



DVD-RAM

Video (VR) Recorder

TEST SPECIFICATION

Version 1.31
June 2005

Amendment for DVD-RAM Video (VR) Recorder TS Version 1.31 (June 2005)

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

- **Minor amendment (April 27, 2009)**

Page	Location	Amendment
Page 15	Annex A	<ul style="list-style-type: none">• Class-A Lab information of "Hitachi Ltd.", "Industrial Technology Research Institute", "Matsushita Electric Industrial Co, Ltd. (company name)", "SAMSUNG ELECTRONICS CO., LTD." and "Victor Company of Japan, Limited" was updated.
Pages 18 to 19	Annex D	<ul style="list-style-type: none">• A note regarding Class-A Lab information was added.• Class-A Lab information of "Matsushita Electric Industrial Co, Ltd. (company name)", "Hitachi Ltd." and "SAMSUNG ELECTRONICS CO., LTD." was updated.

- **Minor amendment (January 2010)**

Page	Location	Amendment
Page 15	Annex A	<ul style="list-style-type: none">• Class-A Lab information of "Hitachi, Ltd. (company name)", "Panasonic Corporation", "SAMSUNG ELECTRONICS CO., LTD" and "Victor Company of Japan, Limited" were updated.
Pages 18 to 19	Annex D	<ul style="list-style-type: none">• Class-A Lab information of "Hitachi, Ltd. (company name)", "Panasonic Corporation" and "SAMSUNG ELECTRONICS CO., LTD" were updated.

- **Amendment 1 (January 2012)**

Page	Location	Amendment
Page 15	Annex A	<ul style="list-style-type: none">• "Toshiba Corporation" was deleted from the Class-A Lab list.• The company name "Victor Company of Japan, Limited" was changed to "JVC KENWOOD Corporation".
Page 19	Annex D	<ul style="list-style-type: none">• DVD-RAM File System Verifier (TFSV01) from Toshiba was discontinued.

- **Amendment 2 (June 2012)**

Page	Location	Amendment
Page 15	Annex A	<ul style="list-style-type: none">• "Industrial Technology Research Institute" was deleted from the Class-A Lab list.• Class-A Lab information of "SAMSUNG ELECTRONICS CO., LTD" was updated.
Page 19	Annex D	<ul style="list-style-type: none">• Class-A Lab information of "SAMSUNG ELECTRONICS CO., LTD" was updated.

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- SAMSUNG ELECTRONICS CO., LTD (Suwon, Korea)
- Toshiba Corporation (Tokyo, Japan)

Inquiry

For any further explanation of the contents of this document or in case of any perceived inconsistency or ambiguity of interpretation, please consult:

DVD Format/Logo Licensing Corporation

Address: 2F Shibadaimon Makita Bldg., 2-5-8 Shibadaimon, Minato-ku, Tokyo, 105-0012 Japan

Fax: +81-3-5777-2884

E-mail: info@dvdflc.co.jp URL: <http://www.dvdflc.co.jp>

Revision History

- January 23, 2000
Version 1.0 (Draft) was distributed to SG-8 members.
- April 10, 2000
Version 1.0 was approved by SC members.
- May 2000
Test procedures for DVD Video Camera Recorder for 525/60 TV system and DMA verification were drafted as Version 1.1.
- June 2000
Version 1.1 was approved by VTF members.
- July 2000
Test procedure for DVD Video Camera Recorder for 625/50 TV system was drafted as Version 1.2.
- August 9, 2000
Version 1.2 was approved by VTF members.
- October 1, 2001
Test procedure for DVD-RAM Video Recorder for 625/50 TV system was drafted as version 1.3.
- November 9, 2001
Version 1.3 was approved by VTF members.
- June 2005
Version 1.31 updated Class-A Lab List and Normative Reference*, and was edited as electronic files.
*: To update the version number of Part 1 (from Version 2.1 to 2.2).

Table of Contents

1. General	1
1.1 Scope	1
1.2 Normative References	1
1.3 Scope of Products Covered	1
2. DVD Logo	2
2.1 Definition of Terms Used	2
2.2 DVD Logo Mechanism	3
3. Test tools and Test Specifications	5
3.1 Test Tools	5
3.1.1 Test Discs	5
3.1.2 Test Forms (Form 3P to 9P)	6
3.1.3 Verifier/Dump-tool	6
3.1.4 DVD-RAM Disc Evaluation System	6
3.2 Test Specification of DVD-RAM Video Recorder for 525/60 or 625/50 TV system	7
3.2.1 Playback capability for variety of Streams and Navigation data	7
3.2.2 Playback capability for the maximum number of objects	7
3.2.3 Playback capability with the worst case jumping	7
3.2.4 Recording and Editing capability for variety of Streams and Navigation data	7
3.2.5 Recording and Editing capability for miscellaneous Navigation data	8
3.2.6 Recording and Editing capability for the maximum number of objects	9
3.2.7 Recording capability with scattered recordable area	9
3.2.8 Physical recording characteristics	10
3.2.9 DMA Verification test	10
3.3 Test Specification of DVD-RAM Video Recorded disc playback capable player for 525/60 or 625/50 TV system	11
3.3.1 Playback capability for variety of Streams and Navigation data	11
3.3.2 Playback capability for the maximum number of objects	11
3.3.3 Playback capability with the worst case jumping	11
3.4 Test Specification of DVD-RAM Video Camera Recorder using 8 cm disc for 525/60 or 625/50 TV system	12
3.4.1 Recording and Editing capability for variety of Streams and Navigation data	12
3.4.2 Recording and Editing capability for miscellaneous Navigation data	13
3.4.3 Recording and Editing capability for the maximum number of objects	13
3.4.4 Recording capability with scattered recordable area	14
3.4.5 Physical recording characteristics	14

Annex A

List of Class-A Verification Labs	15
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Annex B

Glossary of Terms used	16
------------------------------	----

Annex C

Procedure for Class-A Verification Lab Product Submission	17
---	----

Annex D

Test Tool Contact Information	18
-------------------------------------	----

Forms for DVD Format verification

Form 1P

Preliminary Information for DVD Format Verification F1

Form 2P

Test Information of DVD Format Verification F2

Form 3P

Test result of Playback capability for variety of Streams and Navigation data F3

Form 4P

Test result of Playback capability for the maximum number of objects F7

Form 5P

Test result of Playback capability with the worst case jumping F8

Form 6P

Test result of Recording and Editing capability for variety of Stream and Navigation data F9

Form 7P

Test result of Recording and Editing capability for miscellaneous Navigation data F12

Form 8P

Test result of Recording and Editing capability for the maximum number of objects F14

Form 9P

Test result of Recording capability with scattered recordable area F16

Form 10P

The result of Physical recording characteristics F17

Form 11P

Test results of DVD-RAM Video Recorder for 525/60 or 625/50 TV system F18

Form 12P

Test results of DVD-RAM Video Recorded disc playback capable player for
525/60 or 625/50 TV system F19

Form 13P

Test results of DVD-RAM Video Camera Recorder using 8cm disc for 525/60 or 625/50 TV system F20

Form 14P

Confirmation of DVD Format Verification F21

1. General

1.1 Scope

The scope of this Test Specification is the testing DVD-RAM Video Recorder for compliance with DVD Specifications for Rewritable Disc Part 1 (Ver. 2.2), Part 2 (Ver. 2.0) and DVD Specifications for DVD-RAM/DVD-RW/DVD-R for General Discs Part 3: Video Recording. The test procedure described herein could be used by Class-A Verification Labs, Class-B Verification Labs and Quality Assurance Departments of DVD-RAM Video Recorder manufacturers.

The scope of this Test Specification is limited to product's compliance to DVD Specifications and not to evaluate performance of products.

1.2 Normative References

- DVD Specifications for Rewritable Disc Part 1: Physical Specifications Version 2.2
- DVD Specifications for Rewritable Disc Part 2: File System Specification Version 2.0
- DVD Specifications for DVD-RAM/DVD-RW/DVD-R for General Discs Part 3: Video Recording Version 1.1

1.3 Scope of Products Covered

- A. DVD-RAM (4.7 Gbytes, 120mm) Video Recorders for 525/60 or 625/50 TV system
- B. DVD-RAM Video Recorded disc playback capable player for 525/60 or 625/50 TV system
- C. Integrated system of DVD-RAM Disc Video recording or/and playback functions for 525/60 or 625/50 TV system
- D. DVD-RAM Video Camera Recorders using 8 cm discs for 525/60 or 625/50 TV system

2. DVD Logo

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

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

Licensing terms for the DVD Logo are available from the DVD Format/Logo Licensing Corporation. This chapter describes the mechanism to be used for product compliance testing.

2.1 Definition of Terms Used

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

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

- DVD Specifications Version n.x changing to n+1.x
- Initial or the latest production model at the start of Logo Program for each licensee

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

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

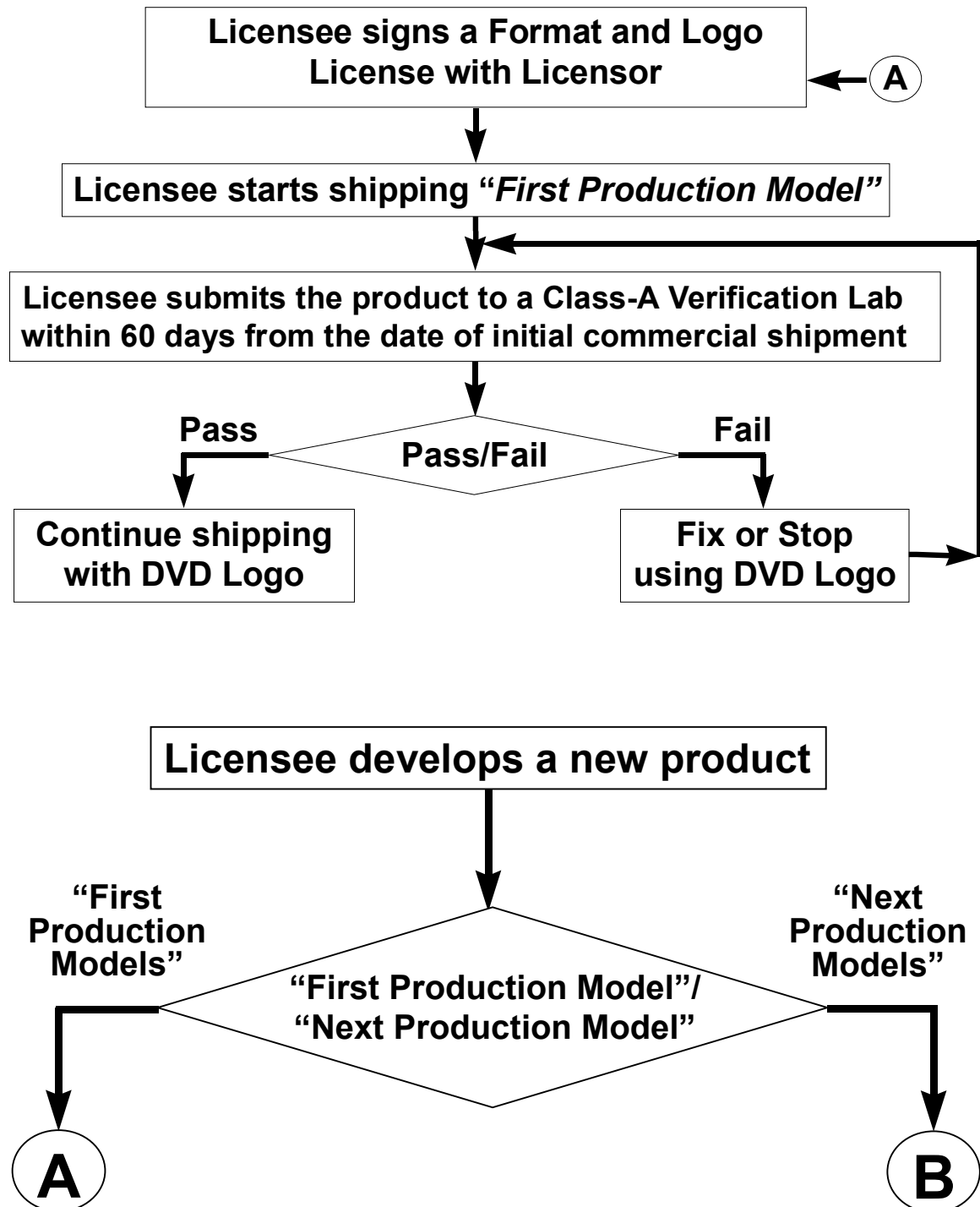
- DVD Specifications Version n.x changing to n.x+1
- Significant changes at Licensees discretion to Pickup head, LSI and/or firmware related to DVD format

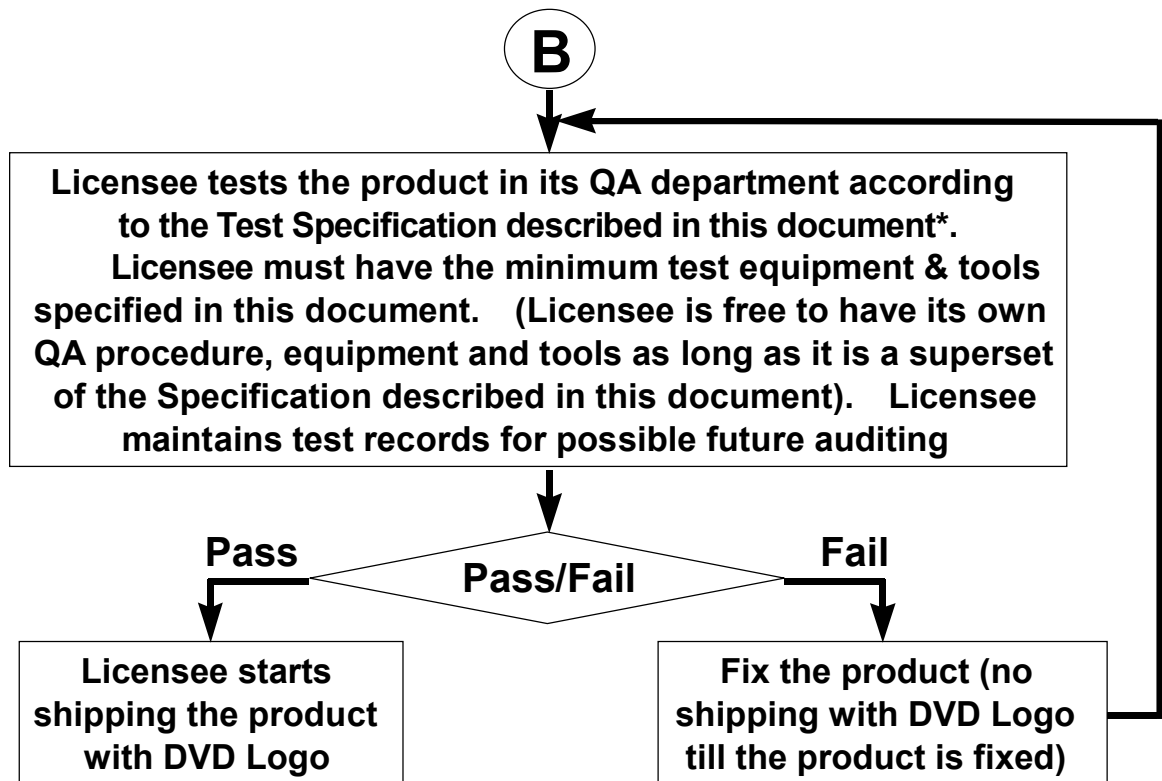
Class-A Verification Labs - Class-A Verification Labs are experts in DVD technology and provide independent expert assessment of Licensee's product compliance with DVD Specifications. Class-A labs also provide additional services such as interpretation of DVD Specifications, Test Tool development, and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

Class-B Verification Labs - DVD-RAM Video Recorder Class-B Verification Labs provide DVD-RAM Video Recorder testing strictly according to the **DVD-RAM Video Recorder Test Specification** (They can not interpret specifications).

2.2 DVD Logo Mechanism

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





*: Licensee without own QA department can get the product tested by a **DVD-RAM Video Recorder Class-B Verification Lab**.

Also licensee without QA department is recommended to consult with Class-A Lab. Certain Class-A Lab may have the function of a Class-B Lab.

3. Test tools and Test Specifications

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

3.1 Test Tools

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

3.1.1 Test Discs

Various test data are pre-recorded on the test discs. Some discs are used for testing playback capability and the others are used for testing recording and editing capability with additionally recording and/or modifying data on the discs.

The following test discs are used for this verification activity. As for acquisition, refer to **Annex D**.

- Stream and Navigation Playback Test Disc: **RAM-VR100** for 525/60 TV system and/or **RAM-VR150** for 625/50 TV system
- Maximum number of objects Test Disc: **RAM-VR200** for 525/60 TV system and/or **RAM-VR250** for 625/50 TV system
- Jump Performance Test Disc: **RAM-VR300** for 525/60 TV system and/or **RAM-VR350** for 625/50 TV system
- Stream and Navigation Recording/Editing Test Disc: **RAM-VR400** for 525/60 TV system and/or **RAM-VR450** for 625/50 TV system
- Standard Blank Disc: **RAM-PT200-A**
- Scattered Area Recording Test Disc: **RAM-VR700**
- DMA Test Disc Type C: **RAM-HM200-C**

- Stream and Navigation Recording/Editing Test Disc (8cm): **RAM-VC210-A** for 525/60 TV System and/or **RAM-VC210-AP** for 625/50 TV system
- Maximum number of objects Recording Test Disc (8cm): **RAM-VC210-B** for 525/60 TV System and/or **RAM-VC210-BP** for 625/50 TV System

- Standard Blank Disc (8cm): **RAM-HM210**
- Scattered Area Recording Test Disc (8cm): **RAM-VC210-C**

3.1.2 Test Forms (Form 3P to 9P)

The Test Forms are test sequence of playing, recording and/or editing functions for the test discs. An applicant shall conduct the testing of each function in accordance with Test Forms and compare the expected results.

3.1.3 Verifier/Dump-tool

The verifier and dump-tool are used for checking the modified discs whether the discs are correctly modified or not.

- DVD Video Recording Verifier for Application Layer: **DVD-VR01RAM**

Note: Dump capability is included.

- DMA Verifier: **DVD-SDV100**

Note: DMA verification capability for DVD-RAM drive is included.

- DVD-RAM File System Verifier: **DVD-FV01RAM**

Note: Video recording verification capability is included.

- DVD-RAM File System Verifier: **TFSV01**

Note: Video recording verification capability is included.

3.1.4 DVD-RAM Disc Evaluation System

This is the system owned individually by each applicant or Lab for executing the test specified in sections **3.2.8** and **3.4.5**.

3.2 Test Specification of DVD-RAM Video Recorder for 525/60 or 625/50 TV system

The following sections describe the test procedures required for verification of the DVD-RAM Video Recorder for 525/60 or 625/50 TV system.

3.2.1 Playback capability for variety of Streams and Navigation data

- This test targets to check the playback capability for variety of streams, e.g. seamless playback capability and still picture displaying capability, and variety of navigation data, e.g. Play List playback capability and Menu capability, using the test disc: **RAM-VR100** for 525/60 TV system or **RAM-VR150** for 625/50 TV system.
- Play back the Stream and Navigation Playback Test Disc: **RAM-VR100** or **RAM-VR150** and check the each test item in accordance with **Form 3P**.
- If the DVD-RAM Video Recorder has not supported the operation corresponding to the test item and the test item is noted as "optional function", it can be skipped.

3.2.2 Playback capability for the maximum number of objects

- This test targets to check the playback capability for the maximum number of objects, 999 movie VOBs and 63936 (= multiple 999×64) Still Picture VOBs. The huge number of objects loads a system controller, especially memory management. This test item checks such critical condition.
- Play back the Maximum number of objects Test Disc: **RAM-VR200** for 525/60 TV system or **RAM-VR250** for 625/50 TV system and check the each test item in accordance with **Form 4P**.
- All test items are mandatory function.

3.2.3 Playback capability with the worst case jumping

- This test targets to check the playback capability for frequently skipping within a CDA (Continuous data area) or full-stroke seeking, which includes two zones skipping between CDAs.
- Play back the Jump Performance Test Disc: **RAM-VR300** for 525/60 TV system or **RAM-VR350** for 625/50 TV system and check the each test item in accordance with **Form 5P**.
- All test items are mandatory.

3.2.4 Recording and Editing capability for variety of Streams and Navigation data

- This test is composed of following categories, and each category shall proceed respectively. So each category shall start from original test disc: **RAM-VR400** for 525/60 TV system or **RAM-VR450** for 625/50 TV system.

Categories: Record PG/Delete PG/Split PG/Merge PG/Move PG/Temporarily Delete/Create PL/Delete PL/Split PL/Merge PL/Move PL

- This test targets to check the recording and editing capability for variety of streams, e.g. VOBs to be played back seamlessly, and variety of navigation data, e.g. SMLI and AGAPI.

Note: Even if the Video Recorder has no such capability to create VOBs which are played seamlessly, the disc including the VOBs is carried from any other Video Recorders. Therefore preparing pre-recorded test discs including such data and checking for the behavior of recording and editing functions are necessary.

- Firstly an applicant executes the operations according to the nominated function column and the operation column of **Form 6P**. Then the modified disc shall be verified by the DVD Video Recording Verifier: **DVD-VR01RAM** and DVD-RAM File System Verifier: **DVD-FV01RAM** or **TFSV01**. After this checking, an applicant should check some data fields whether each field is appropriately updated as expected results using the dump-tool. Test results shall be recorded in the column of "Syntax".
- The data fields shall be appropriately updated i.e. satisfied with the expected value. Test result shall be recorded in "Semantics" columns of **Form 6P**.
- When the function corresponding to the operation has not been supported by the DVD-RAM Video Recorder, i.e. Nominated Function is described with hyphen '-', the test can be skipped.

Note 1: All test items are basically optional functions, but it is strongly recommended to test the corresponding function, which is supported by the Recorder.

Note 2: The applicant shall describe the nominated function. If the Recorder has no corresponding functions, hyphen '-' shall be put at the corresponding column of "Nominated Function" and the corresponding tests can be skipped. If the Recorder has any functions other than prescribed Test Item, the functions shall be nominated at the blank rows located at the end of **Form 6P**.

3.2.5 Recording and Editing capability for miscellaneous Navigation data

- This test targets to check the recording and editing capability for miscellaneous functions, e.g. Protect and Primary Text. The target functions are not affected to any other data fields and functions basically. Therefore this test is unnecessary to start with pre-recorded disc, but start with Standard Blank Disc: **RAM-PT200-A**.
- At first, an applicant should record two PGs, each of which has two Original Cells and temporarily delete the M_VOB/S_VOG corresponding to the second Cell in the second PG. Either Cell type may be used at this test category.
- Test items described in **Form 7P** shall be executed and the test results shall be recorded.
- When the function corresponding to the operation has not been supported by the DVD RAM Video Recorder, i.e. Nominated Function is described with hyphen '-', the test item can be skipped.
- When the DVD RAM Video Recorder has no capability to display the test object/fields on TV screen, the modified disc can be checked using the dump-tool.

Note 1: All test items are basically optional functions, but it is strongly recommended to test the corresponding function, which is supported by the DVD RAM Video Recorder.

Note 2: The nominated function shall be described by the applicant. If the Recorder has no corresponding functions, hyphen '-' shall be put at the corresponding column "Nominated Function". If the Recorder has any functions other than prescribed Test Item, the functions shall be nominated at the blank rows located at the end of **Form 7P**.

3.2.6 Recording and Editing capability for the maximum number of objects

- This test targets to check the recording and editing capability for the maximum number of objects, 999 Movie VOBs and 63936 (= multiple 999×64) Still Picture VOBs, using the test disc: **RAM-VR200** for 525/60 TV system or **RAM-VR250** for 625/50 TV system. The maximum numbers of objects are strictly restricted in the Video Recording Specifications, and then the DVD-RAM Video Recorder shall not record and/or create the objects exceeding the restriction.
- Even when the recordable area is still remained, the Recorder shall refuse user's request to record and/or create new object in case the maximum number of the objects have already been recorded.
- An operator should execute item by item according to the nominated function and the operation of **Form 8P**, and check each item with expected result.
- When the function corresponding to the operation has not been supported by the DVD-RAM Video Recorder, i.e. Nominated Function is described with hyphen '-', an operator can simply skip this test item.
- When the DVD-RAM Video Recorder has no capability to display the object/fields corresponding to the test on TV screen, the modified disc can be checked using the dump-tool.

Note 1: All test items are basically optional functions, but it should be done as much as the Recorder supports the corresponding function.

Note 2: The nominated function shall be described by the applicant. If the Recorder has no corresponding functions, hyphen '-' shall be put at the corresponding column "Nominated Function". If the Recorder has any functions other than prescribed Test Items, the functions shall be nominated at the blank rows located at the end of **Form 8P**.

3.2.7 Recording capability with scattered recordable area

- This test targets to check the recording capability with scattered recordable areas using Scattered Area Recording Test Disc: **RAM-VR700**. Whether each free area can be used for recording depends on consumption rate determined by the DVD-RAM Video Recorder. Therefore this test proceeds that the DVD-RAM Video Recorder allocates free areas and records on them as much as it can, and after recording, the recorded areas are checked whether each recorded area satisfies the condition of continuous playback or not.
- An applicant should execute item by item in accordance with **Form 9P**, and after executing each item the modified disc is checked using the verifier.
- When the function corresponding to the operation has not been supported by the DVD-RAM Video Recorder, i.e. Nominated Function is described with hyphen '-', the test items can be skipped.

Note 1: All test items are basically optional functions, but it should be done as much as the Recorder supports the corresponding function.

Note 2: The nominated function shall be described by the applicant. If the Recorder has no corresponding function, i.e. bitrate cannot be set, hyphen '-' shall be put at the corresponding column of "Nominated Function". If the Recorder has any functions other than prescribed Test Items, i.e. any other bitrate mode is supported, the functions shall be nominated at the blank rows located at the end of **Form 9P**.

3.2.8 Physical recording characteristics

- The DVD-RAM Video Recorder tested shall write 100% Full Color Bar signal in the Recording layer of a Standard Blank Disc: **RAM-PT200-A**. The writing zone shall be at least Zone 0, Zone 17 and Zone 34. And measure the characteristics of the Recording layer using DVD-RAM Disc Evaluation System or equivalent system in accordance with **Form 10P**.

3.2.9 DMA Verification test

- Initialize and write any user data more than 1 GB on the user area of DMA Test Disc Type C: **RAM-HM200-C** by the DVD-RAM Video Recorder. The recorded disc shall pass the general DMA verification test of DMA Verifier: **DVD-SDV100**. The test result shall be recorded in **Form 11P**.

3.3 Test Specification of DVD-RAM Video Recorded disc playback capable player for 525/60 or 625/50 TV system

The following sections describe the test procedures required for the DVD-RAM Video Recorded disc playback capable player for 525/60 or 625/50 TV system.

3.3.1 Playback capability for variety of Streams and Navigation data

- This test targets to check the playback capability for variety of streams, e.g. seamless playback capability and still picture displaying capability, and for variety of navigation data, e.g. Play List playback capability and Menu capability, using the test disc: **RAM-VR100** for 525/60 TV system or **RAM-VR150** for 625/50 TV system.
- Play back the Stream and Navigation Playback Test Disc: **RAM-VR100** or **RAM-VR150** and check the each test item in accordance with **Form 3P**.
- If the operation corresponding to the test item has not been supported by the Player and the test item is noted as "optional function", it can be skipped.

3.3.2 Playback capability for the maximum number of objects

- This test targets to check the playback capability for the maximum number of objects, 999 movie VOBs and 63936 (= multiple 999×64) Still Picture VOBs. The huge number of objects loads a system controller, especially memory management. This test item checks such critical condition.
- Play back the Maximum number of objects Test Disc: **RAM-VR200** for 525/60 TV system or **RAM-VR250** for 625/50 TV system and check the each test item in accordance with **Form 4P**.
- All test items are mandatory function.

3.3.3 Playback capability with the worst case jumping

- This test targets to check the playback capability for frequently skipping within a CDA (Continuous data area) or full-stroke seeking, which includes two zones skipping between CDAs.
- Play back the Jump Performance Test Disc: **RAM-VR300** for 525/60 TV system or **RAM-VR350** for 625/50 TV system and check the each test item in accordance with **Form 5P**.
- All test items are mandatory.

3.4 Test Specification of DVD-RAM Video Camera Recorder using 8 cm disc for 525/60 or 625/50 TV system

The following sections describe the test procedures required for the DVD-RAM Video Camera Recorders using 8 cm disc for 525/60 or 625/50 TV system.

3.4.1 Recording and Editing capability for variety of Streams and Navigation data

- This test is composed of following categories, and each category shall proceed respectively. So each category shall start from original test disc: **RAM-VC210-A** for 525/60 TV system or **RAM-VC210-AP** for 625/50 TV system.

Categories: Record PG/Delete PG/Split PG/Merge PG/Move PG/Temporarily Delete/Create PL/Delete PL/Split PL/Merge PL/Move PL

- This test targets to check the recording and editing capability for variety of streams, e.g. VOBs to be played back seamlessly, and variety of navigation data, e.g. SMLI and AGAPI.

Note: Even if the DVD-RAM Video Camera Recorder has no such capability to create VOBs which are played back seamlessly, the disc including the VOBs is carried from any other DVD-RAM Video Camera Recorder. Therefore preparing pre-recorded test discs including such data and checking for the behavior of recording and editing functions are necessary.

- Firstly an applicant executes the operations according to the nominated function column and the operation column of **Form 6P**. Then the modified disc shall be verified using the DVD Video Recorder Verifier: **DVD-VR01RAM** and DVD-RAM File System Verifier: **DVD-FV01RAM or TFSV01**. After this checking, an applicant should check some data fields whether each file is appropriately updated as expected results using the dump-tool. The test results shall be recorded in the column of "Syntax".
- The data fields shall be appropriately updated i.e. satisfied with the expected value. The test result shall be recorded in "Semantics" columns of **Form 6P**.
- When the function corresponding to the operation has not been supported by the DVD-RAM Video Camera Recorder, i.e. Nominated Function is described with hyphen '-', the test can be skipped.

Note 1: All test items are basically optional functions, but it is strongly recommended to test the corresponding function, which is supported by the Recorder.

Note 2: The applicant shall describe the nominated function. If the Recorder has no corresponding functions, hyphen '-' shall be put at the corresponding column "Nominated Function". If the Recorder has any functions other than prescribed Test Item, the functions shall be nominated at the blank rows located at the end of **Form 6P**.

3.4.2 Recording and Editing capability for miscellaneous Navigation data

- This test targets to check the recording and editing capability for miscellaneous functions, e.g. Protect and Primary Text. The target functions are not affected to any other data fields and functions basically. Therefore this test is unnecessary to start with pre-recorded disc, but start with a Standard Blank Disc: **RAM-HM210**.
- At first, an applicant should record two PGs, each of which has two Original Cells and temporarily delete the M_VOB/S_VOG corresponding to the second Cell in the second PG. Either Cell type may be used at this test category.
- Test items described in **Form 7P** shall be executed and the test result shall be recorded.
- When the function corresponding to the operation has not been supported by the Video Camera Recorder, i.e. Nominated Function is described with hyphen '-', the test item can be skipped.
- When the DVD-RAM Video Camera Recorder has no capability to display the test object/fields on TV screen, the modified disc is checked using the dump-tool.

Note 1: All test items are basically optional functions, but it is strongly recommended to test the corresponding function, which is supported by the Recorder.

Note 2: The nominated function shall be described by the applicant. If the Recorder has no corresponding functions, hyphen '-' shall be put at the corresponding column "Nominated Function". If the Recorder has any functions other than prescribed Test Item, the functions shall be nominated at the blank rows located at the end of **Form 7P**.

3.4.3 Recording and Editing capability for the maximum number of objects

- This test targets to check the recording and editing capability for the maximum number of objects, 999 Movie VOBs and 63936 (= multiple 999×64) Still Picture VOBs, using the test disc: **RAM-VC210-B** for 525/60 TV system or **RAM-VC 210-BP** for 625/50 TV system. The maximum numbers of objects are strictly restricted in the Video Recording Specifications, and then a DVD-RAM Video Camera Recorder shall not record and/or create the objects exceeding the restriction.
- Even when the recordable area is still remained, the Recorder shall refuse user's request to record and/or create new object in case the maximum number of objects have already been recorded.
- An operator should execute item by item according with the nominated function and the operation of **Form 8P**, and check each item with expected result.
- When the function corresponding to the operation has not been supported by the DVD-RAM Video Camera Recorder, i.e. Nominated Function is described with hyphen '-', an operator can simply skip this function.
- When the DVD-RAM Video Camera Recorder has no capability to display the test object/fields on TV screen, the modified disc can be checked using the dump-tool.

Note 1: All test items are basically optional functions, but it should be done as much as the Recorder supports the corresponding function.

Note 2: The nominated function shall be described by the applicant. If the Recorder has no corresponding functions, hyphen '-' shall be put at the corresponding column "Nominated Function". If the Recorder has any functions other than prescribed Test Item, the functions shall be nominated at the blank rows located at the end of **Form 8P**.

3.4.4 Recording capability with scattered recordable area

- This test targets to check recording capability with scattered recordable areas using Scattered Area Recording Test Disc: **RAM-VC210-C**. Whether each free area can be used for recording depends on the consumption rate determined by the DVD RAM Video Camera Recorder. Therefore this test proceeds that the DVD-RAM Video Camera Recorder allocates free areas and records on them as much as it can. After recording the recorded areas are checked whether each recorded area satisfies the condition of continuous playback.
- An applicant should execute item by item in accordance with **Form 9P**, and after executing each item the modified disc is checked using the verifier.
- When the function corresponding to the operation has not been supported by the DVD-RAM Video Camera Recorder, i.e. Nominated Function is described with hyphen '-', the test item can be simply skipped.

Note 1: All test items are basically optional functions, but it should be done as much as the Recorder supports the corresponding function.

Note 2: The nominated function shall be described by the applicant. If the Recorder has no corresponding function, i.e. bitrate cannot be set, hyphen '-' shall be put at the corresponding column "Nominated Function". If the Recorder has any functions other than prescribed Test Item, i.e. any other bitrate mode is supported, the functions shall be nominated at the blank rows located at the end of **Form 9P**.

3.4.5 Physical recording characteristics

- The DVD-RAM Video Camera Recorder tested shall record 100% Full Color Bar signal in the Recording layer of a Standard Blank Disc: **RAM-HM210**. The writing zone shall be at least Zone 0, Zone 7 and Zone 13. And measure the characteristics of Recording layer using DVD-RAM Disc Evaluation System or equivalent system in accordance with **Form 10P**.

Note: If DVD-RAM Video Camera Recorder has no external input, 100% Full Color Bar test sheet shall be taken.

Annex A

List of Class-A Verification Labs

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

Hitachi Consumer Electronics Co., Ltd.

Format Verification Center

292 Yoshida-cho, Totsuka-ku, Yokohama-shi, Kanagawa, 244-0817 Japan

Fax: +81-45-866-5905

JVC KENWOOD Corporation

DVD Verification Lab.

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

Fax: +81-45-450-2425

Panasonic Corporation

Format Verification Laboratory

1-15, Matsuo-cho, Kadoma, Osaka, 571-8504 Japan

Fax: +81-6-6909-5027

E-mail: fv1-info@ml.jp.panasonic.com URL: <http://panasonic.co.jp/avc/fv1/en/index.html>

SAMSUNG ELECTRONICS CO., LTD.

DVD Verification Laboratory

VD Division, DM Business

416, Maetan-3Dong, Yeongtong-Gu, Suwon-City, Gyeonggi-Do, 443-742 Korea

Tel: +82-31-277-0875 Fax: +82-31-277-3398

E-mail: bd.tcenter@samsung.com

Annex B

Glossary of Terms used

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Annex C

Procedure for Class-A Verification Lab Product Submission

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

Preliminary Application

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

Self Test

Applicant must test the product in accordance with this Test Specification prior to submitting to a Class-A Verification lab. Applicant must complete **Form 2P** and **necessary Forms***.

*Note:

- **Form 3P to 5P and 12P** are necessary for verification of "DVD-RAM Video Recorded disc playback capable player or integrated system".
- **Form 6P to 10P and 13P** are necessary for verification of "DVD-RAM Video Camera Recorder using 8cm disc".
- **Form 3P to 11P** are necessary for verification of "DVD-RAM Video Recorder" or "integrated system with DVD-RAM Video recording and playback functions".
- Applicant shall use the latest Forms from DVD FLLC website (<http://www.dvdfllc.co.jp>).

Mutual Non-Disclosure Agreement (NDA)

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

Application

Applicant must submit 3 product samples along with necessary Forms and the NDA.

Test Result

Upon completion of testing, Verification Lab will complete **Form 14P** to inform the applicant and DVD Format/Logo Licensing Corporation of the test results.

Annex D

Test Tool Contact Information

The Contact Information is correct at the time of publication. However, when the Class-A Lab information (marked <>) differs from such information cited in our website www.dvdfllc.co.jp, the List with more current date prevails.*

Test Discs (RAM-VR100, RAM-VR150, RAM-VR200, RAM-VR250, RAM-VR300, RAM-VR350, RAM-VR400, RAM-VR450, RAM-PT200-A, and RAM-VR700) shall be delivered by:

Panasonic Corporation<*>

Format Verification Laboratory

1-15, Matsuo-cho, Kadoma, Osaka, 571-8504 Japan

Fax: +81-6-6909-5027

E-mail: fvl-info@ml.jp.panasonic.com URL: <http://panasonic.co.jp/avc/fvl/en/index.html>

Test Discs (8cm) (RAM-VC210-A, RAM-HM210, RAM-VC210-B, RAM-VC210-C, RAM-HM200-C, RAM-VC210-AP and RAM-VC210-BP) shall be delivered by:

Hitachi Consumer Electronics Co., Ltd.<*>

Format Verification Center

292 Yoshida-cho, Totsuka-ku, Yokohama-shi, Kanagawa, 244-0817 Japan

Fax: +81-45-866-5905

DVD Video Recording Verifier for application layer (DVD-VR01RAM) shall be delivered by:

Panasonic Corporation<*>

Format Verification Laboratory

1-15, Matsuo-cho, Kadoma, Osaka, 571-8504 Japan

Fax: +81-6-6909-5027

E-mail: fvl-info@ml.jp.panasonic.com URL: <http://panasonic.co.jp/avc/fvl/en/index.html>

DVD-RAM File System Verifier (DVD-FV01RAM) shall be delivered by:

Panasonic Corporation<*>

Format Verification Laboratory

1-15, Matsuo-cho, Kadoma, Osaka, 571-8504 Japan

Fax: +81-6-6909-5027

E-mail: fvl-info@ml.jp.panasonic.com URL: <http://panasonic.co.jp/avc/fvl/en/index.html>

DVD-RAM File System Verifier (TFSV01):

Discontinued

DMA Verifier (DVD-SDV100) shall be delivered by:

SAMSUNG ELECTRONICS CO., LTD.<*>

DVD Verification Laboratory

VD Division, DM Business

416, Maetan-3Dong, Yeongtong-Gu, Suwon-City, Gyeonggi-Do, 443-742 Korea

Tel: +82-31-277-0875 Fax: +82-31-277-3398

E-mail: bd.tcenter@samsung.com

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