>2.2.5 Optical parameters (by 6x-speed recording conditions)</b>					
	2.2.5.8 Recording sensitivity fluctuation over the surface	$P_o \pm 0.05P_o$	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
<b>2.2.6 Recording parameters (by 6x-speed recording conditions)</b>					
2.2.6.8 Recording conditions					
O	Optimum recording power range	R = 25 mm	$10.0 \leq P_o \leq 55.0 \text{ mW}$		
		R = 40 mm			
		R = 55 mm			
O	Bias Power (Pb)	R = 40 mm	$P_b \leq 0.7 \text{ mW}$		
<b>Layer 1</b>					
<b>2.2.5 Optical parameters (by 6x-speed recording conditions)</b>					
	2.2.5.8 Recording sensitivity fluctuation over the surface	$P_o \pm 0.05P_o$	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
<b>2.2.6 Recording parameters (by 6x-speed recording conditions)</b>					
2.2.6.8 Recording conditions					
O	Optimum recording power range	R = 25 mm	$10.0 \leq P_o \leq 55.0 \text{ mW}$		
		R = 40 mm			
		R = 55 mm			
O	Bias Power (Pb)	R = 40 mm	$P_b \leq 0.7 \text{ mW}$		

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of Unrecorded disc for DL (6x-speed Operational signals after Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.2.7 Operational signals (recorded by 6x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 25 mm	PPa < 0.40			
		R = 40 mm				
		R = 55 mm				
O	Push-Pull ratio	R = 25 mm	0.5 < PPr < 1.0			
		R = 40 mm				
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 25 mm	AR > 10 %			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio after recording	R = 25 mm	BLERa < 5 %			
		R = 40 mm				
		R = 55 mm				
	Groove wobble signal					
O	CNR of WOba (RBW = 1 kHz)	R = 25 mm	> 31 dB			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.



Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.2.7 Operational signals (recorded by 6x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 25 mm	PPa < 0.40			
		R = 40 mm				
		R = 55 mm				
O	Push-Pull ratio	R = 25 mm	0.5 < PPr < 1.0			
		R = 40 mm				
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 25 mm	AR > 10 %			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio after recording	R = 25 mm	BLERa < 5 %			
		R = 40 mm				
		R = 55 mm				
	Groove wobble signal					
O	CNR of WOba (RBW = 1 kHz)	R = 25 mm	> 31 dB			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of 6x-speed Recorded disc for DL (Optical parameters/Operational signals)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)	
				Applicant	Lab		
Layer 0							
2.1.5 Optical Parameters							
	2.1.5.7 Reflectivity						
O		PUH with PBS	R = 25 mm	18 to 30 %			
			R = 40 mm				
			R = 55 mm				
2.1.7 Operational signals							
	2.1.7.1 High Frequency (HF) signal						
O	Jitter		R = 25 mm	< 8.0 %			
			R = 40 mm				
			R = 55 mm				
	Modulation amplitude						
O		I14/I14H	R = 25 mm	0.60 min.			
			R = 40 mm				
			R = 55 mm				
O		I3/I14	R = 25 mm	0.20 min.			
			R = 40 mm				
			R = 55 mm				
	(I14H max. – I14H min.)/I14H max. *4						
O		Within one revolution (PUH with PBS)	R = 25 mm	0.15 max.			
			R = 40 mm				
			R = 55 mm				
		Within one revolution (PUH without PBS)*3	R = 25 mm	0.10 max.			
			R = 40 mm				
			R = 55 mm				
O	Signal asymmetry		R = 25 mm	– 0.05 to 0.15			
			R = 40 mm				
			R = 55 mm				
O	Track crossing signal		R = 25 mm	0.10 min.			
			R = 40 mm				
			R = 55 mm				

\*1, \*2, \*3, \*4: See the next page.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 25 mm	0.5 to 1.1			
		R = 40 mm				
		R = 55 mm				
O	Asymmetry	R = 25 mm	0.2 max.			
		R = 40 mm				
		R = 55 mm				
O	Tangential push-pull signal	R = 25 mm	0.9 max.			
		R = 40 mm				
		R = 55 mm				
	2.1.7.3 Defects					
O	PI errors in any consecutive 8 ECC blocks	R = 25 mm	$\leq 280$			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Class-A Lab will check these values when required.

\*4: The result of within one read-out side of a disc is described in the Form for Layer 1.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.1.5 Optical Parameters						
	2.1.5.7 Reflectivity					
O	PUH with PBS	R = 25 mm	18 to 30 %			
		R = 40 mm				
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 25 mm	< 8.0 %			
		R = 40 mm				
		R = 55 mm				
	Modulation amplitude					
O	I <sub>14</sub> /I <sub>14H</sub>	R = 25 mm	0.60 min.			
		R = 40 mm				
		R = 55 mm				
O	I <sub>3</sub> /I <sub>14</sub>	R = 25 mm	0.20 min.			
		R = 40 mm				
		R = 55 mm				
	(I <sub>14H</sub> max. – I <sub>14H</sub> min.)/I <sub>14H</sub> max.					
O	Within one revolution (PUH with PBS)	R = 25 mm	0.15 max.			
		R = 40 mm				
		R = 55 mm				
O	Within one read-out side of a disc (PUH with PBS), including L0 & L1		0.33 max.			
	Within one revolution (PUH without PBS)*3	R = 25 mm	0.10 max.			
		R = 40 mm				
		R = 55 mm				
	Within one read-out side of a disc (PUH without PBS), including L0 & L1*3		0.20 max.			
O	Signal asymmetry	R = 25 mm	–0.05 to 0.15			
		R = 40 mm				
		R = 55 mm				
O	Track crossing signal	R = 25 mm	0.10 min.			
		R = 40 mm				
		R = 55 mm				

\*1, \*2, \*3: See the next page.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 25 mm	0.5 to 1.1			
		R = 40 mm				
		R = 55 mm				
O	Asymmetry	R = 25 mm	0.2 max.			
		R = 40 mm				
		R = 55 mm				
O	Tangential push-pull signal	R = 25 mm	0.9 max.			
		R = 40 mm				
		R = 55 mm				
	2.1.7.3 Defects					
O	PI errors in any consecutive 8 ECC blocks	R = 25 mm	$\leq 280$			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Class-A Lab will check these values when required.

## Test results of 6x-speed Recorded disc for DL (Recorded parameters)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.1.6 Recorded parameters						
	2.1.6.13 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm	± 0.15 mm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 25 mm	± 0.23 μm			
		R = 40 mm				
		R = 55 mm				
	2.1.6.14 Limits of the radial deviation from the track					
O	Radial run-out	R = 25 mm	40 μm p-p			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 25 mm	± 0.022 μm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 25 mm	± 0.016 μm max.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.1.6 Recorded parameters						
	2.1.6.13 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 25 mm	± 0.15 mm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 25 mm	± 0.23 μm			
		R = 40 mm				
		R = 55 mm				
	2.1.6.14 Limits of the radial deviation from the track					
O	Radial run-out	R = 25 mm	60 μm p-p			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 25 mm	± 0.022 μm			
		R = 40 mm				
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 25 mm	± 0.016 μm max.			
		R = 40 mm				
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of Unrecorded disc for DL (8x-speed Optical/Recording parameters)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2	Specification	Measurement		Judgment (Lab use)
			Applicant	Lab	
<b>Layer 0</b>					
<b>2.2.5 Optical parameters (by 8x-speed recording conditions)</b>					
	2.2.5.8 Recording sensitivity fluctuation over the surface	$P_o \pm 0.05P_o$	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
<b>2.2.6 Recording parameters (by 8x-speed recording conditions)</b>					
<b>2.2.6.8 Recording conditions</b>					
O	Optimum recording power range	R = 40 mm	$10.0 \leq P_o \leq 55.0 \text{ mW}$		
		R = 55 mm			
O	Bias Power (Pb)	R = 40 mm	$P_b \leq 0.7 \text{ mW}$		
<b>Layer 1</b>					
<b>2.2.5 Optical parameters (by 8x-speed recording conditions)</b>					
	2.2.5.8 Recording sensitivity fluctuation over the surface	$P_o \pm 0.05P_o$	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG	
<b>2.2.6 Recording parameters (by 8x-speed recording conditions)</b>					
<b>2.2.6.8 Recording conditions</b>					
O	Optimum recording power range	R = 40 mm	$10.0 \leq P_o \leq 55.0 \text{ mW}$		
		R = 55 mm			
O	Bias Power (Pb)	R = 40 mm	$P_b \leq 0.7 \text{ mW}$		

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.



## Test results of Unrecorded disc for DL (8x-speed Operational signals after Recording)

(Test Tool: DVD-Download Disc measuring system (Recording PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.2.7 Operational signals (recorded by 8x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 40 mm	PPa < 0.40			
		R = 55 mm				
O	Push-Pull ratio	R = 40 mm	0.5 < PPr < 1.0			
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 40 mm	AR > 10 %			
		R = 55 mm				
O	Block error ratio after recording	R = 40 mm	BLERa < 5 %			
		R = 55 mm				
	Groove wobble signal					
O	CNR of WOa (RBW = 1 kHz)	R = 40 mm	> 31 dB			
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.2.7 Operational signals (recorded by 8x-speed recording and measured by 1x-speed scanning)						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPa signal amplitude	R = 40 mm	PPa < 0.40			
		R = 55 mm				
O	Push-Pull ratio	R = 40 mm	0.5 < PPr < 1.0			
		R = 55 mm				
	2.2.7.3 Addressing signals					
	Land Pre-Pit signal					
O	Aperture ratio after recording	R = 40 mm	AR > 10 %			
		R = 55 mm				
O	Block error ratio after recording	R = 40 mm	BLERa < 5 %			
		R = 55 mm				
	Groove wobble signal					
O	CNR of WOba (RBW = 1 kHz)	R = 40 mm	> 31 dB			
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of 8x-speed Recorded disc for DL (Optical parameters/Operational signals)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.1.5 Optical Parameters						
	2.1.5.7 Reflectivity					
O	PUH with PBS	R = 40 mm	18 to 30 %			
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 40 mm	< 8.0 %			
		R = 55 mm				
	Modulation amplitude					
O	I14/I14H	R = 40 mm	0.60 min.			
		R = 55 mm				
O	I3/I14	R = 40 mm	0.20 min.			
		R = 55 mm				
	(I14H max. – I14H min.)/I14H max. *4					
O	Within one revolution (PUH with PBS)	R = 40 mm	0.15 max.			
		R = 55 mm				
	Within one revolution (PUH without PBS)*3	R = 40 mm	0.10 max.			
		R = 55 mm				
O	Signal asymmetry	R = 40 mm	–0.05 to 0.15			
		R = 55 mm				
O	Track crossing signal	R = 40 mm	0.10 min.			
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Class-A Lab will check these values when required.

\*4: The result of within one read-out side of a disc is described in the Form for Layer 1.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 40 mm	0.5 to 1.1			
		R = 55 mm				
O	Asymmetry	R = 40 mm	0.2 max.			
		R = 55 mm				
O	Tangential push-pull signal	R = 40 mm	0.9 max.			
		R = 55 mm				
	2.1.7.3 Defects					
O	PI errors in any consecutive 8 ECC blocks	R = 40 mm	$\leq 280$			
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.1.5 Optical Parameters						
	2.1.5.7 Reflectivity					
O	PUH with PBS	R = 40 mm	18 to 30 %			
		R = 55 mm				
2.1.7 Operational signals						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 40 mm	< 8.0 %			
		R = 55 mm				
	Modulation amplitude					
O	I14/I14H	R = 40 mm	0.60 min.			
		R = 55 mm				
O	I3/I14	R = 40 mm	0.20 min.			
		R = 55 mm				
	(I14H max. – I14H min.)/I14H max.					
O	Within one revolution (PUH with PBS)	R = 40 mm	0.15 max.			
		R = 55 mm				
O	Within one read-out side of a disc (PUH with PBS), including L0 & L1		0.33 max.			
	Within one revolution (PUH without PBS)*3	R = 40 mm	0.10 max.			
		R = 55 mm				
	Within one read-out side of a disc (PUH without PBS), including L0 & L1*3		0.20 max.			
O	Signal asymmetry	R = 40 mm	–0.05 to 0.15			
		R = 55 mm				
O	Track crossing signal	R = 40 mm	0.10 min.			
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

\*3: Class-A Lab will check these values when required.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
	2.1.7.2 Servo signal					
	Differential phase tracking error signal					
O	Amplitude ( $\Delta t/T$ at 0.1 $\mu\text{m}$ radial offset)	R = 40 mm	0.5 to 1.1			
		R = 55 mm				
O	Asymmetry	R = 40 mm	0.2 max.			
		R = 55 mm				
O	Tangential push-pull signal	R = 40 mm	0.9 max.			
		R = 55 mm				
	2.1.7.3 Defects					
O	PI errors in any consecutive 8 ECC blocks	R = 40 mm	$\leq 280$			
		R = 55 mm				

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

## Test results of 8x-speed Recorded disc for DL (Recorded parameters)

(Test Tool: DVD-Download Disc measuring system (Playback PU))

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 0						
2.1.6 Recorded parameters						
	2.1.6.13 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 40 mm	± 0.15 mm			
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 40 mm	± 0.23 μm			
		R = 55 mm				
	2.1.6.14 Limits of the radial deviation from the track					
O	Radial run-out	R = 40 mm	40 μm p-p			
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 40 mm	± 0.022 μm			
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 40 mm	± 0.016 μm max.			
		R = 55 mm				
	2.1.6.15 Read conditions					
O	Read stability (0.7 mW at 25 °C)	R = 40 mm	$> 10^6$ times			

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.

Class-B Lab.*1	Items*2		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
Layer 1						
2.1.6 Recorded parameters						
	2.1.6.13 Limits of the deviation from the recorded layer perpendicular to the Reference plane					
O	Deviation	R = 40 mm	± 0.15 mm			
		R = 55 mm				
O	Allowed error ( $< 10$ kHz)	R = 40 mm	± 0.23 μm			
		R = 55 mm				
	2.1.6.14 Limits of the radial deviation from the track					
O	Radial run-out	R = 40 mm	60 μm p-p			
		R = 55 mm				
O	Allowed error ( $< 1.1$ kHz)	R = 40 mm	± 0.022 μm			
		R = 55 mm				
O	Allowed error (1.1-10 kHz)	R = 40 mm	± 0.016 μm max.			
		R = 55 mm				
	2.1.6.15 Read conditions					
O	Read stability (0.7 mW at 25 °C)	R = 40 mm	$> 10^6$ times			

\*1: The measurement items at Class-B Lab are marked with O.

\*2: Refer to DVD Specifications for Download Disc for Dual Layer (DVD-Download for DL) Part 1: Physical Specifications Version 2.0.



## List of the Test results

Form	Title of Form	Judgment	
		Applicant	Lab
<b>Before recording of SL Disc (Section 3.2)</b>			
3.2SS-1	Unrecorded disc for SL (Mechanical parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.2SS-2	Unrecorded disc for SL (Optical parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.2SS-3	Unrecorded disc for SL (Recording parameters before Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.2SS-4	Unrecorded disc for SL (Max-speed Recording parameters before Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.2SS-5	Contents of Pre-pit data block configuration for SL	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.2SS-6	Control data zone for SL (Pre-recorded data)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.2SS-7	Contents of Pre-recorded Physical format information for SL	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.2SS-8	Contents of Extended pre-recorded information for SL	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>2x-speed recording of SL Disc (Section 3.3)</b>			
3.3SS-1	Unrecorded disc for SL (2x-speed Optical/Recording parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.3SS-2	Unrecorded disc for SL (2x-speed Operational signals after Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.3SS-3	2x-speed Recorded disc for SL (Optical parameters/Operational signals)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.3SS-4	2x-speed Recorded disc for SL (Recorded parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>4x-speed recording of SL Disc (Section 3.4)</b>			
3.4SS-1	Unrecorded disc for SL (4x-speed Optical/Recording parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.4SS-2	Unrecorded disc for SL (4x-speed Operational signals after Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.4SS-3	4x-speed Recorded disc for SL (Optical parameters/Operational signals)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.4SS-4	4x-speed Recorded disc for SL (Recorded parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>6x-speed recording of SL Disc (Section 3.5)</b>			
3.5SS-1	Unrecorded disc for SL (6x-speed Optical/Recording parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.5SS-2	Unrecorded disc for SL (6x-speed Operational signals after Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.5SS-3	6x-speed Recorded disc for SL (Optical parameters/Operational signals)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.5SS-4	6x-speed Recorded disc for SL (Recorded parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>8x-speed recording of SL Disc (Section 3.6)</b>			
3.6SS-1	Unrecorded disc for SL (8x-speed Optical/Recording parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.6SS-2	Unrecorded disc for SL (8x-speed Operational signals after Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.6SS-3	8x-speed Recorded disc for SL (Optical parameters/Operational signals)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
3.6SS-4	8x-speed Recorded disc for SL (Recorded parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG

Form	Title of Form	Judgment	
		Applicant	Lab
<b>Before recording of DL Disc (Section 4.2)</b>			
4.2SS-1	Unrecorded disc for DL (Mechanical parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.2SS-2	Unrecorded disc for DL (Optical parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.2SS-3	Unrecorded disc for DL (Recording parameters before Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.2SS-4	Unrecorded disc for DL (Max-speed Recording parameters before Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.2SS-5	Unrecorded disc for DL (Relative deviation of tracks between L0 and L1)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.2SS-6	Contents of Pre-pit data block configuration for DL	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.2SS-7	Control data zone for DL (Pre-recorded data)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.2SS-8	Contents of Pre-recorded Physical format information for DL	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.2SS-9	Contents of Extended pre-recorded information for DL	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.2SS-10	Extension of tracks for DL	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>2x-speed recording of DL Disc (Section 4.3)</b>			
4.3SS-1	Unrecorded disc for DL (2x-speed Optical/Recording parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.3SS-2	Unrecorded disc for DL (2x-speed Operational signals after Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.3SS-3	2x-speed Recorded disc for DL (Optical parameters/Operational signals)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.3SS-4	2x-speed Recorded disc for DL (Recorded parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>4x-speed recording of DL Disc (Section 4.4)</b>			
4.4SS-1	Unrecorded disc for DL (4x-speed Optical/Recording parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.4SS-2	Unrecorded disc for DL (4x-speed Operational signals after Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.4SS-3	4x-speed Recorded disc for DL (Optical parameters/Operational signals)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.4SS-4	4x-speed Recorded disc for DL (Recorded parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>6x-speed recording of DL Disc (Section 4.5)</b>			
4.5SS-1	Unrecorded disc for DL (6x-speed Optical/Recording parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.5SS-2	Unrecorded disc for DL (6x-speed Operational signals after Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.5SS-3	6x-speed Recorded disc for DL (Optical parameters/Operational signals)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.5SS-4	6x-speed Recorded disc for DL (Recorded parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>8x-speed recording of DL Disc (Section 4.6)</b>			
4.6SS-1	Unrecorded disc for DL (8x-speed Optical/Recording parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.6SS-2	Unrecorded disc for DL (8x-speed Operational signals after Recording)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.6SS-3	8x-speed Recorded disc for DL (Optical parameters/Operational signals)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
4.6SS-4	8x-speed Recorded disc for DL (Recorded parameters)	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG



*The Logo for the verified  
Product type is applied  
according to DVD Logo Manual*

## Confirmation of DVD Format Verification

The following product is confirmed that it is on the strength of ☐ DVD-R for General Part 1/Optional Specifications DVD Download Disc for CSS Managed Recording Revision 1.0 or ☐ DVD Specifications for Download Disc Part 1: Physical Specifications Version 1.0 or ☐ DVD Specifications for Download Disc for Dual Layer Part 1: Physical Specifications Version 2.0, by DVD Format Verification Laboratory of the Company:

1. Product type : ☐ 8x/6x-speed DVD-Download Disc without pre-recorded Lead in  
☐ 8x/2x-speed DVD-Download Disc with pre-recorded Lead-in  
☐ 8x/6x-speed DVD-Download Disc without pre-recorded Control data zone  
☐ 8x/2x-speed DVD-Download Disc with pre-recorded Control data zone  
☐ 8x/6x-speed DVD-Download Disc for DL without pre-recorded Control data zone  
☐ 8x/2x-speed DVD-Download Disc for DL with pre-recorded Control data zone

2. Disc number	:	
3. Application number	:	
4. Date of application (mm. dd, yyyy)	:	
5. Applicant: Name	:	
Company name	:	
Address	:	
Tel	:	
		/Fax: <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span>
Date of issue (mm. dd, yyyy)	:	
Confirmed by: Signature	:	
Name	:	
Lab name	:	
Address	:	
Tel	:	
		/Fax: <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span>

Attachment 1) Test results: **Forms** checked in **Form 2SS** (2/3, 3/3) except **Form 1SS**  
 2) Others:

*Note: (1) The purpose of DVD Format Verification is to promote and enhance compatibility of DVD Product for DVD Industry based upon the minimum common specification requirements.*

*(2) The "Confirmation of DVD Format Verification", however, shall not be considered to guarantee the quality of product and the compatibility with a specific DVD disc or player/recorder.*

*(3) Information in this report shall be treated as confidential under the Non Disclosure Agreement executed between the applicant and DVD Format Verification Laboratory dated (mm. dd, yyyy)*