



RADIO TEST REPORT

Test Report No.: 10768225S-B-R1

Applicant : Sony Corporation
Type of Equipment : Digital Music Player
Model No. : NW-ZX100
FCC ID : AK8NWZX100
Test regulation : FCC Part15 Subpart C: 2015
Test result : Complied

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6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
7. This report is a revised version of "10768225S-B". "10768225S-B" is replaced with this report.

Date of test:

May 1 to 6, 2015

Representative test engineer:

S. Takano

Shinichi Takano
Engineer
Consumer Technology Division

Approved by :

T. Imamura

Toyokazu Imamura
Leader
Consumer Technology Division



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 There is no testing item of "Non-accreditation".

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13-EM-F0429

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SECTION 1: Customer information

Company Name : Sony EMCS Corporation
Address : 8-4 Shiomi, Kisarazu-shi, Chiba, 292-0834 Japan
Telephone Number : +81 438 37 3982

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of equipment : Digital Music Player
Model No. : NW-ZX100
Serial No. : Refer to 4.2.
Rating : DC3.7V
Country of Mass-production : Malaysia
Condition of EUT : Engineering prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample : April 22, 2015

2.2 Product description

Model: NW-ZX100 (referred to as the EUT in this report) is a Digital Music Player.

The Clock frequency(ies) used in the system : 26MHz(Crystal and oscillator), 533MHz (Max. in others)

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Radio Specification:

Bluetooth:

Equipment type : Transceiver
Frequency of operation : 2402-2480MHz
Bandwidth : 79MHz
Channel spacing : 1MHz
Type of modulation : FHSS
Antenna type : Monopole (Chip)
Antenna connector type : None
Antenna gain with cable loss : 1.6dBi
ITU code : F1D, G1D

NFC:

Equipment type : Transceiver
Frequency of operation : 13.56MHz
Type of modulation : ASK
Antenna type : Loop (Pattern)
ITU code : A1D

* For Bluetooth part, refer to the test report: 10768225S-A.

FCC 15.31 (e)

The EUT is a battery-operated device and test was performed with the full-charged battery, therefore the EUT complies with the requirement.

FCC 15.203

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore the EUT complies with the requirement.

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C: 2015, final revised on January 21, 2015
 Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
 Section 15.207 Conducted limits
 Section 15.209 Radiated emission limits, general requirements
 Section 15.215 Additional provisions to the general radiated emission limitations
 Section 15.225 Operation within the band 13.110-14.010MHz

The EUT has been tested for compliance with FCC Part 15 Subpart B by the customer.

3.2 Procedures & Results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.4:2009 7. AC powerline conducted emission measurements	FCC 15.207	-	N/A *1)	-	N/A
Electric field strength of Fundamental emission	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.225 (a)	Radiated	N/A	81.9dB Polarization: Vertical	Complied
Electric field strength of Spurious emission (within the 13.110-14.010MHz band)	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.225 (b)(c)	Radiated	N/A	45.8dB Freq.: 14.010MHz Polarization: Horizontal	Complied
Electric field strength of Spurious emission (outside of the 13.110-14.010MHz band)	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.209 FCC 15.225 (d)	Radiated	N/A	19.8dB Freq.: 203.400MHz Polarization: Vertical	Complied
20dB bandwidth	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.215 (c)	Radiated	N/A	-	-
Frequency tolerance	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.225 (e)	Radiated	*2)	-	Complied

*1) The EUT operates with a battery. AC Line can be connected to the EUT via PC; however, the EUT stops transmission during recharging. Therefore, the test is not applicable to the EUT.

*2) The voltage variation for testing was set to 3.4 to 4.2V, according to the EUT's specification. The EUT does not operate outside the range. (The test lab has confirmed that operation.)

Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422

3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99%)	ANSI C63.4:2009 13. Measurement of intentional radiators, RSS-Gen 6.6	-	Radiated	-	-

Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422

* Other than above, no addition, exclusion nor deviation has been made from the standard.

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3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Item	Frequency range	No.1 SAC ^{*1} /SR ^{*2} (±)	No.2 SAC/SR (±)	No.3 SAC/SR (±)
Radiated emission (Measurement distance: 3m)	9kHz-30MHz	3.7 dB	3.5 dB	3.5 dB
	30MHz-300MHz	4.9 dB	4.9 dB	4.7 dB
	300MHz-1GHz	5.0 dB	5.0 dB	4.8 dB

*1: SAC=Semi-Anechoic Chamber

*2: SR= Shielded Room is applied besides radiated emission

The data listed in this test report has enough margin, more than site margin.

Frequency tolerance

Frequency (Normal condition) Measurement uncertainty for this test was: (±) 7.9×10^{-8} .

Frequency (Extreme condition) Measurement uncertainty for this test was: (±) 7.9×10^{-8} .

Other tests

Bandwidth Measurement uncertainty for this test was: (±) 0.66%

3.5 Test location

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JAB Accreditation No. : RTL02610

	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measuremen t distance
<input type="checkbox"/> No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
<input checked="" type="checkbox"/> No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
<input type="checkbox"/> No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
<input type="checkbox"/> No.4 Semi-anechoic chamber	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
<input type="checkbox"/> No.1 shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
<input type="checkbox"/> No.2 shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
<input type="checkbox"/> No.3 shielded room	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
<input type="checkbox"/> No.4 shielded room	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
<input checked="" type="checkbox"/> No.5 shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
<input type="checkbox"/> No.6 shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
<input type="checkbox"/> No.1 Measurement room	-	2.55 x 4.1 x 2.5	-	-

3.6 Test setup, Data of test & Test instruments

Refer to APPENDIX 1 to 3.

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SECTION 4: Operation of E.U.T. during testing

4.1 Operating mode

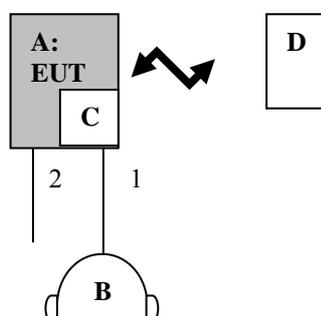
The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use.

Test item	Operating mode	Tested frequency
All items except for Frequency tolerances	NFC Communication (Type F)	13.56MHz
Frequency tolerances	Transmitting (Unmodulated)	13.56MHz

Software for testing: MPTAPP 0.98.98

Justification: The system was configured in typical fashion (as customer would normally use it) for testing.

4.2 Configuration and peripherals



*Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Digital Music Player	NW-ZX100	*1)	Sony	EUT
B	Headphones	MDR-NW750N	-	Sony	-
C	Micro SD Memory	SR-16A4	TPSN002554976	Sony	-
D	Tag	X-2587-453-1	-	Sony	-

*1) Radiated emission tests: 004, Other tests: 005

List of cables used

No.	Item	Length(m)	Shield (Cable)	Shield (Connector)	Remarks
1	Headphones	1.1	Unshielded	Unshielded	-
2	USB	1.0	Shielded	Shielded	-

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SECTION 5: Radiated emission (Fundamental and Spurious emission)

5.1 Operating environment

The test was carried out in a semi-anechoic chamber.

Temperature : Refer to APPENDIX 1.

Humidity : Refer to APPENDIX 1.

5.2 Test configuration

EUT was placed on a polystyrene platform of nominal size, 0.5m by 0.5m, raised 0.8m above the conducting ground plane. The rear of EUT, including its peripherals was aligned and flushed with rear of tabletop. I/O cables that were connected to the peripherals were bundled in center. They were folded back and for the forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. Photographs of the set up are shown in Appendix 1.

5.3 Test conditions

Frequency range : 9kHz - 1GHz

Test distance : 3m

EUT position : Table top

5.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane at a distance of 3m.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 937606. These tests were performed in semi anechoic chamber. Therefore the measured level of emissions may be higher than if measurements were made without a ground plane. However test results were confirmed to pass against standard limit.

The Radiated Electric Field Strength intensity has been measured with a ground plane and at a distance of 3m
Frequency: From 9kHz to 30MHz at distance 3m

The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for vertical polarization (antenna angle: 0deg.to 360deg.) and horizontal polarization. Drawing of the antenna direction is shown in Figure 1.

Frequency: From 30MHz to 1GHz at distance 3m (Refer to Figure 2).

The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for both vertical and horizontal antenna polarization.

Measurements were performed with QP, PK, and AV detector.

The radiated emission measurements were made with the following detector function of the test receiver.

	9kHz to 90kHz & 110kHz to 150kHz	90kHz to 110kHz	150kHz to 490kHz	490kHz to 30MHz	30MHz to 1GHz
Detector Type	PK/AV	QP	PK/AV	QP	QP
IF Bandwidth	200Hz	200Hz	9kHz	9kHz	120kHz
Measuring antenna	Loop antenna				Biconical (30-299.99MHz) Logperiodic (300MHz-1GHz)

* FCC 15.31 (f)(2) (9kHz-30MHz)

9kHz – 490kHz [Limit at 3m]= [Limit at 300m]-40log (3[m]/300[m])

490kHz – 30MHz [Limit at 3m]= [Limit at 30m]-40log (3[m]/30[m])

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The carrier levels and noise levels were confirmed with and without tag / at each position of X, Y and Z axes to see the position of maximum noise, and the test was made under the condition that has the maximum noise.
Worst axis: Refer to the data.

5.5 Results

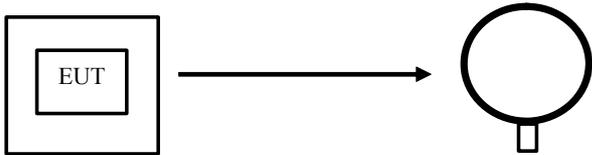
No spurious emissions exceeded the fundamental emission level.

Summary of the test results : Pass

Refer to APPENDIX 1.

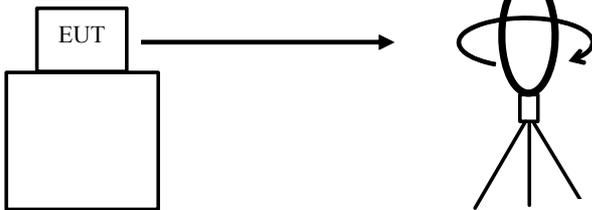
Figure 1. Direction of the Loop Antenna

Horizontal (Top View)

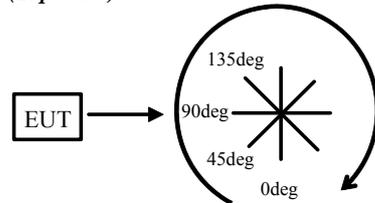


Antenna was not rotated.

Vertical (Side View)

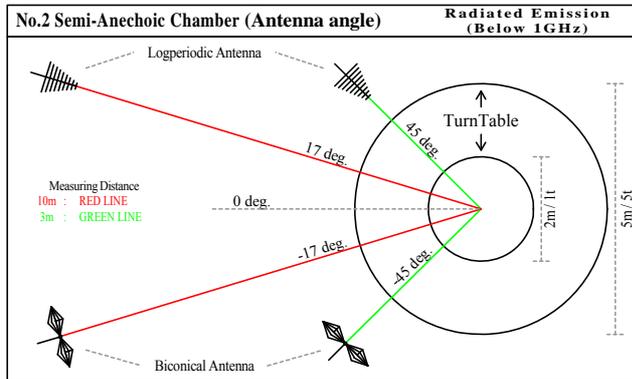


(Top View)



Front side: 0 deg.
Forward direction: clockwise

Figure 2. Antenna angle



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SECTION 6: 20dB bandwidth & Occupied bandwidth (99%)

Test procedure

The test was measured with a spectrum analyzer using a test fixture.

Results

Summary of the test results: Pass
Refer to APPENDIX 1.

SECTION 7: Frequency tolerances

Test procedure

The test was measured with a spectrum analyzer using a test fixture.
The temperature test was started after the temperature stabilization time of 30 minutes.
The test was begun from 50 deg.C and the temperature was lowered each 10 deg.C.

Results

Summary of the test results: Pass
Refer to APPENDIX 1.

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Radiated emission
Frequency tolerance
Bandwidth

APPENDIX 2: Test instruments

Test instruments

APPENDIX 3: Photographs of test setup

Radiated emission
Pre-check of the worst case
Tag used for the test as representative

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APPENDIX 1: Data of radio tests

Data of Electric field strength of Fundamental emission and Spurious emission within the band: FCC15.225(a)(b)(c)

UL Japan, Inc.
Shonan EMC Lab., No.2 Semi Anechoic Chamber

Company: Sony Corporation	Regulation: FCC Part15 Subpart C 15.225
Equipment: Digital Music Player	Test Distance: 3m
Model: NW-ZX100	Date: May 6, 2015
Sample No.: 004	Temperature: 21 deg.C
Power: DC3.7V	Humidity: 43 %RH
Mode: Transmitting 13.56MHz, with Tag	ENGINEER: Takahiro Suzuki

Remarks: : Axis:Hor_Y / Ver_Z, Vertical polarization (antenna angle) of the worst case: 0deg

Fundamental emission

No.	FREQ [MHz]	Test Receiver Reading		Antenna Factor [dB/m]	Loss [dB]	AMP GAIN [dB]	Distance factor [dB]	RESULT		LIMIT (30m) [dBuV/m]	MARGIN	
		Hor [dBuV]	Ver [dBuV]					Hor [dBuV/m]	Ver [dBuV/m]		Hor [dB]	Ver [dB]
1	13.560	38.5	48.9	18.6	6.4	31.9	-40.0	-8.4	2.0	83.9	92.3	81.9

Calculation: Result[dBuV/m]=Reading[dBuV]+Ant.Fac[dB/m]+Loss(Cable+ATT)[dB]-Gain(AMP)[dB]+Distance factor[dB]

Distance factor: $40 \times \log(3\text{m}/30\text{m}) = -40 \text{ dB}$

Limits (30m)

• 13.553MHz to 13.567MHz : 83.9dBuV/m (FCC 15.225(a))

* Carrier level (Result at 3m): Hor= 31.6dBuV/m, Ver= 42 dBuV/m

Spurious emission within the band

No.	FREQ [MHz]	Test Receiver Reading		Antenna Factor [dB/m]	Loss [dB]	AMP GAIN [dB]	Distance factor [dB]	RESULT		LIMIT (30m) [dBuV/m]	MARGIN	
		Hor [dBuV]	Ver [dBuV]					Hor [dBuV/m]	Ver [dBuV/m]		Hor [dB]	Ver [dB]
1	13.110	30.5	30.5	18.6	6.4	31.9	-40.0	-16.4	-16.4	29.5	45.9	45.9
2	13.410	30.4	30.5	18.6	6.4	31.9	-40.0	-16.5	-16.4	40.5	57.0	56.9
3	13.553	30.9	35.7	18.6	6.4	31.9	-40.0	-16.0	-11.2	50.4	66.4	61.6
4	13.567	30.8	35.5	18.6	6.4	31.9	-40.0	-16.1	-11.4	50.4	66.5	61.8
5	13.710	30.5	30.4	18.5	6.5	31.9	-40.0	-16.4	-16.5	40.5	56.9	57.0
6	14.010	30.6	30.4	18.5	6.5	31.9	-40.0	-16.3	-16.5	29.5	45.8	46.0

Calculation: Result[dBuV/m]=Reading[dBuV]+Ant.Fac[dB/m]+Loss(Cable+ATT)[dB]-Gain(AMP)[dB]+Distance factor[dB]

Outside filed strength frequencies

• Fc±7kHz: 13.553MHz to 13.567MHz

• Fc±150kHz: 13.410MHz to 13.710MHz

• Fc±450kHz: 13.110MHz to 14.010MHz

Fc = 13.56MHz

Limits (30m)

• 13.410MHz to 13.553MHz and 13.567MHz to 13.710MHz : 50.4dBuV/m (FCC 15.225(b))

• 13.110MHz to 13.410MHz and 13.710MHz to 14.010MHz : 40.5dBuV/m (FCC 15.225(c))

• Below 13.110MHz and Above 14.010MHz : 29.5dBuV/m (FCC 15.225(d) and FCC 15.209)

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DATA OF RADIATED EMISSION TEST

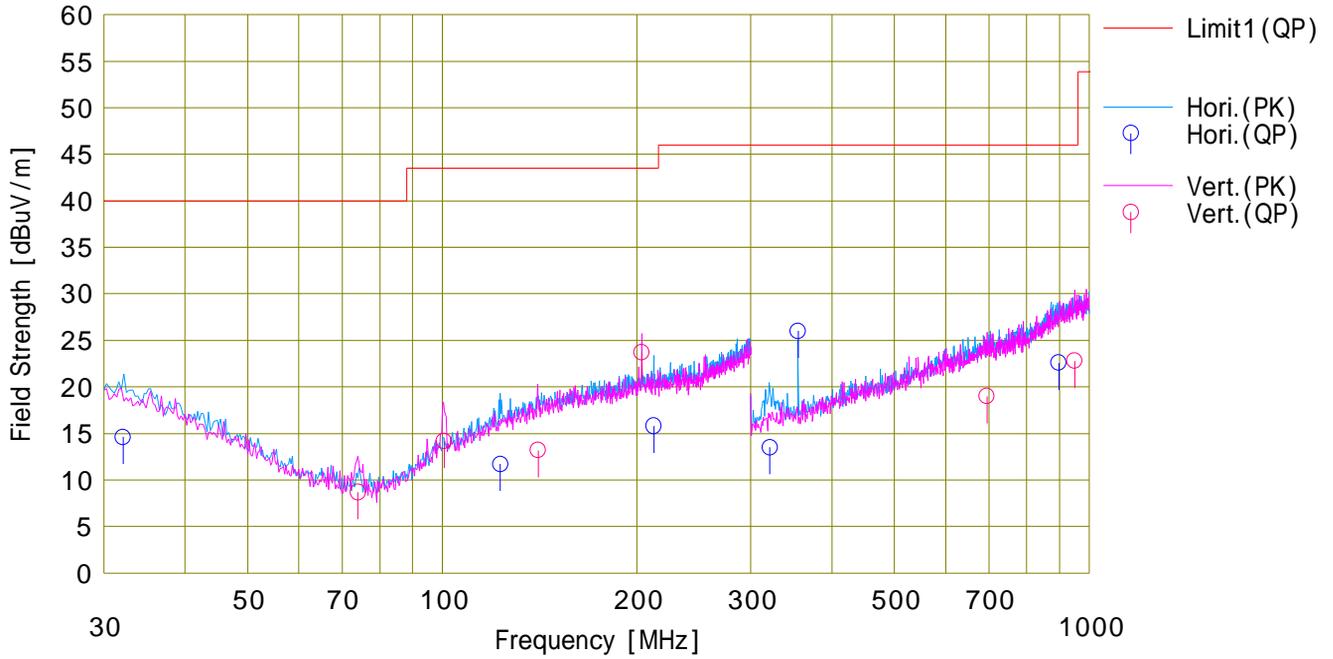
UL Japan, Inc. Shonan EMC Lab. No.2 Semi - Anechoic Chamber
Date : 2015/05/05

Company : Sony Corporation
 Kind of EUT : Digital Media Player
 Model No. : NW - ZX100
 Serial No. : 004
 Remarks : EUT axis : Hori : Y, Ver : Y, with Tag

Mode : NFC transmitting(13.56 MHz)
 Order No. : 10768225S
 Power : DC 3.7 V(battery)
 Temp./Humi. : 23 deg.C /55 %RH

Limit1 : FCC15.209 3m, below 1GHz:QP, above 1GHz:AV

Engineer : Takahiro Suzuki



No.	Freq. [MHz]	Reading	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result	Limit	Margin	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<QP> [dBuV]				<QP> [dBuV/m]	<QP> [dB]						
1	32.105	22.9	16.7	6.9	31.9	14.6	40.0	25.4	Hori.	299	17	BC	
2	122.916	22.4	13.1	8.0	31.8	11.7	43.5	31.8	Hori.	146	3	BC	
3	212.188	22.0	16.5	9.0	31.7	15.8	43.5	27.7	Hori.	157	167	BC	
4	321.076	24.0	14.5	6.7	31.7	13.5	46.0	32.5	Hori.	100	356	LP	
5	355.003	35.5	15.2	6.9	31.6	26.0	46.0	20.0	Hori.	100	218	LP	
6	897.556	21.2	22.5	9.7	30.8	22.6	46.0	23.4	Hori.	100	21	LP	
7	74.064	26.6	6.3	7.7	31.9	8.7	40.0	31.3	Vert.	100	242	BC	
8	100.622	27.9	10.2	7.9	31.8	14.2	43.5	29.3	Vert.	100	206	BC	
9	140.565	22.4	14.3	8.3	31.8	13.2	43.5	30.3	Vert.	100	244	BC	
10	203.400	30.2	16.4	8.9	31.8	23.7	43.5	19.8	Vert.	100	277	BC	
11	695.008	21.5	20.3	8.7	31.5	19.0	46.0	27.0	Vert.	100	253	LP	
12	949.329	20.8	22.6	9.9	30.5	22.8	46.0	23.2	Vert.	100	17	LP	

Calculation:Result [dBuV / m]=Reading [dBuV]+Ant.Fac [dB / m]+Loss (Cable+ATT) [dB] - Gain (AMP) [dB]
 Ant.Type=BC:Biconical Antenna, LP:Logperiodic Antenna, SHA*:Horn Antenna

Data of Frequency Tolerance

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Shonan EMC Lab. No.5 Shielded room

Company Sony Corporation
 Equipment Digital Music Player
 Model NW-ZX100
 Serial No. 005
 Power DC 3.7V
 Mode Transmitting 13.56 MHz

Regulation FCC Part15 Subpart C 15.225 (e)
 Date May 1, 2015
 Temperature 26 deg.C
 Humidity 39 %RH
 ENGINEER Shinichi Takano

Temperature Variation: -20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560044	0.000044	0.00032	0.010
after 2minutes	13.56	13.560049	0.000049	0.00036	0.010
after 5minutes	13.56	13.560051	0.000051	0.00038	0.010
after 10minutes	13.56	13.560051	0.000051	0.00038	0.010

Temperature Variation: -10deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560076	0.000076	0.00056	0.010
after 2minutes	13.56	13.560078	0.000078	0.00058	0.010
after 5minutes	13.56	13.560078	0.000078	0.00058	0.010
after 10minutes	13.56	13.560078	0.000078	0.00058	0.010

Temperature Variation: 0deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560077	0.000077	0.00057	0.010
after 2minutes	13.56	13.560077	0.000077	0.00057	0.010
after 5minutes	13.56	13.560077	0.000077	0.00057	0.010
after 10minutes	13.56	13.560077	0.000077	0.00057	0.010

Temperature Variation: 10deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560055	0.000055	0.00041	0.010
after 2minutes	13.56	13.560054	0.000054	0.00040	0.010
after 5minutes	13.56	13.560054	0.000054	0.00040	0.010
after 10minutes	13.56	13.560054	0.000054	0.00040	0.010

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560022	0.000022	0.00016	0.010
after 2minutes	13.56	13.560020	0.000020	0.00015	0.010
after 5minutes	13.56	13.560020	0.000020	0.00015	0.010
after 10minutes	13.56	13.560019	0.000019	0.00014	0.010

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Data of Frequency Tolerance

Temperature Variation: 30deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559980	-0.000020	-0.00015	0.010
after 2minutes	13.56	13.559978	-0.000022	-0.00016	0.010
after 5minutes	13.56	13.559977	-0.000023	-0.00017	0.010
after 10minutes	13.56	13.559977	-0.000023	-0.00017	0.010

Temperature Variation: 40deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559939	-0.000061	-0.00045	0.010
after 2minutes	13.56	13.559938	-0.000062	-0.00046	0.010
after 5minutes	13.56	13.559937	-0.000063	-0.00046	0.010
after 10minutes	13.56	13.559937	-0.000063	-0.00046	0.010

Temperature Variation: 50deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559914	-0.000086	-0.00063	0.010
after 2minutes	13.56	13.559912	-0.000088	-0.00065	0.010
after 5minutes	13.56	13.559912	-0.000088	-0.00065	0.010
after 10minutes	13.56	13.559912	-0.000088	-0.00065	0.010

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Data of Frequency Tolerance

UL Japan, Inc.

Shonan EMC Lab. No.5 Shielded room

Company Sony Corporation
 Equipment Digital Music Player
 Model NW-ZX100
 Serial No. 005
 Power DC 3.7V
 Mode Transmitting 13.56 MHz

Regulation FCC Part15 Subpart C 15.225 (e)
 Date May 1, 2015
 Temperature 26 deg.C
 Humidity 39 %RH
 ENGINEER Shinichi Takano

Voltage Variation: DC 3.4 V**Temperature Variation: 20deg.C**

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560022	0.000022	0.00016	0.010
after 2minutes	13.56	13.560021	0.000021	0.00015	0.010
after 5minutes	13.56	13.560021	0.000021	0.00015	0.010
after 10minutes	13.56	13.560021	0.000021	0.00015	0.010

Voltage Variation: DC 4.2 V**Temperature Variation: 20deg.C**

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560021	0.000021	0.00015	0.010
after 2minutes	13.56	13.560020	0.000020	0.00015	0.010
after 5minutes	13.56	13.560020	0.000020	0.00015	0.010
after 10minutes	13.56	13.560019	0.000019	0.00014	0.010

UL Japan, Inc.**Shonan EMC Lab.**

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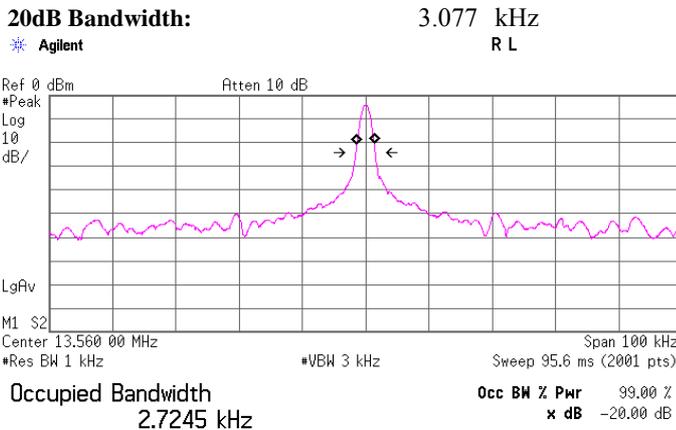
Facsimile : +81 463 50 6401

20dB bandwidth & 99% Occupied bandwidth: FCC 15.215 / RSS-Gen

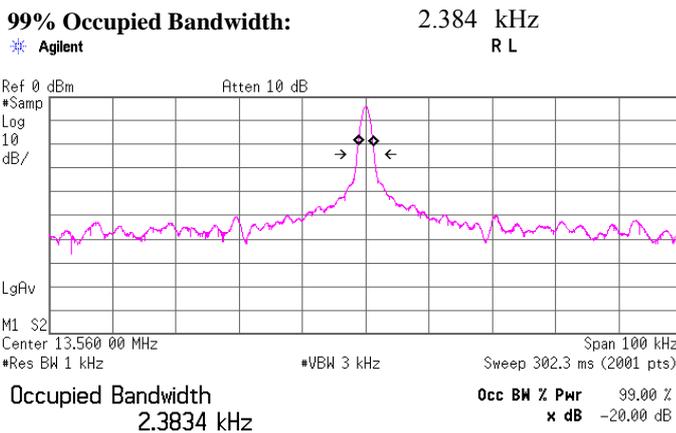
UL Japan, Inc.
Shonan EMC Lab. No.5 Shielded Room

Company: Sony Corporation
Equipment: Digital Music Player
Model: NW-ZX100
Sample No.: 005
Power: DC3.7V
Mode: Transmitting 13.56MHz, with Tag

Regulation: FCC Part15 Subpart C 15.215
Date: May 1, 2015
Temperature: 26 deg.C
Humidity: 39 %RH
ENGINEER: Shinichi Takano



Transmit Freq Error -3.125 Hz
x dB Bandwidth 3.077 kHz



Transmit Freq Error 16.114 Hz
x dB Bandwidth 2.680 kHz*

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APPENDIX 2 Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	TF	2015/02/24 * 12
SCH-01	Temperature and Humidity Chamber	Espec	PL-1KT	14020837	TF	2015/04/22 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	TF	2014/12/24 * 12
SSCA-01	Search coil	LANGER	RF-R 400-1	02-0634	TF	Pre Check
SAF-02	Pre Amplifier	SONOMA	310N	290212	RE	2015/02/18 * 12
SAT6-02	Attenuator	JFW	50HF-006N	-	RE	2015/02/18 * 12
KAT3-11	Attenuator	JFW IND. INC.	50HF-003N	-	RE	2014/08/27 * 12
SBA-02	Biconical Antenna	Schwarzbeck	BBA9106	91032665	RE	2014/11/22 * 12
SCC-B1/B3/B5/B7/B8/B13/SRSE-02	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-270(RF Selector)	RE	2015/04/17 * 12
SCC-B2/B4/B6/B7/B8/B13/SRSE-02	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-270(RF Selector)	RE	2015/04/17 * 12
SLA-02	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0893	RE	2014/11/22 * 12
SOS-03	Humidity Indicator	A&D	AD-5681	4063325	RE	2014/10/30 * 12
STR-07	Test Receiver	Rohde & Schwarz	ESU26	100484	RE	2014/09/03 * 12
SJM-14	Measure	ASKUL	-	-	RE	-
SAEC-02(NSA)	Semi-Anechoic Chamber	TDK	SAEC-02(NSA)	2	RE	2014/07/08 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RF,LMF)	-	RE	-
SLP-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100218	RE	2014/11/30 * 12
SAT6-07	Attenuator	JFW	50HF-006N	-	RE	2015/02/18 * 12

The expiration date of the calibration is the end of the expired month .

As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

All equipment is calibrated with valid calibrations . Each measurement data is traceable to the national or international standards .

Test Item :

RE: Radiated emission,

TF: Test Fixture