



June 2005

# **Forms for DVD Format Verification of DVD-R Disc (3.95 Gbytes)**

## **Form 1F to 11F Version 1.0<sub>1</sub>**

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

Product Type name	Disc number	Note
Remarks:		

**DVD-R 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:

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

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

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### Information of applicant

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


### DVD-R Disc details

- Brand / Trade name :   
 • Disc name :   
 • Disc No. :   
 • Disc type : ☐ Single side      ☐ Double side      ☐ Others (  )  
 • Label: ☐ Yes      ☐ None

## Test results of the Unrecorded Disc (1)

Class-B Lab.*	Items**		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.4 Mechanical parameters						
O	2.2.4.2 Outer diameter (D <sub>1</sub> )	12cm disc	120.00 ± 0.30 mm			
		8cm disc	80.00 ± 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 (L <sub>1</sub> )		1.20 <sup>+0.3</sup> <sub>-0.06</sub> mm			
	2.2.4.9 Inner diameter in clamping area (D <sub>3</sub> )		22.0 mm max.			
	2.2.4.10 Outer diameter in clamping area (D <sub>4</sub> )		33.0 mm min.			
O	2.2.4.11 Thickness of a disc in clamping area (L <sub>2</sub> )		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			
		8cm disc	6 g to 9 g			
	2.2.4.13 Inertia moment	12cm disc	0.040 g•m <sup>2</sup> max.			
		8cm disc	0.010 g•m <sup>2</sup> max.			
O	2.2.4.14 Dynamic imbalance	12cm disc	0.010 g•m max.			
		8cm disc	0.0045 g•m max.			

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

\*\* : Refer to DVD Specifications for Recordable Disc Part 1 : Ver. 1.0

## Test results of the Unrecorded Disc (2)

Class-B Lab.*	Items**		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.5 Optical parameters***						
O	2.2.5.1 Thickness of a transparent substrate	R = 25 mm	0.600 ± 0.030 mm			
		R = 40 mm				
		R = 55 mm				
	2.2.5.3 Limits for the angular deviation of the reflected beam (alpha)					
O	Radial deviation	R = 25 mm	± 0.80 degree			
		R = 40 mm				
		R = 55 mm				
O	Tangential deviation	R = 25 mm	± 0.30 degree			
		R = 40 mm				
		R = 55 mm				
O	2.2.5.4 Birefringence of transparent substrate	R = 25 mm	100 nm max.			
		R = 40 mm				
		R = 55 mm				
	2.2.5.5 Polarity of modulation		High to Low			
	2.2.5.6 Recording sensitivity fluctuation over the surface		Po ± 0.05Po			

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

\*\* : Refer to DVD Specifications for Recordable Disc Part 1 : Ver. 1.0

\*\*\* : These items shall be measured at R25, R40 and R55. (except for 2.2.5.5 and 2.2.5.6)

## Test results of the Unrecorded Disc (3)

Class-B Lab.*	Items**		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.6 Recording parameters***						
	2.2.6.2 Track pitch					
	Averaged track pitch	R = 25 mm	0.80 ± 0.01 μm			
		R = 40 mm				
		R = 55 mm				
	Maximum deviation of track pitch	R = 25 mm	0.80 ± 0.04 μm			
		R = 40 mm				
		R = 55 mm				
2.2.6.3 Limits on deviation from recorded layer perpendicular to reference plane						
O	Deviation	R = 25 mm	± 0.3 mm (12 cm), ± 0.2 mm (8 cm)			
		R = 40 mm				
		R = 55 mm				
O	Allowed error ( $<10$ kHz)	R = 25 mm	± 0.23 μm			
		R = 40 mm				
		R = 55 mm				
2.2.6.4 Limits on radial deviation from the track						
O	Radial run-out	R = 25 mm	70 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				

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

\*\* : Refer to DVD Specifications for Recordable Disc Part 1 : Ver. 1.0

\*\*\* : These items shall be measured at R25, R40 and R55.

Class-B Lab.*	Items**	Specification	Measurement		Judgment (Lab use)	
			Applicant	Lab		
	2.2.6.5 Recording conditions					
O	Optimum recording power range of all discs (Po)	R = 25 mm	6.0≤Po≤12.0 mW			
		R = 40 mm				
		R = 55 mm				
O	Bias Power (Pb)	R = 25 mm	Pb≤0.7mW			
		R = 40 mm				
		R = 55 mm				
O	Recording Power	R = 25 mm	Po ± 0.25mW			
		R = 40 mm				
		R = 55 mm				

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

\*\* : Refer to DVD Specifications for Recordable Disc Part 1 : Ver. 1.0

\*\*\* : These items shall be measured at R25, R40 and R55.

## Test results of the Unrecorded Disc (4)

Class-B Lab.*	Items**		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.2.7 Operational signals***						
	2.2.7.1 Servo signal					
	Radial push-pull tracking error signal					
O	PPb signal amplitude	R = 25 mm	0.18 < PPb < 0.36			
		R = 40 mm				
		R = 55 mm				
O	Push-Pull ratio	R = 25 mm	0.5 < PPr < 1.0			
		R = 40 mm				
		R = 55 mm				
O	Variation in PPb signal	R = 25 mm	PPb < 15 %			
		R = 40 mm				
		R = 55 mm				
O	Radial Contrast	R = 25 mm	RC > 0.05			
		R = 40 mm				
		R = 55 mm				
2.2.7.3 Addressing signals						
	Land Pre Pit signal					
O	LPPb signal magnitude	R = 25 mm	LPPb = 0.18 ± 0.04			
		R = 40 mm				
		R = 55 mm				
O	LPPa signal magnitude	R = 25 mm	LPPa > 0.14			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio of LPPb	R = 25 mm	BER < 3%			
		R = 40 mm				
		R = 55 mm				
O	Block error ratio of LPPa	R = 25 mm	BER < 5%			
		R = 40 mm				
		R = 55 mm				

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

\*\* : Refer to DVD Specifications for Recordable Disc Part 1 : Ver. 1.0

\*\*\* : These items shall be measured at R25, R40 and R55.



Class-B Lab.*	Items**		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	CNR of WOa (RBW = 1 kHz)	R = 25 mm	> 31 dB			
		R = 40 mm				
		R = 55 mm				
O	Normalized Wobble signal	R = 25 mm	$0.08 < \text{NWO} < 0.12$			
		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				

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

\*\* : Refer to DVD Specifications for Recordable Disc Part 1 : Ver. 1.0

\*\*\* : These items shall be measured at R25, R40 and R55.

## Test results of the Recorded Disc (1)

Class-B Lab.*	Items**		Specification	Measurement		Judgment (Lab use)		
				Applicant	Lab			
<b>2.1.5 Optical Parameters***</b>								
	2.1.5.5 Reflectivity							
O	PUH with PBS	R = 25 mm	45 to 85 %					
		R = 40 mm						
		R = 55 mm						
	PUH without PBS****	R = 25 mm	60 to 85 %					
		R = 40 mm						
		R = 55 mm						
<b>2.1.6 Recorded parameters***</b>								
	2.1.6.12 Limits on deviation from recorded layer perpendicular to reference plane							
O	Deviation	R = 25 mm	$\pm 0.3$ mm (12 cm) $\pm 0.2$ mm (8 cm)					
		R = 40 mm						
		R = 55 mm						
O	Allowed error ( $<10$ kHz)	R = 25 mm	$\pm 0.23$ $\mu$ m					
		R = 40 mm						
		R = 55 mm						
	2.1.6.13 Limits on radial deviation from the track							
O	Radial run-out	R = 25 mm	70 $\mu$ m p-p					
		R = 40 mm						
		R = 55 mm						
O	Allowed error ( $<1.1$ kHz)	R = 25 mm	$\pm 0.022$ $\mu$ m					
		R = 40 mm						
		R = 55 mm						
O	Allowed error (1.1-10 kHz)	R = 25 mm	$\pm 0.016$ $\mu$ m max.					
		R = 40 mm						
		R = 55 mm						

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

\*\* : Refer to DVD Specifications for Recordable Disc Part 1 : Ver. 1.0

\*\*\* : These items shall be measured at R25, R40 and R55.

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

Class-B Lab.*	Items**		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
	2.1.6.14 Read conditions					
O	Power of read spot	R = 25 mm	≤1.0 mW			
		R = 40 mm				
		R = 55 mm				
O	Read stability (0.7 mW at 25 °C)	R = 25 mm	>10 <sup>6</sup>			
		R = 40 mm				
		R = 55 mm				

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

\*\* : Refer to DVD Specifications for Recordable Disc Part 1 : Ver. 1.0

\*\*\* : These items shall be measured at R25, R40 and R55.

## Test results of the Recorded Disc (2)

Class-B Lab.*	Items**		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
2.1.7 Operational signals***						
	2.1.7.1 High Frequency (HF) signal					
O	Jitter	R = 25 mm	<9.0 %			
		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	0.15 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 disc (PUH with PBS)		0.33 max.			
	Within one revolution (PUH without PBS)****	R = 25 mm	0.10 max.			
		R = 40 mm				
		R = 55 mm				
	Within one disc (PUH without PBS)****		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				

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

\*\* : Refer to DVD Specifications for Recordable Disc Part 1 : Ver. 1.0

\*\*\* : These items shall be measured at R25, R40 and R55.

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

Class-B Lab.*	Items**		Specification	Measurement		Judgment (Lab use)
				Applicant	Lab	
	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				

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

\*\* : Refer to DVD Specifications for Recordable Disc Part 1 : Ver. 1.0

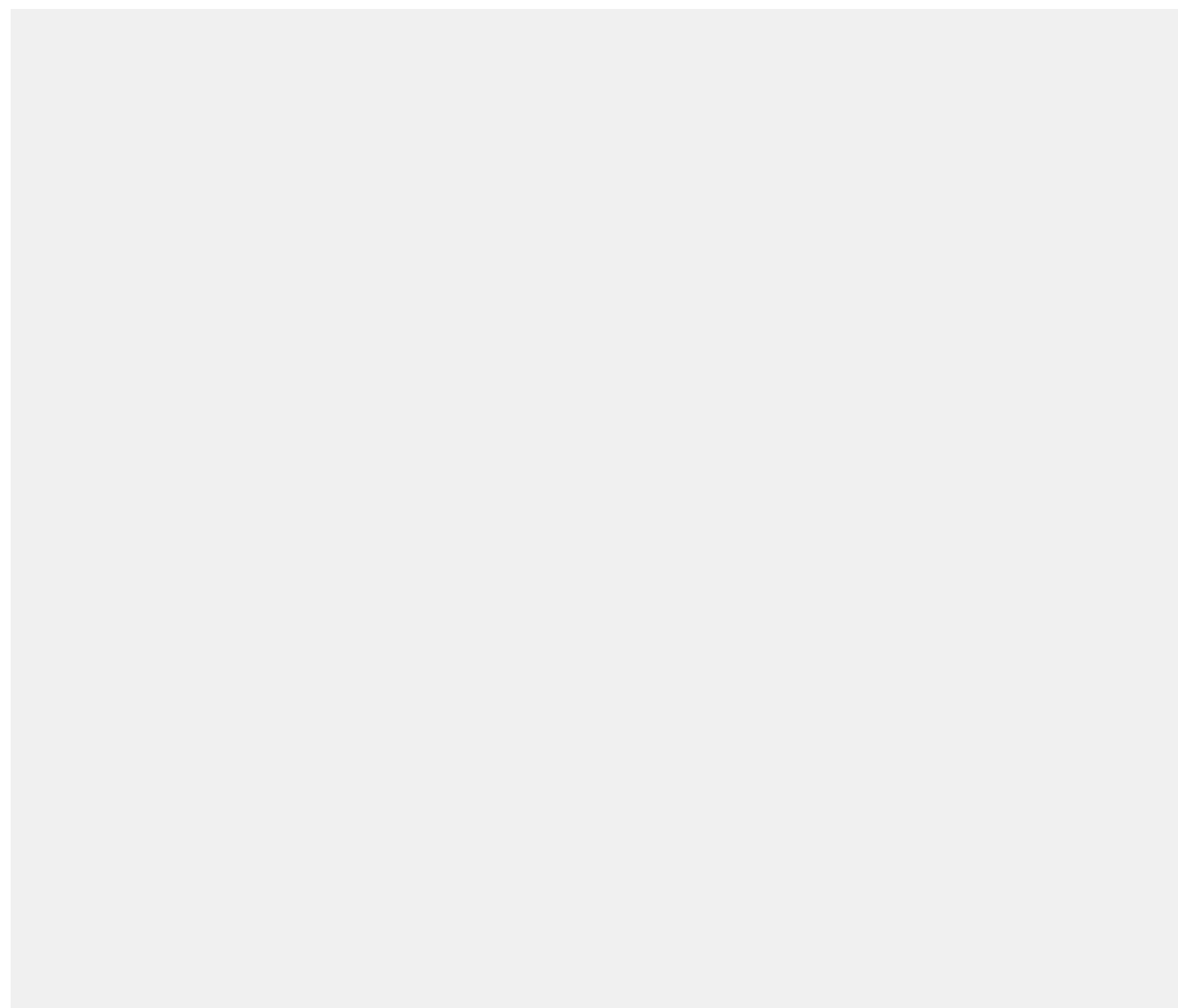
\*\*\* : These items shall be measured at R25, R40 and R55.

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

**Test results of the contents of the pre-recorded block configuration**

Items*	Applicant	Lab	Comment
4.2.3.4 Field ID0			
4.2.3.5 Field ID1			
4.2.3.6 Field ID2			
4.2.3.7 Field ID3			
4.2.3.7 Field ID4			
4.2.3.7 Field ID5			

\* Refer to DVD Specifications for Recordable Disc Part 1: Ver 1.0



## List of the Test results

Section	Judgement	
	Applicant	Lab
<b>Form 3F:</b> Test results of the Unrecorded Disc (1) Mechanical parameters	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>Form 4F:</b> Test results of the Unrecorded Disc (2) Optical parameters	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>Form 5F:</b> Test results of the Unrecorded Disc (3) Recording parameters	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>Form 6F:</b> Test results of the Unrecorded Disc (4) Operational signals	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>Form 7F:</b> Test results of the Recorded Disc (1) Optical parameters, Recorded parameters	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>Form 8F:</b> Test results of the Recorded Disc (2) Operational signals	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG
<b>Form 9F:</b> Test result of the contents of the pre-recorded block configuration	<input type="checkbox"/> OK <input type="checkbox"/> NG	<input type="checkbox"/> OK <input type="checkbox"/> NG



## Confirmation of DVD Format Verification

The following product is confirmed that it is on the strength of DVD Specifications for Recordable Disc Part 1 (Version 1.0) by DVD Format Verification Laboratory of the Company:

1. Product Type name (DVD-R Disc)	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
2. Disc number	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
3. Application number	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
4. Date of application (mm. dd, yyyy)	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
5. Applicant: Name	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
Company name	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
Address	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
Tel	:	<div style="background-color: #cccccc; height: 1.2em;"></div> / Fax: <div style="background-color: #cccccc; height: 1.2em;"></div>
Date of issue (mm. dd, yyyy)	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
Confirmed by: Signature	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
Name	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
Lab name	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
Address	:	<div style="background-color: #cccccc; height: 1.2em;"></div>
Tel	:	<div style="background-color: #cccccc; height: 1.2em;"></div> / Fax: <div style="background-color: #cccccc; height: 1.2em;"></div>
Attachment	:	1) Test result <b>Form 2F to 10F</b> .
		2) Others: <div style="background-color: #cccccc; height: 1.2em;"></div>

*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) .*