



RADIO TEST REPORT

Test Report No.: 10373518S-C

Applicant : Sony Corporation
Type of Equipment : Digital Media Player
Model No. : NWZ-A17
FCC ID : AK8NWZA10
Test regulation : FCC Part15 Subpart C: 2014
Test result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by any agency of the Federal Government.
6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.

Date of test: June 18 to 24, 2014

Tested by:

M. Hosaka

Makoto Hosaka
Engineer
Consumer Technology Division

Approved by :

T. Imamura

Toyokazu Imamura
Leader
Consumer Technology Division



- ☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
☒ There is no testing item of "Non-accreditation".

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

13-EM-F0429

REVISION HISTORY

Original Test Report No.: 10373518S-C

[illegible]

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Contents

	<u>Page</u>
SECTION 1: Customer information	4
SECTION 2: Equipment under test (E.U.T.)	4
SECTION 3: Test specification, procedures & results	6
SECTION 4: Operation of E.U.T. during testing.....	8
SECTION 5: Radiated emission (Fundamental and Spurious emission)	9
SECTION 6: 20dB bandwidth & Occupied bandwidth (99%).....	11
SECTION 7: Frequency tolerances	11
Contents of APPENDIXES.....	12
APPENDIX 1: Data of radio tests.....	13
APPENDIX 2: Test instruments	19
APPENDIX 3: Photographs of test setup.....	20

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

SECTION 1: Customer information

Company Name : Sony Corporation
Brand Name : SONY
Address : 2-10-1 Osaki, Shinagawa-ku, Tokyo, 141-8610, Japan
Telephone Number : +81 50 3750 7634
Contact Person : Shinichi Maru

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

2.1 Identification of E.U.T.

Type of Equipment : Digital Media Player
Model Number : NWZ-A17
Serial Number : Refer to Clause 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 : May 28, 2014
Modification of EUT : No modification by the test lab.

2.2 Product description

Model: NWZ-A17 (referred to as the EUT in this report) is a Digital Media Player.

Variant model: NWZ-A15

Difference is the memory capacity: NWZ-A15 (16GB), NWZ-A17 (64GB)

Clock frequency(ies) in the system : 533MHz (CPU), 49.152MHz (Audio CODEC), 27.12MHz (NFC),
24MHz (USB), 24.576MHz (Audio), 22.5792MHz (Audio),
32.768kHz (PMIC), 26MHz (BT)

Bluetooth specification:

Equipment type : Transceiver
Frequency of operation : 2402-2480MHz
Bandwidth / Channel spacing : 1MHz / 1MHz
Type of modulation : FHSS (GFSK, $\pi/4$ -DQPSK, 8DPSK)
Antenna type : Chip
Antenna connector type : None
Antenna gain : 1.6dBi
ITU code : F1D, G1D
Operation temperature range : +5 to +35 deg.C

* For Bluetooth part, refer to the test report: 10373518S-A.

NFC specification:

Equipment type : Transceiver
Frequency of operation : 13.56MHz
Type of modulation : ASK
Antenna type : Pattern
Antenna connector type : None
ITU code : A1D
Operation temperature range : +5 to +35 deg.C.

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

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.

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C: 2014,
final revised on May 1, 2014 and effective June 2, 2014
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.

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	N/A
Electric field strength of Fundamental emission	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.225 (a)	Radiated	N/A	87.5dB 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	45.9dB Freq.: 13.110MHz Polarization: Vertical	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	15.1dB Freq.: 176.28MHz 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

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

*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.)

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 4.6.1	RSS-Gen 4.6.1	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.

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

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	3.7 dB	3.6 dB
	30MHz-300MHz	4.9 dB	5.1 dB	4.9 dB
	300MHz-1GHz	5.0 dB	5.2 dB	4.9 dB

*1: SAC=Semi-Anechoic Chamber

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

Radiated emission test

The data listed in this test report has enough margin, more than the 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: (±) 5.4%

3.5 Test location

UL Japan, Inc. Shonan EMC Lab.

1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN

Telephone number : +81 463 50 6400

Facsimile number : +81 463 50 6401

JAB Accreditation No. : RTL02610

	FCC Registration No.	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measuremen t distance
☐ No.1 Semi-anechoic chamber	697847	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☐ No.2 Semi-anechoic chamber	697847	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.3 Semi-anechoic chamber	697847	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ No.4 Semi-anechoic chamber	-	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
☐ No.1 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.2 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.3 shielded room	-	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
☐ No.4 shielded room	-	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
☒ No.5 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
☐ No.6 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
☐ 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.

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

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

4.1 Operating mode

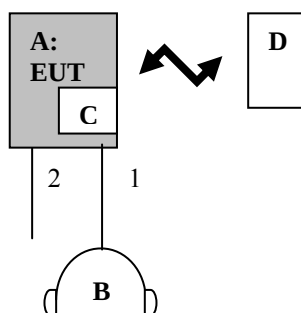
The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use.

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 0.98.75

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

4.2 Configuration and peripherals



* Test data was taken under worse case conditions.

Description of EUT and Auxiliary equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Digital Media Player	NWZ-A17	*1)	Sony	EUT
B	Headphones	MDR-1RMK2	-	Sony	-
C	Micro SD Memory	SR-16A4	TPSN002554976	Sony	-
D	Wireless Noise Canceling Stereo Ear Receiver	MDR-NWBT20N	3000305	Sony	-

*1) Antenna port conducted tests: 2000233, Radiated emission tests: 2000126

List of cables used

No.	Item	Length(m)	Shield (Cable)	Shield (Connector)	Remarks
1	Headphones	3.0	Unshielded	Unshielded	-
2	USB	1.0	Shielded	Shielded	-

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

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 platform of nominal size, 0.5m by 0.5m, raised 0.8m above the conducting ground plane.
EUT was set up typical spacing for the other equipment. Photographs of the set up are shown in Appendix 3.

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 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])

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Combinations of the worst case

	Frequency Antenna polarization	Carrier *2)	Spurious		Tag
			Below 30MHz	30MHz-1GHz	
EUT	Horizontal	Z	Z	Z	With
	Vertical	Z	Z	Z	with

*2) with spurious emissionns near carrier frequency.

5.5 Results

Summary of the test results : Pass

Refer to APPENDIX 1.

Figure 1. Direction of the Loop Antenna

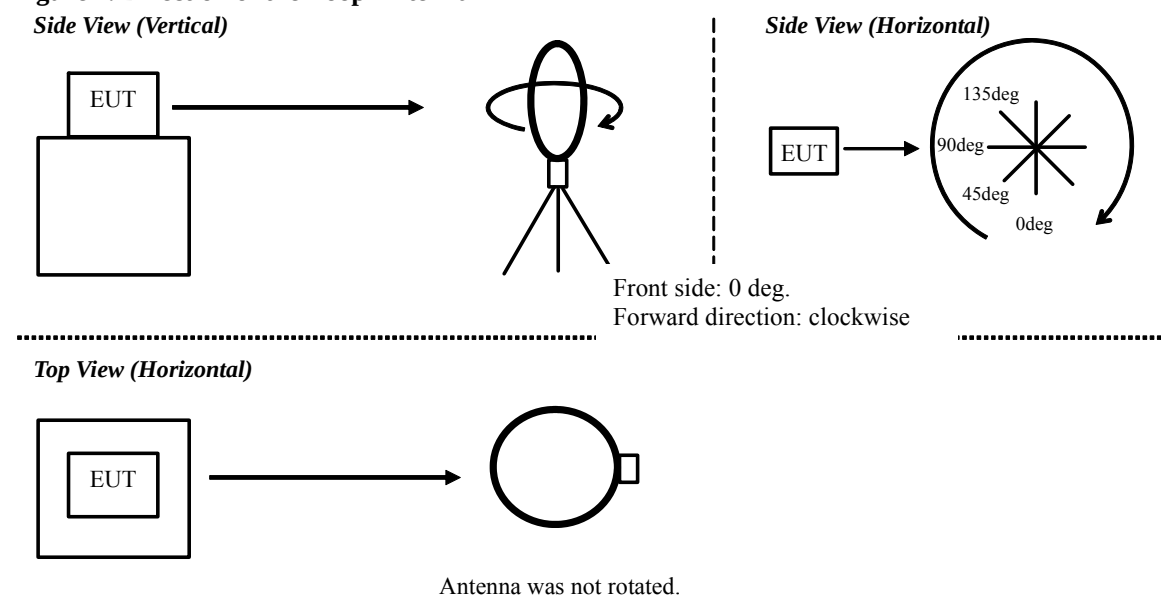
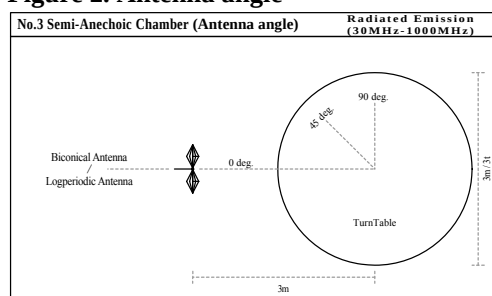


Figure 2. Antenna angle



UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

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.

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Contents of APPENDIXES

APPENDIX 1: Data of Radio tests

Radiated emission
Frequency tolerance
Bandwidth

APPENDIX 2: Test instruments

Test instruments

APPENDIX 3: Photographs of test setup

Radiated emission

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

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.3 Semi-Anechoic Chamber

Company: Sony Corporation
Equipment: Digital Media Player
Model: NWZ-A17
Sample No.: 2000126
Power: DC3.7V
Mode: Transmitting 13.56MHz

Regulation: FCC Part15 SubpartC 15.225
Test Distance: 3m
Date: June 20, 2014
Temperature: 24 deg.C.
Humidity: 52 %RH
ENGINEER: Makoto Hosaka

Remarks: : Axis:Hor_Z / Ver_Z , with Tag, 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	34.0	43.3	19.0	6.3	32.2	-40.0	-12.9	-3.6	83.9	96.8	87.5

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))

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	30.0	30.5	19.0	6.3	32.2	-40.0	-16.9	-16.4	29.5	46.4	45.9
2	13.410	29.8	30.3	19.0	6.3	32.2	-40.0	-17.1	-16.6	40.5	57.6	57.1
3	13.553	29.9	31.4	19.0	6.3	32.2	-40.0	-17.0	-15.5	50.4	67.4	65.9
4	13.567	30.1	32.0	19.0	6.3	32.2	-40.0	-16.8	-14.9	50.4	67.2	65.3
5	13.710	29.9	30.3	19.0	6.3	32.2	-40.0	-17.0	-16.6	40.5	57.5	57.1
6	14.010	29.9	30.4	19.0	6.3	32.2	-40.0	-17.0	-16.5	29.5	46.5	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)

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa, Japan 259-1220

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Emission

UL Japan, Inc.

Shonan EMC Lab. No.3 Semi Anechoic Chamber

Company: Sony Corporation
 Equipment: Digital Media Player
 Model: NWZ-A17
 Sample No.: 2000126
 Power: DC3.7V
 Mode: Transmitting 13.56MHz
 EUT axis: Below 30MHz(Horizontal Z-axis, Vertical Z-axis), with Tag
 Above 30MHz(Horizontal: Z-axis, Vertical: Z-axis), with Tag

Regulation: FCC Part15 SubpartC 15.225

Test Distance: 3m

Date: June 20, 2014

Temperature 24 deg.C.

Humidity: 52 %RH

ENGINEER: Makoto Hosaka

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	27.12	QP	29.7	19.8	6.5	32.2	-40.0	-16.2	29.5	45.7	-	8	* Limit: 30m
Hori.	40.68	QP	22.8	14.2	6.6	32.2	0.0	11.4	40.0	28.6	286	96	
Hori.	54.24	QP	22.9	9.6	6.7	32.2	0.0	7.0	40.0	33.0	360	50	
Hori.	67.80	QP	33.7	6.7	6.5	32.2	0.0	14.7	40.0	25.3	275	49	
Hori.	94.92	QP	31.6	9.1	7.4	32.1	0.0	16.0	43.5	27.5	301	58	
Hori.	354.98	QP	31.8	15.2	8.7	32.0	0.0	23.7	46.0	22.3	100	98	
Vert.	27.12	QP	29.9	19.8	6.5	32.2	-40.0	-16.0	29.5	45.5	-	343	* Limit: 30m
Vert.	40.68	QP	30.1	14.2	6.6	32.2	0.0	18.7	40.0	21.3	100	136	
Vert.	54.24	QP	25.7	9.6	6.7	32.2	0.0	9.8	40.0	30.2	100	149	
Vert.	67.80	QP	36.3	6.7	6.5	32.2	0.0	17.3	40.0	22.7	100	72	
Vert.	94.92	QP	37.5	9.1	7.4	32.1	0.0	21.9	43.5	21.6	100	42	
Vert.	122.04	QP	35.5	13.2	7.2	32.1	0.0	23.8	43.5	19.7	100	303	
Vert.	149.16	QP	35.9	14.6	7.7	32.1	0.0	26.1	43.5	17.4	100	79	
Vert.	176.28	QP	37.0	15.8	7.7	32.1	0.0	28.4	43.5	15.1	100	135	
Vert.	203.40	QP	35.1	16.5	7.9	32.1	0.0	27.4	43.5	16.1	100	174	
Vert.	354.98	QP	28.5	15.2	8.7	32.0	0.0	20.4	46.0	25.6	100	15	

Result = Reading + Ant Factor + Loss (Cable+ATT+ΔAF(above 30MHz)) - Gain(Amplifier) + Distance factor(below 30MHz)

* Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

* Carrier level (Result at 3m): Hor= 27.1dBuV/m, Ver= 36.4 dBuV/m

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa, Japan 259-1220

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Data of Frequency Tolerance: FCC 15.225(e)

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

Company: Sony Corporation
Equipment: Digital Media Player
Model: NWZ-A17
Sample No.: 2000233
Power: DC3.7V
Mode: Transmitting 13.56MHz

Regulation: FCC Part15 SubpartC 15.225
Date: June 18, 2014
Temperature: 26 deg.C
Humidity: 50 %RH
ENGINEER: Shinichi Takano

Temperature Variation: 50deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.560078	0.000078	0.00058	0.01
after 2minutes	13.56	13.560077	0.000077	0.00057	0.01
after 5minutes	13.56	13.560077	0.000077	0.00057	0.01
after 10minutes	13.56	13.560076	0.000076	0.00056	0.01

Temperature Variation: 40deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.560086	0.000086	0.00063	0.01
after 2minutes	13.56	13.560087	0.000087	0.00064	0.01
after 5minutes	13.56	13.560091	0.000091	0.00067	0.01
after 10minutes	13.56	13.560091	0.000091	0.00067	0.01

Temperature Variation: 30deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.560113	0.000113	0.00083	0.01
after 2minutes	13.56	13.560111	0.000111	0.00082	0.01
after 5minutes	13.56	13.560111	0.000111	0.00082	0.01
after 10minutes	13.56	13.560111	0.000111	0.00082	0.01

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.560161	0.000161	0.00119	0.01
after 2minutes	13.56	13.560160	0.000160	0.00118	0.01
after 5minutes	13.56	13.560158	0.000158	0.00117	0.01
after 10minutes	13.56	13.560158	0.000158	0.00117	0.01

Data of Frequency Tolerance: FCC 15.225(e)

UL Japan, Inc.

Shonan EMC Lab. No.5 Shielded Room

Company: Sony Corporation
 Equipment: Digital Media Player
 Model: NWZ-A17
 Sample No.: 2000233
 Power: DC3.7V
 Mode: Transmitting 13.56MHz

Regulation: FCC Part15 SubpartC 15.225

Date: June 18, 2014

Temperature: 26 deg.C

Humidity: 50 %RH

ENGINEER: Shinichi Takano

Temperature Variation: 10deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.560193	0.000193	0.00142	0.01
after 2minutes	13.56	13.560192	0.000192	0.00142	0.01
after 5minutes	13.56	13.560191	0.000191	0.00141	0.01
after 10minutes	13.56	13.560190	0.000190	0.00140	0.01

Temperature Variation: 0deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.560216	0.000216	0.00159	0.01
after 2minutes	13.56	13.560214	0.000214	0.00158	0.01
after 5minutes	13.56	13.560214	0.000214	0.00158	0.01
after 10minutes	13.56	13.560214	0.000214	0.00158	0.01

Temperature Variation: -10deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.560217	0.000217	0.00160	0.01
after 2minutes	13.56	13.560219	0.000219	0.00162	0.01
after 5minutes	13.56	13.560219	0.000219	0.00162	0.01
after 10minutes	13.56	13.560219	0.000219	0.00162	0.01

Temperature Variation: -20deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.560189	0.000189	0.00139	0.01
after 2minutes	13.56	13.560201	0.000201	0.00148	0.01
after 5minutes	13.56	13.560193	0.000193	0.00142	0.01
after 10minutes	13.56	13.560192	0.000192	0.00142	0.01

Data of Frequency Tolerance: FCC 15.225(e)

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

Company: Sony Corporation
Equipment: Digital Media Player
Model: NWZ-A17
Sample No.: 2000233
Power: DC3.7V
Mode: Transmitting 13.56MHz

Regulation: FCC Part15 SubpartC 15.225

Date: June 24, 2014
Temperature: 25 deg.C
Humidity: 59 %RH
ENGINEER: Shinichi Takano

Input Voltage:DC3.4V

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.560153	0.000153	0.00113	0.01
after 2minutes	13.56	13.560149	0.000149	0.00110	0.01
after 5minutes	13.56	13.560147	0.000147	0.00108	0.01
after 10minutes	13.56	13.560144	0.000144	0.00106	0.01

Input Voltage:DC4.2V

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.560148	0.000148	0.00109	0.01
after 2minutes	13.56	13.560143	0.000143	0.00105	0.01
after 5minutes	13.56	13.560141	0.000141	0.00104	0.01
after 10minutes	13.56	13.560139	0.000139	0.00103	0.01

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 Media Player
Model: NWZ-A17
Sample No.: 2000233
Power: DC3.7V
Mode: Transmitting 13.56MHz

Regulation: FCC Part15 Subpart C 15.215

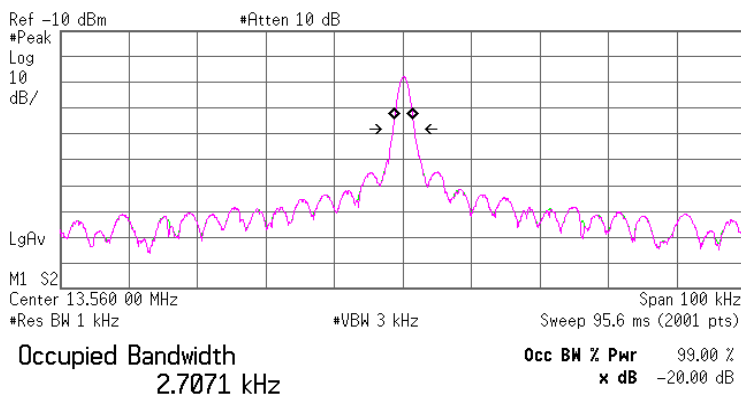
Date: June 18, 2014
Temperature: 26 deg.C
Humidity: 50 %RH
ENGINEER: Shinichi Takano

20dB Bandwidth:

3.081 kHz

* Agilent

R L



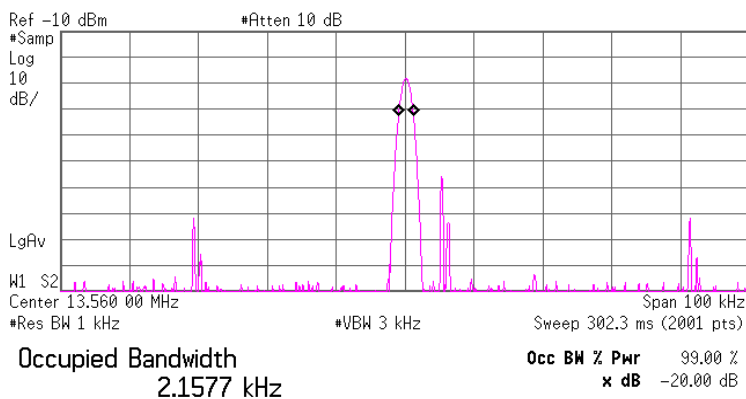
Transmit Freq Error 132.552 Hz
x dB Bandwidth 3.081 kHz

99% Occupied Bandwidth:

2.158 kHz

* Agilent

R L



Transmit Freq Error 145.693 Hz
x dB Bandwidth 2.548 kHz*

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

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa, Japan 259-1220

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

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	2014/02/03 * 12
SFC-01	Microwave Counter	Agilent	53151A	US40511493	TF	2014/04/01 * 12
STF-01	Test Fixture	-	-	-	TF	-
SSCA-01	Search coil	LANGER	RF-R 400-1	02-0634	TF	Pre Check
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	TF	2014/03/07 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2014/02/14 * 12
SAT6-06	Attenuator	JFW	50HF-006N	-	RE	2014/02/17 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2013/10/26 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271 (RF Selector)	RE	2014/04/25 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2013/10/26 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2014/02/21 * 12
STR-06	Test Receiver	Rohde & Schwarz	ESCI	101259	RE	2014/03/04 * 12
SJM-15	Measure	ASKUL	-	-	RE	-
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2013/07/09 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RFI,MF)	-	RE	-
SLP-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100218	RE	2013/11/08 * 12
SAT6-07	Attenuator	JFW	50HF-006N	-	RE	2014/02/17 * 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