JQA File No. : 400-190086-4
Issue Date : October 23, 2019

TEST REPORT

Applicant	:	JVC KENWOOD Corporation
Address	:	2967-3 Ishikawa-machi, Hachioji-shi, Tokyo 192-8525 Japan
Products	:	CD Receiver
Model No.	:	DPX-7200DAB
Serial No.	:	144X0056
Test Standard	:	Final draft ETSI EN 303 345 V1.1.7(2017-03)
Test Results	:	**Passed**
Date of Test	:	October 16, 2019

Kousei Shibata
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VLAC-001-2

- The test results in this test report was made by using the measuring instruments which are traceable to national standards of measurement in accordance with ISO/IEC 17025.
- The applicable standard, testing condition and testing method which were used for the tests are based on the request of the applicant.
- The test results presented in this report relate only to the offered test sample.
- The contents of this test report cannot be used for the purposes, such as advertisement for consumers.
- This test report shall not be reproduced except in full without the written approval of JQA.

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DEFINITIONS FOR ABBREVIATION AND SYMBOLS USED IN THIS TEST REPORT

EUT : Equipment Under Test
AE : Associated Equipment
N/A : Not Applicable
N/T : Not Tested
EMC : Electromagnetic Compatibility
EMI : Electromagnetic Interference
EMS : Electromagnetic Susceptibility

☑ - indicates that the listed condition, standard or equipment is applicable for this report.
☐ - indicates that the listed condition, standard or equipment is not applicable for this report.

1 Description of the Equipment Under Test

1.	Manufacturer	:	JVC KENWOOD Corporation 2967-3 Ishikawa-machi, Hachioji-shi, Tokyo 192-8525 Japan
2.	Products	:	CD Receiver
3.	Model No.	:	DPX-7200DAB
4.	Serial No.	:	144X0056
5.	Product Type	:	Pre-production
6.	Date of Manufacture	:	August, 2019
7.	Tuning Frequency Range	:	FM 87.5 MHz – 108 MHz (IF: 128 kHz) MW 531 kHz – 1611kHz (IF: 93 kHz) LW 153 kHz – 279 kHz (IF 0Hz) DAB 174.928 MHz – 239.200 MHz (IF 1.536 MHz)
8.	Antenna Type	:	External 75 ohms (Unbalanced)
9.	Power Rating	:	12 VDC
10.	EUT Grounding	:	None
11.	EUT Highest Frequency Used/Generated	:	8.2 GHz
12.	Received Date of EUT	:	October 4, 2019

2 Summary of Test Results

Applied Standard : Final draft ETSI EN 303 345 V1.1.7(2017-03)
Broadcast Sound Receivers;
Harmonised Standard covering the essential requirements
of article 3.2 of Directive 2014/53/EU

The EUT described in clause 1 was tested according to the applied standard shown above.
Details of the test configuration is shown in clause 6.
The conclusion for the test items of which are required by the applied standard is indicated under the test result.

☑ - The test result was **passed** for the test requirements of the applied standard.

☐ - The test result was **failed** for the test requirements of the applied standard.

☐ - The test result was **not judged** the test requirements of the applied standard.

In the approval of test results,
- Determining compliance with the limits in this report was based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- No deviations were employed from the applied standard except for AM impairment criteria.
- No modifications were conducted by JQA to achieve compliance to the limitations.

Reviewed by:

Shigeru Osawa
Deputy Manager
JQA KITA-KANSAI Testing Center
SAITO EMC Branch

Tested by:

Kazuyuki Makimoto
Manager
JQA SAFETY & EMC CENTER
Testing Dept.
EMC Testing Div.

3 Test Procedure

Test Procedure : Final draft ETSI EN 303 345 V1.1.7(2017-03)
EN55032:2015

4 Test Location

Japan Quality Assurance Organization (JQA)
KITA-KANSAI Testing Center
7-7, Ishimaru, 1-chome, Minoh-shi, Osaka, 562-0027, Japan
SAITO EMC Branch
7-3-10, Saito-asagi, Ibaraki-shi, Osaka 567-0085, Japan

5 Recognition of Test Laboratory

JQA KITA-KANSAI Testing Center SAITO EMC Branch is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility is registered by the following bodies.

VLAC Accreditation No. : VLAC-001-2 (Expiry date : March 30, 2020)
VCCI Registration No. : A-0002 (Expiry date : March 30, 2020)
FCC Accreditation No. : JP5008 (Expiry date : March 30, 2020)
BSMI Registration No. : SL2-IS-E-6006, SL2-IN-E-6006, SL2-R1/R2-E-6006, SL2-A1-E-6006 (Expiry date : September 14, 2019)

Accredited as conformity assessment body for Japan electrical appliances and material law by METI. (Expiry date : February 22, 2022)

6 Description of Test Setup

6.1 Test Configuration

The equipment under test (EUT) consists of :

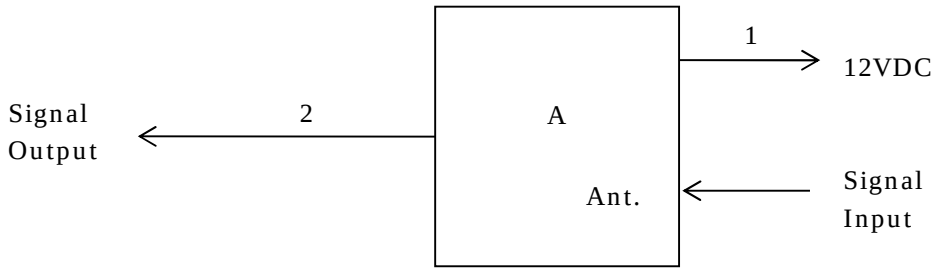
	Item	Manufacturer	Model No.	Serial No.
A	CD Receiver	JVC KENWOOD Corporation	DPX-7200DAB	144X0056

The auxiliary equipment used for testing :
N/A

Type of Cable:

No.	Description	Identification (Manu. etc.)	Connector Shielded	Cable Shielded	Ferrite Core	Length (m)
1	DC Power Cable	--	--	No	No	1.2
2	Speaker Cable	--	--	No	No	1.0

6.2 Test Arrangement (Drawings)



6.3 Operating Condition

Power supply voltage : 12 VDC

The tests have been carried out under the below condition.

1. FM Reception
2. AM Reception
3. DAB Reception

7 Test Requirements

7.0 Summary of the Test Results

Test Item	Conformance Requirement of EN303345	Reference of the Test Report	Results	Remarks
Sensitivity	Clause 4.2.4	Section 7.1	Passed	-
Adjacent channel selectivity and blocking	Clause 4.2.5	Section 7.2	Passed	-
Unwanted emissions in the spurious domain	Clause 4.2.6	Section 7.3	Not tested	-

7.1 Sensitivity

For the requirements, ☑ - Applicable [☑ - Tested. ☐ - Not tested by applicant request.]
☐ - Not Applicable

7.1.1 Test Results

For the standard, ☑ **- Passed** ☐ **- Failed** ☐ **- Not judged**

Uncertainty of Measurement Results(Conducted) ± 0.7 dB(2σ)

Remarks : -

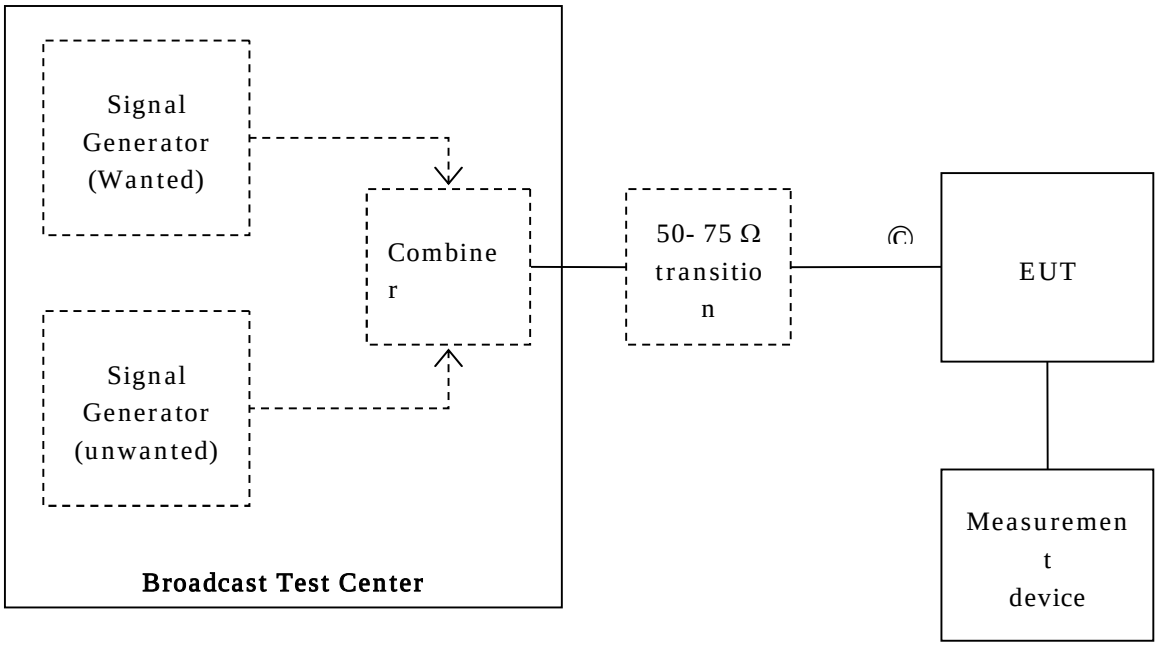
7.1.2 Test Instruments

Shielded Room S4				
Type	**Model**	**Serial No. (ID)**	**Manufacturer**	**Cal. Due**
Broadcast Test Center	BTC	100267 (B-57)	Rohde & Schwarz	2020/04/04
Audio Analyzer	UPV	102060 (B-58)	Rohde & Schwarz	2020/04/03

NOTE : The calibration interval of the above test instruments is 12 months.

7.1.3 Test Method and Test Setup (Diagrammatic illustration)

The measurement set-up is shown by the following. In this case, there is no need for careful screening from the external environment, although high field-strengths from potential interferers should be avoided.



© represents the calibration point of the system. The power levels of the two generators are measured here. Most test equipment is designed for 50 Ω systems, whereas domestic equipment is usually 75 Ω. Where the absolute level needs to be known, allowance shall be made for the loss in the transition, typically 6 dB for a minimum loss pad and 0 dB for a transformer. Care should be taken not to mix 50 Ω connectors and 75 Ω connectors, or damage could result.

Impairment criteria for sensitivity tests

Demodulation	Impairment criteria
AM	SNR ≥28 dBQ ref 40 % AM
FM	SNR ≥40 dBQ ref ±60,8 kHz deviation; clean audio (see note 1)
DAB	Clean audio (see note 2)
DRM	Clean audio (see note 2)
NOTE 1: Clean audio is defined as 10 seconds of audio with no subjective impairments (e.g. clicks resulting from FM threshold effects). NOTE 2: Clean audio is defined as 10 seconds of audio with no subjective impairments (e.g. muting, clicks, warbles or squeaks).	

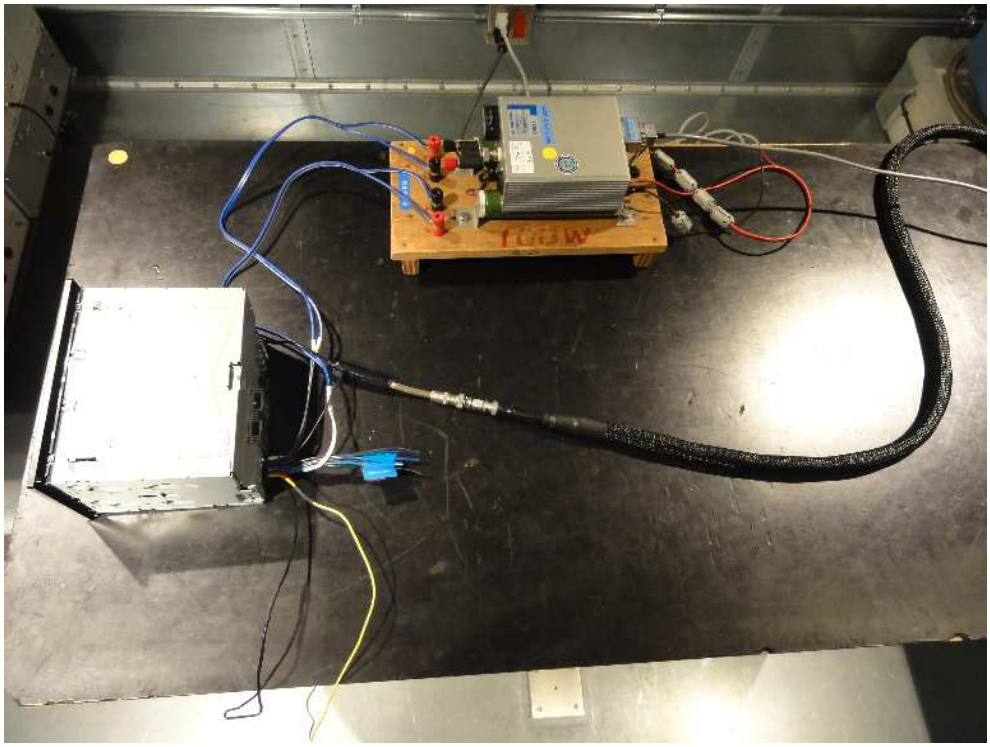
7.1.4 Test Data

Test Date :October 16, 2019
Temp.:22°C, Humi.:45%, Atm.:992hPa

Evaluation Port: Speaker Front

De-modulation	Tuned frequency band	Wanted signal centre frequency [MHz]	Limits (Conducted) [dBm]	Results [dBm]	Pass/Fail	Remark SNR (dBQ)
AM	LF	0.216	-65	-65.0	Pass	46.12
	MF	0.999	-65	-65.0	Pass	46.68
FM	VHF band II	98	-90	-90.0	Pass	48.78
DAB	VHF band III	202.928	-94	-94.0	Pass	--

7.1.5 Test Setup (Photographs)



7.2 Adjacent channel selectivity and blocking

For the requirements, ☑ - Applicable [☑ - Tested. ☐ - Not tested by applicant request.]
☐ - Not Applicable

7.2.1 Test Results

For the standard, ☑ **- Passed** ☐ **- Failed** ☐ **- Not judged**

Uncertainty of Measurement Results(Conducted) ± 0.7 dB(2σ)

Remarks : -

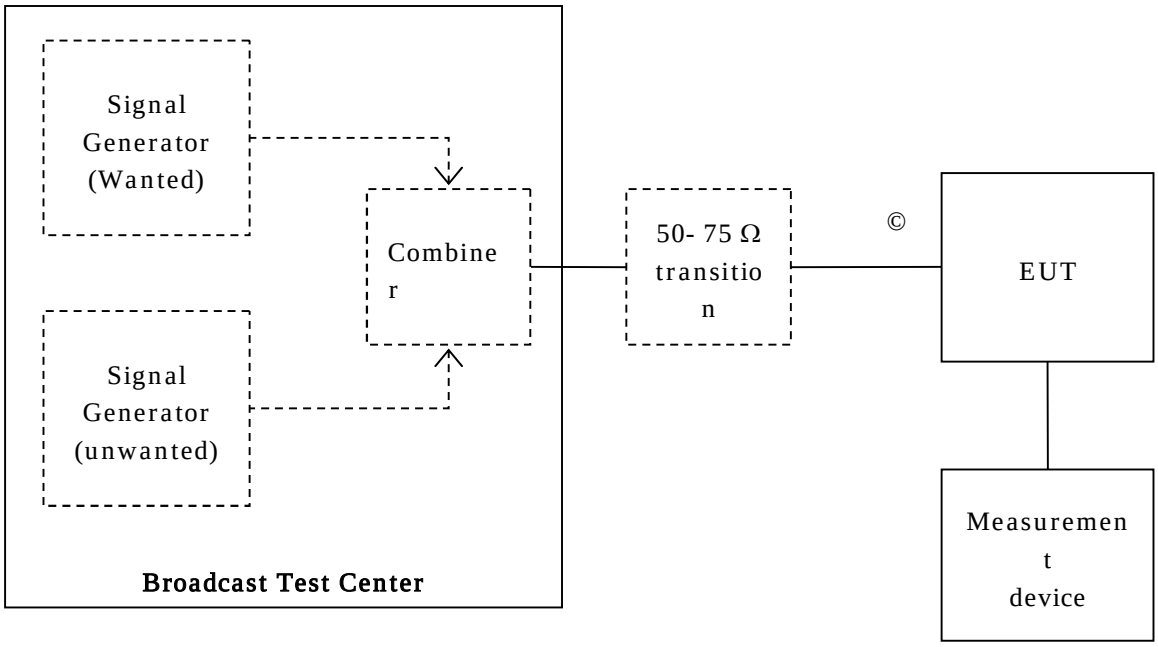
7.2.2 Test Instruments

Shielded Room S4				
Type	**Model**	**Serial No. (ID)**	**Manufacturer**	**Cal. Due**
Broadcast Test Center	BTC	100267 (B-57)	Rohde & Schwarz	2020/04/04
Audio Analyzer	UPV	102060 (B-58)	Rohde & Schwarz	2020/04/03

NOTE : The calibration interval of the above test instruments is 12 months.

7.2.3 Test Method and Test Setup (Diagrammatic illustration)

The measurement set-up is shown by the following. In this case, there is no need for careful screening from the external environment, although high field-strengths from potential interferers should be avoided.



© represents the calibration point of the system. The power levels of the two generators are measured here. Most test equipment is designed for 50 Ω systems, whereas domestic equipment is usually 75 Ω. Where the absolute level needs to be known, allowance shall be made for the loss in the transition, typically 6 dB for a minimum loss pad and 0 dB for a transformer. Care should be taken not to mix 50 Ω connectors and 75 Ω connectors, or damage could result.

Impairment criteria for adjacent channel selectivity and blocking tests

Demodulation	Impairment criteria
AM	SNR ≥28 dBQ ref 40 % AM
FM	SNR ≥40 dBQ ref ±60,8 kHz deviation; clean audio (see note 1)
DAB	Clean audio (see note 2)
DRM	Clean audio (see note 2)
NOTE 1: Clean audio is defined as 10 seconds of audio with no subjective impairments (e.g. clicks resulting from FM threshold effects). NOTE 2: Clean audio is defined as 10 seconds of audio with no subjective impairments (e.g. muting, clicks, warbles or squeaks).	

7.2.4 Test Data

Test Date :October 16, 2019
Temp.:22°C, Humi.:45%, Atm.:992hPa

1) AM

Evaluation Port: Speaker Front

Tuned frequency band	Wanted signal centre frequency [MHz]	Unwanted frequency	I/C ratio Limits (Conducted) [dB]	I/C ratio Results [dB]	Pass/Fail	Remark SNR (dBQ)
LF	0.216 (Level= -59 dBm)	N = -1	-5	-5.0	Pass	46.61
		N = -2	25	25.0	Pass	40.03
		N = -3	35	35.0	Pass	37.84
		Blocking(-)	40	40.0	Pass	31.87
		N = +1	-5	-5.0	Pass	47.48
		N = +2	25	25.0	Pass	42.56
		N = +3	35	35.0	Pass	38.12
		Blocking(+)	40	40.0	Pass	33.58

Tuned frequency band	Wanted signal centre frequency [MHz]	Unwanted frequency	I/C ratio Limits (Conducted) [dB]	I/C ratio Results [dB]	Pass/Fail	Remark SNR (dBQ)
MF	0.999 (Level= -59 dBm)	N = -1	-5	-5.0	Pass	48.26
		N = -2	25	25.0	Pass	46.53
		N = -3	35	35.0	Pass	37.81
		Blocking(-)	40	40.0	Pass	35.20
		N = +1	-5	-5.0	Pass	48.17
		N = +2	25	25.0	Pass	46.77
		N = +3	35	35.0	Pass	38.30
		Blocking(+)	40	40.0	Pass	35.23

2) FM

Evaluation Port: Speaker Front

Tuned frequency band	Wanted signal centre frequency [MHz]	Unwanted frequency	I/C ratio Limits (Conducted) [dB]	I/C ratio Results [dB]	Pass/Fail	Remark SNR (dBQ)
VHF Band II	98 (Level= -84 dBm)	N = -1	3	3.0	Pass	53.41
		N = -2	17	17.0	Pass	53.28
		N = -3	30	30.0	Pass	53.29
		Blocking(-)	30	30.0	Pass	53.06
		N = +1	3	3.0	Pass	53.29
		N = +2	17	17.0	Pass	53.16
		N = +3	30	30.0	Pass	52.27
		Blocking(+)	30	30.0	Pass	53.06

3) DAB

Evaluation Port: Speaker Front

Tuned frequency band	Wanted signal centre frequency [MHz]	Unwanted frequency	I/C ratio Limits (Conducted) [dB]	I/C ratio Results [dB]	Pass/Fail	Remark
VHF Band III	202.928 (Level= -70 dBm)	N = -1	35	35.0	Pass	
		N = -2	40	40.0	Pass	
		N = -3	45	45.0	Pass	
		Blocking(-)	40	40.0	Pass	
		N = +1	35	35.0	Pass	
		N = +2	40	40.0	Pass	
		N = +3	45	45.0	Pass	
		Blocking(+)	40	40.0	Pass	

7.2.5 Test Setup (Photographs)

Refer to 7.1.5 Test Setup photograph that is same configuration for measurement.

7.3 Unwanted emissions in the spurious domain

7.3.1 Radiated Emissions 30 MHz – 1000 MHz

For the requirements, ☑ - Applicable [☐ - Tested. ☑ - Not tested by applicant request.]
☐ - Not Applicable

Uncertainty of Measurement Results	30 MHz – 200 MHz	± 3.6	dB(2σ)
	200 MHz – 1000 MHz	± 5.2	dB(2σ)
Test Distance		3	m

Remarks : :

7.3.2 Radiated Emissions 1 GHz – 6 GHz

For the requirements, ☑ - Applicable [☐ - Tested. ☑ - Not tested by applicant request.]
☐ - Not Applicable

Uncertainty of Measurement Results	± 4.7	dB(2σ)
Test Distance	3	m

Remarks : -

7.3.3 Conducted Differential Voltage Emissions

For the requirements, ☑ - Applicable [☐ - Tested. ☑ - Not tested by applicant request.]
☐ - Not Applicable

Uncertainty of Measurement Results	± 1.5	dB(2σ)

Remarks : -