



DVD-Audio Player

TEST SPECIFICATION

Version 1.12
November 2006

Amendment for DVD-Audio Player TS Version 1.12 (November 2006)

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

- **Minor amendment (April 16, 2009)**

Page	Location	Amendment
Pages 9 to 10	Annex A	<ul style="list-style-type: none"> • Class-A Lab information of "Mitsubishi Electric Corporation", "Matsushita Electric Industrial Co., Ltd. (company name)", "PIONEER CORPORATION", "Sony Corporation", "Victor Company of Japan, Limited" and "Industrial Technology Research Institute" was updated.
Page 13	Annex D	<ul style="list-style-type: none"> • Class-A Lab information of "Matsushita Electric Industrial Co., Ltd. (company name)", "PIONEER CORPORATION" and "Victor Company of Japan, Limited" was updated.

- **Minor amendment (January 2010)**

Page	Location	Amendment
Pages 9 to 10	Annex A	<ul style="list-style-type: none"> • Class-A Lab information of "Panasonic Corporation", "PIONEER CORPORATION", "Victor Company of Japan, Limited" and "SAMSUNG ELECTRONICS CO., LTD" were updated.
Page 13	Annex D	<ul style="list-style-type: none"> • Class-A Lab information of "Panasonic Corporation", "PIONEER CORPORATION" and "Victor Company of Japan, Limited" were updated.

- **Minor amendment (March 2011)**

Page	Location	Amendment
Page 9	Annex A	<ul style="list-style-type: none"> • Class-A Lab information of "China Electronics Technology Group Corporation No.3 Research Institute" was updated.

- **Amendment 1 (January 2012)**

Page	Location	Amendment
Pages 9 to 10	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 13	Annex D	<ul style="list-style-type: none"> • The supplier of the Test Discs (TSD-10 and TSD-12) was changed from "Toshiba Corporation" to "ALMEDIO INC." • The company name "Victor Company of Japan, Limited" was changed to "JVC KENWOOD Corporation".

- **Minor amendment (June 2012)**

Page	Location	Amendment
Page 10	Annex A	<ul style="list-style-type: none"> • Class-A Lab information of "Sony Corporation", "LG Electronics Inc.", "SAMSUNG ELECTRONICS CO., LTD" and "Industrial Technology Research Institute" were updated.

Conditions for Publication

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Inquiry

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Revision History

- May 17, 1999
DVD Audio Player Test Specification Version 0.2 was distributed to Verification Task Force members.
- September 21, 1999
DVD Audio Player Test Specification Version 1.0 was authorized by Verification Task Force members.
- November 10, 2000
DVD Audio Player Test Specification Version 1.1 was authorized by Verification Task Force members.
- February 23, 2001
Three Class-A Labs were added in Annex A.
- June 2005
Version 1.11 updated Class-A Lab List and was edited as electronic files.
- November 2006
Version 1.12 revised the Expected result of Form 11J / No. 20, and updated Class-A Lab List.

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Forms for DVD Format verification

Form 1J

Preliminary Information for DVD Format Verification F1

Form 2J

Test Information of DVD Format Verification F2

Form 3J

Test results of Audio Manager Test Disc Vol. 1 (DVD-AM 400) F3

Form 4J

Test results of Audio Manager Test Disc Vol. 2 (DVD-AM 450) F6

Form 5J

Test results of Audio Title Set Test Disc (ATD_001) F11

Form 6J

Test results of Audio Title Set Test Disc for Packed PCM (V-603) F22

Form 7J

Test results of Audio Still Video Test Disc (V-601) F27

Form 8J

Test results of Audio Still Video Test Disc (V-602) F33

Form 9J

Test results of Audio with Video Title Set Test Disc (TSD-10) F35

Form 10J

Test results of Audio Manager Test Disc (DVD-AM500) F36

Form 11J

Test results of Audio Manager Test Disc (DVD-AM550) F39

Form 12J

Test results of Audio Still Video Test Disc (V-604) F44

Form 13J

Test results of Audio Still Video Test Disc (V-605) F50

Form 14J

Test results of Audio with Video Title Set Test Disc (TSD-12) F52

Form 15J

Confirmation of DVD Format Verification F53

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1. General

1.1 Scope

The scope of this Test Specification is the testing DVD-Audio Players for compliance with **DVD Specifications for Read-Only Disc Part 1, 2 and 4**. The test procedure described herein could be used by Class-A Verification Labs, Class-B Verification Labs and Quality Assurance Departments of DVD-Audio Player Licensees.

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

1.2 Normative References

DVD Specifications for Read-Only Disc

Part 1: Physical Specifications Version 1.0

Part 2: File System Specifications Version 1.0

Part 4: Audio Specifications Version 1.2

1.3 Scope of Products Covered

- A. DVD-Audio Player (e.g. Audio Only Player, Video Capable Audio Player)
- B. DVD-Audio Disc playback functions of integrated systems

2. DVD Logo

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

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

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

2.1 Definition of Terms Used

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

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

- 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 its 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**:

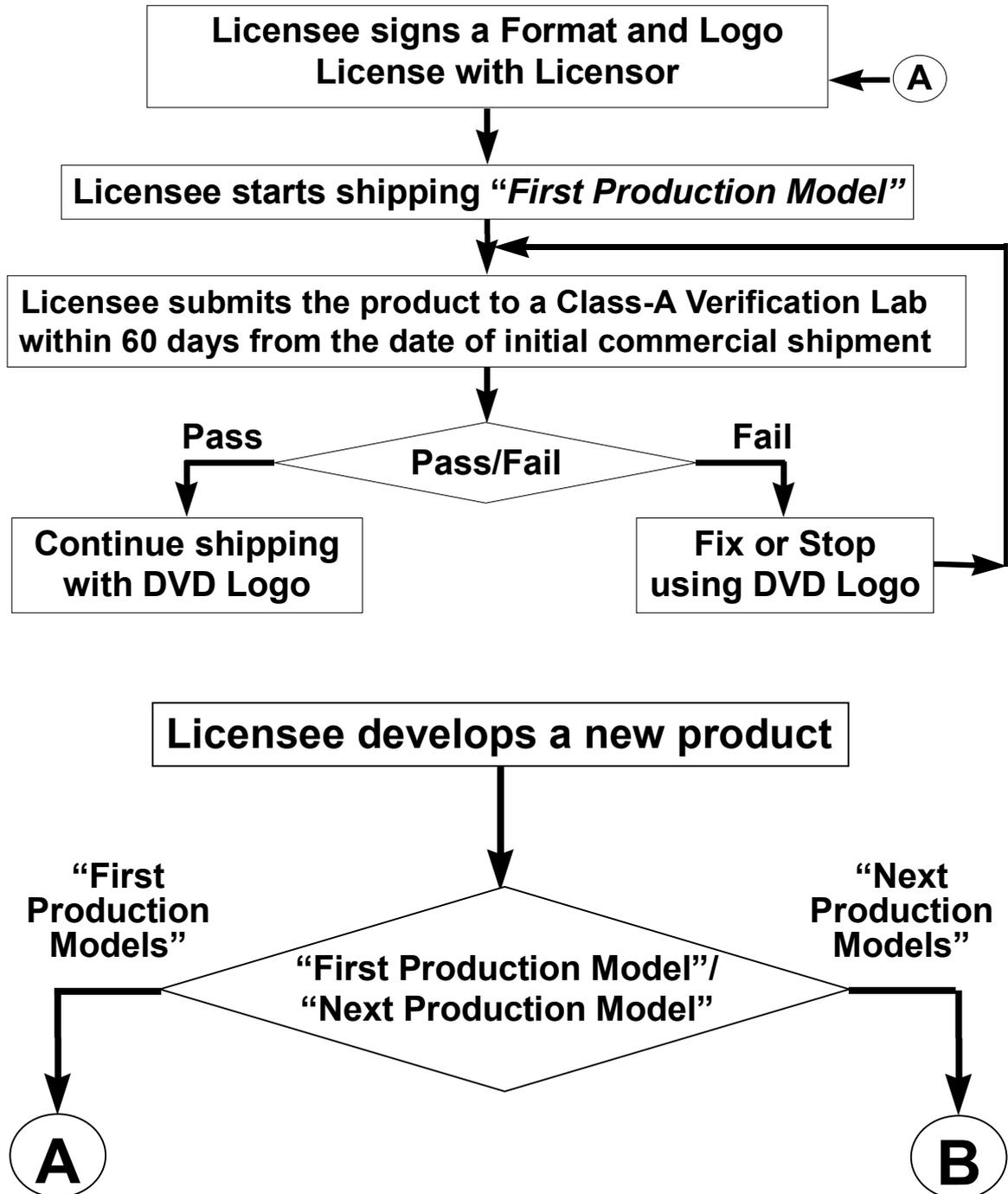
- DVD Specifications Version n.x changing to n.x+1
- Significant changes to Pickup head, LSI and/or firmware related to DVD Specifications

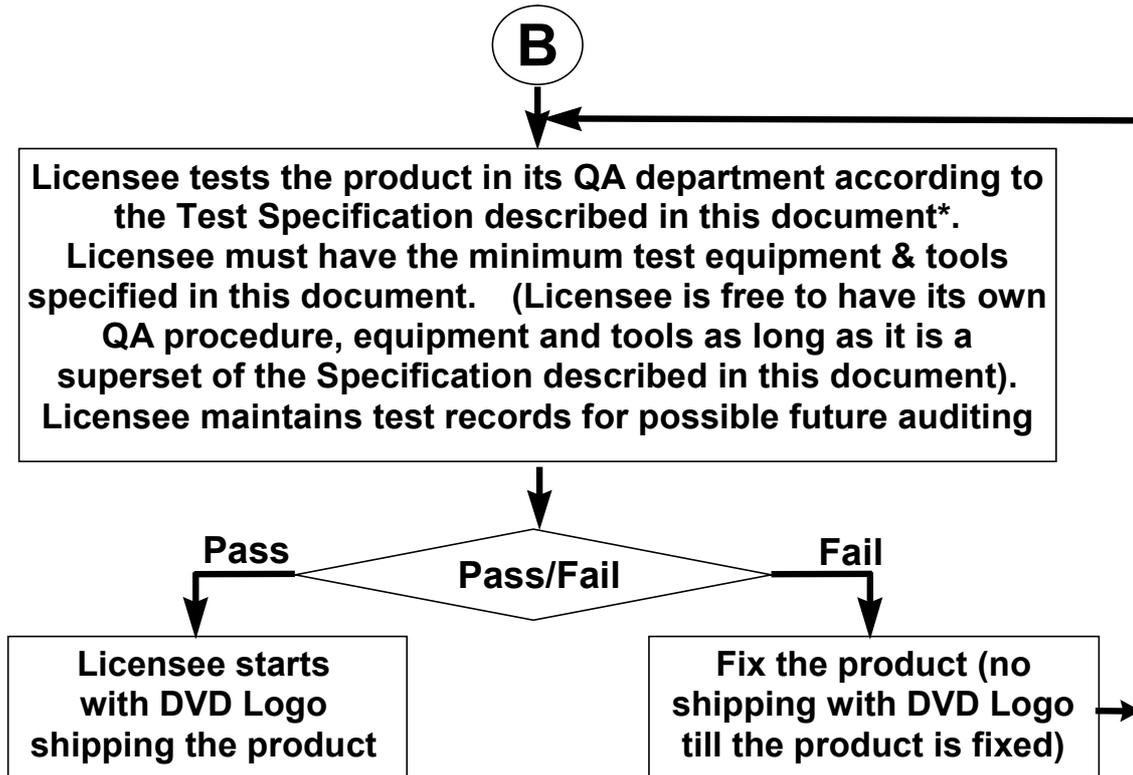
Class-A Verification Labs- Class-A verification Labs are experts in DVD technology and provide independent expert assessment of Licensee's product compliance with respect to DVD Specifications. Class-A Labs also provide additional services such as interpretation of DVD Specifications, Test Tool development,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

Class-B Verification Labs- DVD-Audio Player Class-B Verification Labs provide DVD-Audio Player testing strictly according to the DVD-Audio Player Test Specification as described in this document (They can not interpret the 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-Audio Player Class-B Verification 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. As for acquisition, refer to **Annex D**.

- Audio Manager Test Disc Vol. 1 : DVD-AM400
- Audio Manager Test Disc Vol. 2 : DVD-AM450
- PAL Audio Manager Test Disc Vol. 1 : DVD-AM500
- PAL Audio Manager Test Disc Vol. 2 : DVD-AM550
- Audio Title Set Test Disc : ATD_001
- Audio Title Set Test Disc for Packed PCM : V-603
- Audio Still Video Test Disc : V-601 and V-602
- Audio Still Video Test Disc for PAL System : V-604 and V-605
- Audio with Video Title Set Test Disc : TSD-10
- Audio with Video Title Set Test Disc for PAL System : TSD-12

3.2 Test Specification of Audio Only Player

The following sections describe the test procedures required for the Audio Only Player; the tests are identical for both, the First Production Models and the Next Production Models.

3.2.1 Audio Title Set

- Play back the Audio Title Set Test Disc (ATD_001) and check the LPCM syntax (for Multi-channel-speaker system, for 2-channel-speaker system), Audio Selection and Groups (continuous playback of the various fs/Qb tracks in the Group) in accordance with **Form 5J**.

3.2.2 Audio Title Set for Packed PCM

- Play back the Audio Title Set Test Disc for Packed PCM (V-603) and check the PPCM basic playback (music playback, sine wave playback), Channel assignment, Scalable, 2-ch playback, Stress test (CBR, Large FIFO latency, Large FIFO occupancy, Large access unit) and Playability (restart interval, LPCM with Index, PPCM with Index, Audio Selection with Index) in accordance with **Form 6J**.

3.2.3 Audio Still Video

- Play back the Audio Still Video Test Disc V-601 (or V-604) and check the audio signal capability of the items specified for Audio Only Player in accordance with **Form 7J** (or **Form 12J**).
- Play back the Audio Still Video Test Disc V-602 (or V-605) and check the audio signal capability of the items specified for Audio Only Player in accordance with **Form 8J** (or **Form 13J**).

3.2.4 Audio with Video Title Set

- Play back the Audio with Video Title Set Test Disc TSD-10 (or TSD-12) and check the presentation of AVTT & AOTT in accordance with **Form 9J** (or **Form 14J**).

3.3 Test Specification of Video Capable Audio Player for 525/60 TV System

The following sections describe the test procedures required for the Video Capable Audio Player for 525/60 TV system, the tests are identical for both, the First Production Models and the Next Production Models.

3.3.1 Audio Manager

- Play back the Audio Manager Test Disc Vo1. 1 (DVD-AM400) and check the Control of Program Unit (Navi Command PrevPGC, NextPGC, PrevPG, NextPG, PrevC, NextC), Control of Cell Unit (Cell_Still) and Simple branch title (Navi Command, Next PGC, PrevPGC, GoUpPGC) in accordance with **Form 3J**.
- Play back the Audio Manager Test Disc Vol. 2 (DVD-AM450) and check the Navi Command (Calculation, Compare, Link command), Button command, Key selection, Resume, Return menu in accordance with **Form 4J**.

Note: Test ID 3-1 is rejected in **Form 4J**. Test ID 3-1 shall be ignored and should not be executed although it is found on the menu in DVD-AM450. According to the clarification by DVD-Forum WG1, players for this item (FOAC_BTN after Cell_Still) may have two kinds of implementations.

3.3.2 Audio Title Set

- Play back the Audio Title Set Test Disc (ATD_001) and check the LPCM syntax (for Multi-channel-speaker system, for 2-channel-speaker system), Audio Selections (in VOB), Groups (continuous playback of the various fs/Qb tracks in the Group, Hidden Group) and Menu (user operation function on Menu screen) in accordance with **Form 5J**.

3.3.3 Audio Title Set for Packed PCM

- Play back the Audio Title Set Test Disc for Packed PCM (V-603) and check the PPCM basic playback (music playback, sine wave playback), Channel assignment, Scalable, 2-ch playback, Stress test (CBR, Large FIFO latency, Large FIFO occupancy, Large access unit) and Playability (restart interval, LPCM with Index, PPCM with Index, Audio Selection with Index) in accordance with **Form 6J**.

3.3.4 Audio Still Video

- Play back the Audio Still Video Test Disc (V-601) and check the ASVU video (MPEG) mode check (720 × 240, 352 × 480, 352 × 240, 4 : 3, 16 : 9), ASVU range check (slide show), ASVU effect check (slide show, sequential browsable, random display in slide show, random display in browsable pictures), and Max. DLIST check (sequential browsable) in accordance with **Form 7J**.
- Play back the Audio Still Video Test Disc (V-602) and check the Command with sequential browsable mode and Command with slide show in accordance with **Form 8J**.

3.3.5 Audio with Video Title Set

- Play back the Audio with Video Title Set Test Disc (TSD-10) and check the presentation of AMGM, AVTT only and AVTT&AOTT in accordance with **Form 9J**.

3.4 Test Specification of Video Capable Audio Player for 625/50 TV System

The following sections describe the test procedures required for the Video Capable Audio Player for 625/60 TV system, the tests are identical for both, the First Production Models and the Next Production Models.

3.4.1 Audio Manager

- Play back the PAL Audio Manager Test Disc Vol. 1 (DVD-AM500) and check the Control of Program Unit (Navi Command PrevPGC, NextPGC, PrevPG, NextPG, PrevC, NextC), Control of Cell Unit (Cell_Still) and Simple branch title (Navi Command, Next PGC, PrevPGC, GoUpPGC) in accordance with **Form 10J**.
- Play back the PAL Audio Manager Test Disc Vol. 2 (DVD-AM550) and check the Navi Command (Calculation, Compare, Link command), Button command, Key selection, Resume, Return menu in accordance with **Form 11J**.

Note: Test ID 3-1 is rejected in **Form 11J**. Test ID 3-1 shall be ignored and should not be executed although it is found on the menu in DVD-AM550. According to the clarification by DVD Forum WG1, players for this item (FOAC_BTN after Cell_Still) may have two kinds of implementations.

3.4.2 Audio Title Set

- Play back the Audio Title Set Test Disc (ATD_001) and check the LPCM syntax (for Multi-channel-speaker system, for 2-channel-speaker system), Audio Selections (in VOB), Groups (continuous playback of the various fs/Qb tracks in the Group, Hidden Group) and Menu (user operation function on Menu screen) in accordance with **Form 5J**.

3.4.3 Audio Title Set for Packed PCM

- Play back the Audio Title Set Test Disc for Packed PCM (V-603) and check the PPCM basic playback (music playback, sine wave playback), Channel assignment, Scalable, 2-ch playback, Stress test (CBR, Large FIFO latency, Large FIFO occupancy, Large access unit) and Playability (restart interval, LPCM with Index, PPCM with Index, Audio Selection with Index) in accordance with **Form 6J**.

3.4.4 Audio Still Video

- Play back the Audio Still Video Test Disc for PAL System (V-604) and check the ASVU video (MPEG) mode check (720 × 240, 352 × 480, 352 × 240, 4 : 3, 16 : 9), ASVU range check (slide show), ASVU effect check (slide show, sequential browsable, random display in slide show, random display in browsable pictures), and Max. DLIST check (sequential browsable) in accordance with **Form 12J**.
- Play back the Audio Still Video Test Disc for PAL System (V-605) and check the Command with sequential browsable mode and Command with slide show in accordance with **Form 13J**.

3.4.5 Audio with Video Title Set

- Play back the Audio with Video Title Set Test Disc for PAL System (TSD-12) and check the presentation of AMGM, AVTT only and AVTT&AOTT in accordance with **Form 14J**.

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.

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JVC KENWOOD Corporation

DVD Verification Lab.

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Fax: +81-44-580-4027

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Sony Corporation

Verification Laboratory

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Korea

LG Electronics Inc.

DVD Verification Laboratory

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E-mail: bd.tcenter@samsung.com

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E-mail: jtrann@itri.org.tw

U.S.A.

Panasonic Disc Manufacturing Corporation of America

PDMC Verification Laboratory

20608 Madrona Avenue, Torrance, CA 90503 U.S.A.

Fax: +1-310-783-4849

Annex B

Glossary of Terms Used

(May be defined)

Annex C

Procedure for Class-A Verification Lab Product Submission

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

Preliminary Application

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

Self Test

Applicant must test the product in accordance with this Test Specification prior to submitting it to a Class-A Verification Lab. Applicant must complete **Form 2J** and **necessary Forms*** to provide test results.

*Note: Necessary Forms for each Product type are as follows:

- **Forms 5J to 9J (or 5J, 6J and 12J to 14J)** are necessary for "DVD Audio Only Player".
- **Forms 3J to 9J** are necessary for "DVD Video Capable Audio Player for 525/60 TV system".
- **Forms 5J, 6J and 10J to 14J** are necessary for "DVD Video Capable Audio Player for 625/50 TV system".

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 the necessary Forms and the NDA.

Test Result

Upon completion of testing, Verification Lab will complete **Form 15J** 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.*

Audio Manager Test Disc: DVD-AM 400, DVD-AM450, DVD-AM500 and DVD-AM 550 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>

Audio Title Set Test Disc: ATD_001 shall be delivered by:

PIONEER CORPORATION<*>

Verification Laboratory

1-1 Shin-ogura, Saiwai-ku, Kawasaki-shi, Kanagawa, 212-0031 Japan

Fax: +81-44-580-4027

Audio Title Set Test Disc for Packed PCM: V-603 and Audio Still Video Test Disc: V-601, V-602, V-604 and V-605 shall be delivered by:

JVC KENWOOD Corporation<*>

DVD Verification Lab.

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

Fax: +81-45-450-2425

Audio with Video Title Set Test Disc: TSD-10 and TSD-12 shall be delivered by:

ALMEDIO INC. <*>

Testing Laboratory

32-13, Sakae-cho 2 chome, Higashimurayama-shi, Tokyo, 189-0013 Japan

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E-mail: testlab@almedio.co.jp

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