RADIO TEST REPORT

Test Report No. : 12442164S-K-R1

Applicant	:	**Sony Corporation**
Type of Equipment	:	**Digital Music Player**
Model No.	:	**DMP-Z1**
FCC ID	:	**AK8DMPZ1**
Test regulation	:	**FCC Part 15 Subpart C: 2018** *** NFC part**
Test Result	:	**Complied**

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7. The all test items in this test report are conducted by UL Japan, Inc. Shonan EMC Lab.
8. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
9. This report is a revised version of 12442164S-K. 12442164S-K is replaced with this report.

Date of test: August 6 to 23, 2018

Representative test engineer:
Shiro Kobayashi
Engineer
Consumer Technology Division

Approved by:
Toyokazu Imamura
Leader
Consumer Technology Division

RTL02610

☐ 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

REVISION HISTORY

Original Test Report No.: 12442164S-K

Revision	Test report No.	Date	Page revised	Contents
- (Original)	12442164S-K	September 7, 2018	-	-
1	12442164S-K-R1	September 20, 2018	4	Correction of Rating: from "AC 100 V - 240 V, 50 Hz / 60 Hz" to "DC 19.5 V" Correction of Radio specification from "Bluetooth BDR" to "Bluetooth BDR/EDR" Correction of modulation from "GFSK, FHSS" to "GFSK, π/4-DQPSK, 8DPSK, FHSS"
			8, 10	Addition of figure

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 **PAGE**

SECTION 1: Customer information

Company Name	:	Sony Corporation
Brand Name	:	SONY
Address	:	1-7-1 Konan, Minato-ku, Tokyo 108-0075, Japan

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

2.1 Identification of E.U.T.

Type of Equipment	:	Digital Music Player
Model No.	:	DMP-Z1
Serial No.	:	Refer to Clause 4.2
Rating	:	DC 19.5 V
Receipt Date of Sample	:	March 27, 2018
Country of Mass-production	:	Malaysia
Condition of EUT	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No Modification by the test lab.

2.2 Product Description

Model: DMP-Z1 (referred to as the EUT in this report) is a Digital Music Player.

Radio Specification

Bluetooth BDR/EDR

Radio Type	:	Transceiver
Frequency of Operation	:	2402 MHz - 2480 MHz
Modulation	:	GFSK, π/4-DQPSK, 8DPSK, FHSS
Antenna type	:	Inverted F
Antenna Gain	:	1.9 dBi
Clock frequency (Maximum)	:	26 MHz

NFC

Radio Type	:	Transceiver
Frequency of Operation	:	13.56 MHz
Modulation	:	ASK
Antenna type	:	Loop
Clock frequency (Maximum)	:	27.12 MHz

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part 15 Subpart C FCC Part 15 final revised on March 12, 2018 and effective April 11, 2018
Title	:	FCC 47 CFR Part 15 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 bands 13.110 - 14.010 MHz.

* Also the EUT complies with FCC Part 15 Subpart B.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	**FCC:** ANSI C63.10-2013 6. Standard test methods **IC:** RSS-Gen 8.8	**FCC:** Section 15.207 **IC:** RSS-Gen 8.8	10.3 dB (0.48757 MHz, AV, N)	Complied	-
Electric Field Strength of Fundamental Emission	**FCC:** ANSI C63.10-2013 6. Standard test methods **IC:** RSS-Gen 6.4, 6.12	**FCC:** Section 15.225 (a) **IC:** RSS-210 B.6	72.0 dB (Vertical, QP)	Complied	Radiated
Electric Field Strength of Spurious Emission (within the 13.110-14.010 MHz band)	**FCC:** ANSI C63.10-2013 6. Standard test methods **IC:** RSS-Gen 6.4, 6.13	**FCC:** Section 15.225 (b)(c) **IC:** RSS-210 B.6	45.2 dB (14.010 MHz, Horizontal, QP)	Complied	Radiated
Electric Field Strength of Spurious Emission (outside of the 13.110-14.010 MHz band)	**FCC:** ANSI C63.10-2013 6. Standard test methods **IC:** RSS-Gen 6.4, 6.13	**FCC:** Section 15.209 Section 15.225 (d) **IC:** RSS-210 B.6	24.4 dB (189.83 MHz, Horizontal, QP)	Complied	Radiated
20dB Bandwidth	**FCC:** ANSI C63.10-2013 6. Standard test methods **IC:** -	**FCC:** Section 15.215 (c) **IC:** -	-	Complied	Radiated
Frequency tolerance	**FCC:** ANSI C63.10-2013 6. Standard test methods **IC:** RSS-Gen 6.11, 8.11	**FCC:** Section 15.225 (e) **IC:** RSS-210 B.6	-	Complied	Radiated
Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.					
Symbols: Complied The data of this test item has enough margin, more than the measurement uncertainty. Complied# The data of this test item meets the limits unless the measurement uncertainty is taken into consideration.					

FCC Part 15.31 (e)
This EUT provides stable voltage constantly to RF transmitter regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement
It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Bandwidth	**IC:** RSS-Gen 6.6	**IC:** -	N/A	-	Radiated

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

3.4 Uncertainty

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

Shonan EMC Lab.

Item	Frequency range	Uncertainty (+/-)				
		No. 1 SAC / SR	No. 2 SAC / SR	No. 3 SAC / SR	No. 4 SAC / SR	No. 5,6,8 SR
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	2.5 dB	2.5 dB	2.5 dB	2.6 dB	2.6 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	3.2 dB	3.2 dB	3.3 dB	-	-
	30 MHz-200 MHz	4.9 dB	4.8 dB	4.9 dB	-	-
	200 MHz-1 GHz	6.1 dB	6.1 dB	6.1 dB	-	-
	1 GHz-6 GHz	4.7 dB	4.7 dB	4.7 dB	-	-
	6 GHz-18 GHz	5.3 dB	5.3 dB	5.3 dB	-	-
	18 GHz-40 GHz	5.6 dB	5.6 dB	5.6 dB	-	-
Radiated emission (Measurement distance: 1 m)	1 GHz-18 GHz	5.6 dB	5.6 dB	5.6 dB	-	-
	18 GHz-40 GHz	5.9 dB	5.9 dB	5.9 dB	-	-

SAC=Semi-Anechoic Chamber
SR= Shielded Room is applied besides radiated emission

3.5 Test Location

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
JAB Accreditation No. RTL02610
FCC Test Firm Registration Number: 839876

Test site	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
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.8 shielded room	-	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room	-	2.55 x 4.1 x 2.5	-	-

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

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

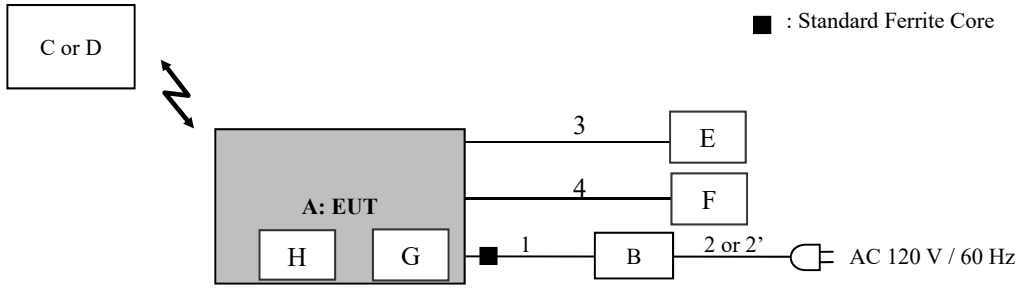
4.1 Operating Mode(s)

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

EUT Firmware: Diagnosis ver.: 3.04.02 (TEST MODE)
Power setting: Fixed

The carrier level and noise levels were confirmed with and without Tag, and the test was made with the condition that has the maximum noise.
Worst case: With Tag (Type F)

4.2 Configuration and peripherals



* Setup(s) 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	DMP-Z1	1000687 *1) 1000688 *2)	Sony Corporation	EUT
B	AC Adapter	ACDP-045L01	1805000181	Sony Corporation	-
C	Type A Tag	-	-	Sony Corporation	-
D	Type F Tag	-	-	Sony Corporation	-
E	Headphones	MDR-1AM2	-	Sony Corporation	-
F	Headphones	MDR-1AM2	-	Sony Corporation	-
G	micro SDHC card	SR-8C4	TVLN003068885	Sony Corporation	-
H	micro SDHC card	SR-16C4	TPSN002554976	Sony Corporation	-

*1) Used for Frequency Tolerance test and Bandwidth measurement test
*2) Used for Conducted Emission test and Radiated Emission test

List of cables used

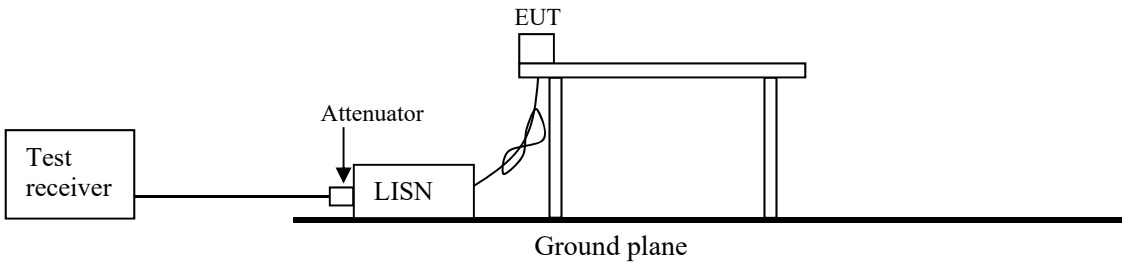
No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	1.4	Unshielded	Unshielded	-
2	AC	0.5	Unshielded	Unshielded	*3)
2'	AC	1.8	Unshielded	Unshielded	*4)
3	Audio	1.2	Unshielded	Unshielded	-
4	Audio	1.2	Unshielded	Unshielded	-

*3) Used for expect for Conducted Emission test
*4) Used for Conducted Emission test

SECTION 5: Conducted Emission

Test configuration

EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane. The table is made of expanded polystyrol and expanded polypropylene and the table top is covered with polycarbonate. That has very low permittivity. The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of peripherals was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80 cm from any other grounded conducting surface. EUT was located 80 cm from LISN and excess AC cable was bundled in center. I/O cables that were connected to the peripherals were bundled in center. They were folded back and for the forming a bundle 30 cm to 40 cm long and were hanged at a 40 cm height to the ground plane.
Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. Photographs of the set up are shown in APPENDIX 3.



Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT within a Shielded room.
The EUT was connected to a Line Impedance Stabilization Network (LISN).
An overview sweep with peak detection has been performed.
The measurements had been performed with a quasi-peak detector and if required, a CISPR average detector.
The conducted emission measurements were made with the following detection of the test receiver.

Detection Type	:	Quasi-Peak/ CISPR Average
IF Bandwidth	:	9 kHz

Measurement range : 0.15 MHz - 30 GHz
Test data : APPENDIX
Test result : Pass

SECTION 6: Radiated Emission

Test Procedure

EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.
The table is made of expanded polystyrol and expanded polypropylene and the table top is covered with polycarbonate. That has very low permittivity. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane at a distance of 3 m.
Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are 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 414788. 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 3 m.

Frequency: From 9 kHz to 30 MHz at distance 3 m (Refer to Figure 2)
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: 0 deg., 45 deg., 90 deg. and 135 deg.) and horizontal polarization. Drawing of the antenna direction is shown in Figure 1.

Frequency: From 30 MHz to 1 GHz at distance 3 m (Refer to Figure 2).
The measuring antenna height was varied between 1 m and 4 m 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.

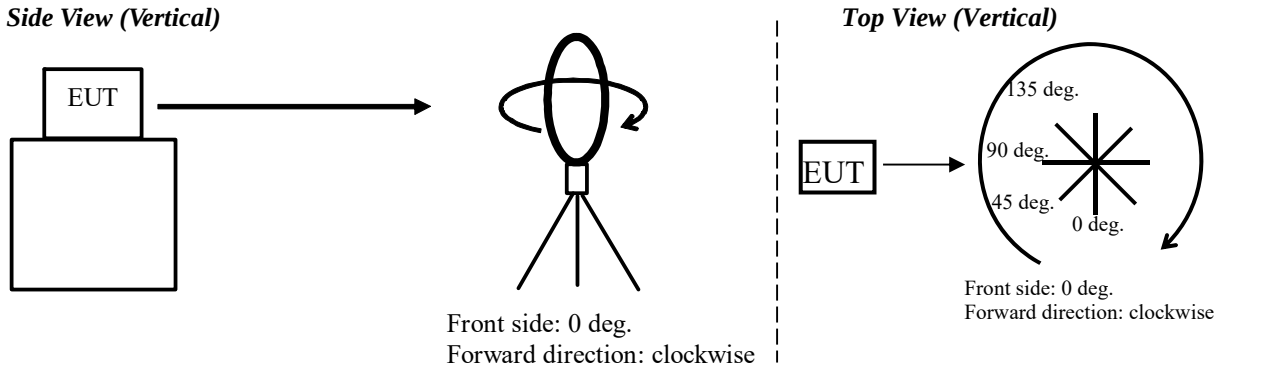
Measurements were performed with QP, PK, and AV detector.

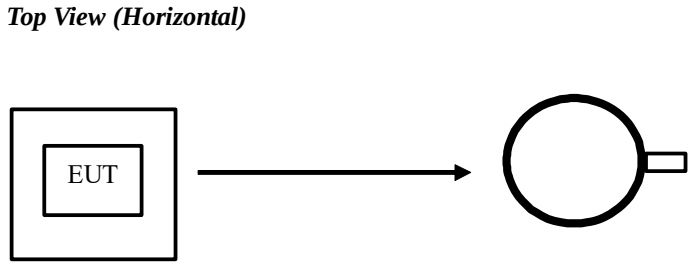
The radiated emission measurements were made with the following detector function of the test receiver.

	9 kHz to 90 kHz & 110 kHz to 150 kHz	90 kHz to 110 kHz	150 kHz to 490 kHz	490 kHz to 30 MHz	30 MHz to 1 GHz
Detector Type	PK/AV	QP	PK/AV	QP	QP
IF Bandwidth	200 Hz	200 Hz	10 kHz	9 kHz	120 kHz
Distance factor *1)	-80 dB	-80 dB	-80 dB	-40 dB	-
Measuring antenna	Loop antenna				Biconical (30 MHz - 199.99 MHz) Logperiodic (200 MHz - 1 GHz)

*1) FCC 15.31 (f)(2) (9 kHz-30 MHz)
Distance Factor: 40 x log (3 m / 300 m) = -80 dB
Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Figure 1. Direction of the Loop Antenna





Antenna was not rotated.

Figure 2. Antenna angle

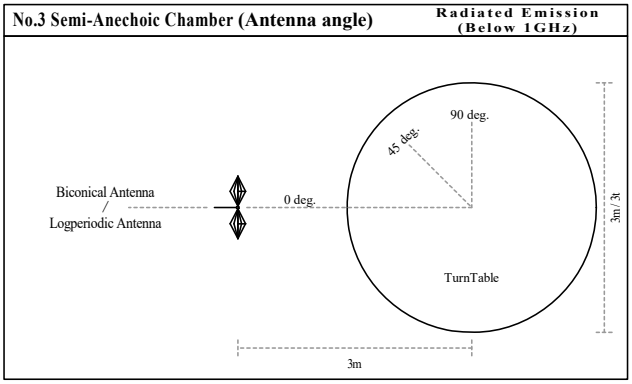
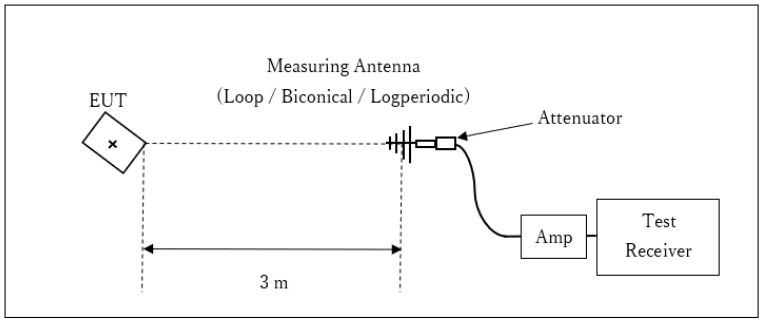


Figure 3. Connection and configuration of test equipment



× : Center of turn table

The test results and limit are rounded off to one decimal place, so some differences might be observed.

Measurement range : 9 kHz - 1 GHz
Test data : APPENDIX
Test result : Pass
*** No spurious emission from the EUT was detected.**

SECTION 7: 20 dB bandwidth & Occupied bandwidth (99 %)

Test procedure

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

Test	Span	RBW	VBW	Sweep	Detector	Trace	Instrument used
20 dB Bandwidth	2 to 5 times of OBW	1 to 5 % of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
99 % Occupied Bandwidth	Enough width to display measured Bandwidth	1 to 5 % of Span	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer

Test data : APPENDIX
Test result : Pass

SECTION 8: Frequency Tolerance

Test procedure
The test was measured with a frequency counter 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.

Test data : APPENDIX
Test result : Pass

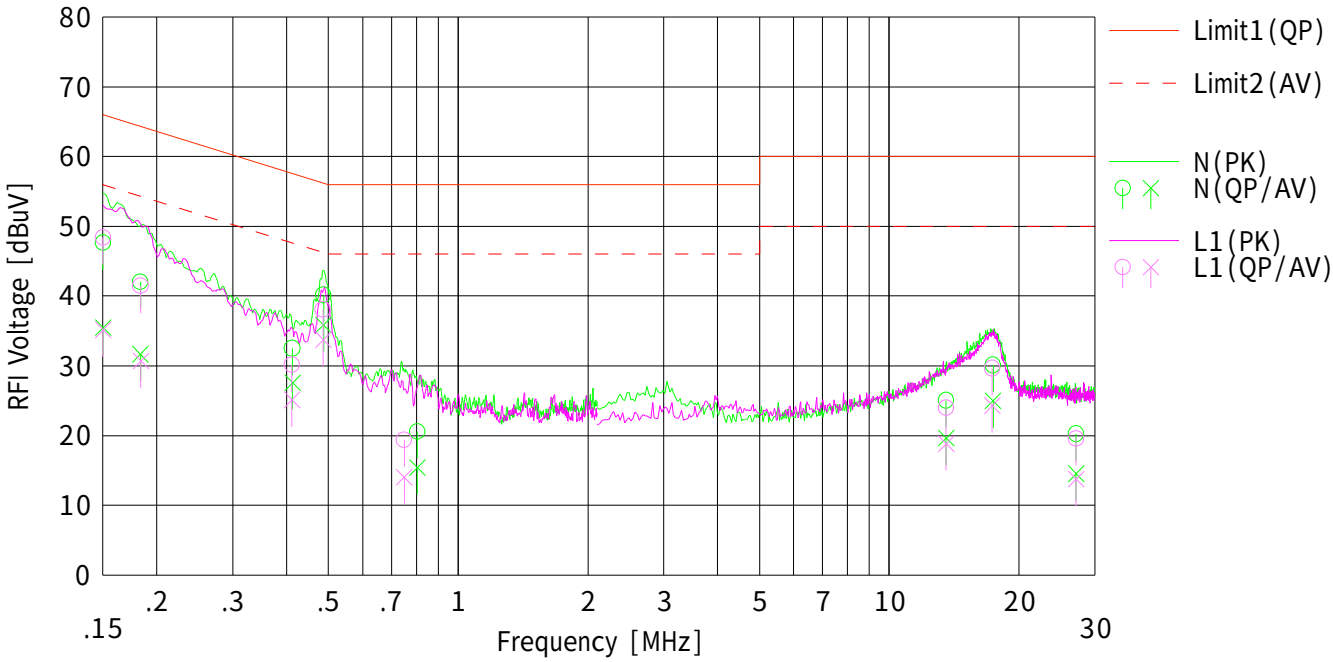
DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2018/08/13

Company	: Sony Corporation	Mode	: NFC Communication
Kind of EUT	: Digital Music Player	Order No.	: 12442164S
Model No.	: DMP-Z1	Power	: AC 120 V / 60 Hz
Serial No.	: 1000688	Temp./Humi.	: 24 deg.C / 43 %RH
Remarks	: with Tag F		

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Shiro Kobayashi



No.	Freq.	Reading <QP>	Reading <AV>	C.Fac	Results <QP>	Results <AV>	Limit <QP>	Limit <AV>	Margin <QP>	Margin <AV>	Phase	Comment
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	35.26	23.08	12.38	47.64	35.46	66.00	56.00	18.3	20.5	N	
2	0.18350	29.64	19.28	12.39	42.03	31.67	64.33	54.33	22.3	22.6	N	
3	0.41267	20.08	15.15	12.42	32.50	27.57	57.59	47.59	25.0	20.0	N	
4	0.48757	27.74	23.46	12.40	40.14	35.86	56.21	46.21	16.0	10.3	N	
5	0.80474	8.12	2.98	12.45	20.57	15.43	56.00	46.00	35.4	30.5	N	
6	13.56000	11.99	6.58	13.04	25.03	19.62	60.00	50.00	34.9	30.3	N	
7	17.43000	16.91	11.75	13.21	30.12	24.96	60.00	50.00	29.8	25.0	N	
8	27.12000	6.68	0.96	13.56	20.24	14.52	60.00	50.00	39.7	35.4	N	
9	0.15000	36.04	22.78	12.38	48.42	35.16	66.00	56.00	17.5	20.8	L1	
10	0.18364	29.09	18.29	12.39	41.48	30.68	64.32	54.32	22.8	23.6	L1	
11	0.41150	17.71	12.69	12.43	30.14	25.12	57.62	47.62	27.4	22.5	L1	
12	0.48649	25.67	21.36	12.41	38.08	33.77	56.23	46.23	18.1	12.4	L1	
13	0.74994	6.96	1.59	12.44	19.40	14.03	56.00	46.00	36.6	31.9	L1	
14	13.56000	10.95	5.77	13.04	23.99	18.81	60.00	50.00	36.0	31.1	L1	
15	17.36000	16.45	11.09	13.20	29.65	24.29	60.00	50.00	30.3	25.7	L1	
16	27.12000	5.99	0.16	13.56	19.55	13.72	60.00	50.00	40.4	36.2	L1	

Calculation:Result[dBuV]=Reading[dBuV]+C.Fac(LISN(AMN)+Cable+ATT)[dB]
LISN(AMN)=SLS-05

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	Regulation:	FCC Part15 Subpart C 15.225
Equipment:	Digital Music Player	Test Distance:	3 m
Model:	DMP-Z1	Date:	August 13, 2018
Sample No.:	1000688	Temperature:	21 deg.C
Power:	AC 120 V, 60 Hz	Humidity:	55 %RH
Mode:	NFC Communication	ENGINEER:	Shiro Kobayashi

Remarks: : NFC type F , Vertical polarization (antenna angle) of the worst case: 0 deg

Fundamental emission

No.	FREQ	Test Receiver Reading		Antenna Factor	Loss	AMP GAIN	Distance factor	RESULT		LIMIT (30m)	MARGIN	
		Hor	Ver					Hor	Ver		Hor	Ver
	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]
1	13.560	50.1	58.7	19.1	6.3	32.2	-40.0	3.3	11.9	83.9	80.6	72.0

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

Distance factor: 40 x log (3 m/30 m) = -40 dB

Limits (30m)

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

Spurious emission within the band

No.	FREQ	Test Receiver Reading		Antenna Factor	Loss	AMP GAIN	Distance factor	RESULT		LIMIT (30m)	MARGIN	
		Hor	Ver					Hor	Ver		Hor	Ver
	[MHz]	[dBuV]	[dBuV]	[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]
1	13.110	30.9	30.7	19.2	6.3	32.2	-40.0	-15.9	-16.0	29.5	45.4	45.5
2	13.410	30.9	30.8	19.2	6.3	32.2	-40.0	-15.9	-16	40.5	56.4	56.5
3	13.553	37.7	44.8	19.1	6.3	32.2	-40.0	-9.1	-2.0	50.4	59.5	52.4
4	13.567	37.5	44.6	19.1	6.3	32.2	-40.0	-9.3	-2.2	50.4	59.7	52.6
5	13.710	30.9	30.9	19.1	6.3	32.2	-40.0	-15.9	-15.95	40.5	56.4	56.5
6	14.010	31.1	30.8	19.1	6.3	32.2	-40.0	-15.7	-16.07	29.5	45.2	45.6

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±7 kHz:13.553 MHz to 13.567 MHz

・Fc±150 kHz:13.410 MHz to 13.710 MHz

・Fc±450 kHz:13.110 MHz to 14.010 MHz

Fc = 13.56 MHz

Limits (30 m)

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

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

・Below 13.110 MHz and Above 14.010 MHz : 29.5 dBuV/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	Regulation:	FCC Part15 Subpart C 15.225
Equipment:	Digital Music Player	Test Distance:	3 m
Model:	DMP-Z1	Date:	August 13, 2018
Sample No.:	1000688	Temperature:	21 deg.C
Power:	AC 120 V, 60 Hz	Humidity:	55 %RH
Mode:	NFC Communication	ENGINEER:	Shiro Kobayashi
EUT axis:	Below 30 MHz, NFC type F, with Tag		
	Above 30MHz, NFC type F, with Tag		
Remarks:			

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	30.5	18.6	6.5	32.2	-40.0	-16.6	29.5	46.1	-	0	* Limit: 30m
Hori.	189.83	QP	27.0	16.4	7.8	32.1	0.0	19.1	43.5	**24.4**	176	272	
Hori.	216.96	QP	26.7	11.1	8.2	32.1	0.0	14.0	46.0	32.0	159	222	
Hori.	230.52	QP	23.3	11.4	8.3	32.0	0.0	10.9	46.0	35.1	140	248	
Hori.	244.08	QP	26.9	11.7	8.3	32.0	0.0	14.9	46.0	31.1	144	248	
Hori.	325.439	QP	26.4	14.5	8.9	32.0	0.0	17.7	46.0	28.3	100	253	
Hori.	352.559	QP	23.6	15.2	9.0	32.0	0.0	15.9	46.0	30.1	100	210	
Hori.	360.007	QP	25.2	15.2	9.1	32.0	0.0	17.5	46.0	28.5	100	211	
Hori.	461.039	QP	21.6	16.8	9.5	32.0	0.0	16.0	46.0	30.0	100	278	
Vert.	27.12	QP	30.5	18.6	6.5	32.2	-40.0	-16.6	29.5	46.1	-	0	* Limit: 30m
Vert.	40.680	QP	24.7	14.6	6.7	32.2	0.0	13.7	40.0	26.3	100	85	
Vert.	67.800	QP	27.9	6.8	6.6	32.2	0.0	9.2	40.0	30.9	177	228	
Vert.	162.719	QP	24.7	15.2	7.9	32.1	0.0	15.7	43.5	27.8	100	182	
Vert.	189.839	QP	26.9	16.4	7.8	32.1	0.0	19.0	43.5	24.5	100	200	
Vert.	325.44	QP	22.6	14.5	8.9	32.0	0.0	14.0	46.0	32.0	160	168	
Vert.	352.56	QP	22.6	15.2	9.0	32.0	0.0	14.8	46.0	31.2	168	193	
Vert.	360.01	QP	22.9	15.2	9.1	32.0	0.0	15.2	46.0	30.8	160	327	

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

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

* Carrier level (Result at 3 m): Hor= 43.3 dBuV/m, Ver= 51.9 dBuV/m

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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa, Japan 259-1220
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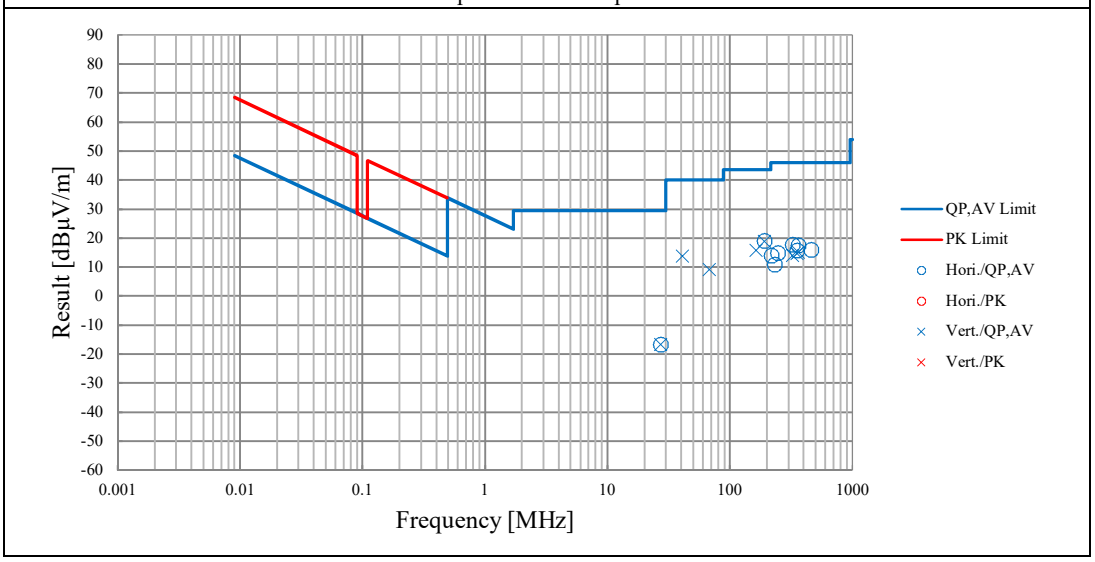
Facsimile : +81 463 50 6401

Radiated Emission (Worst mode plot)

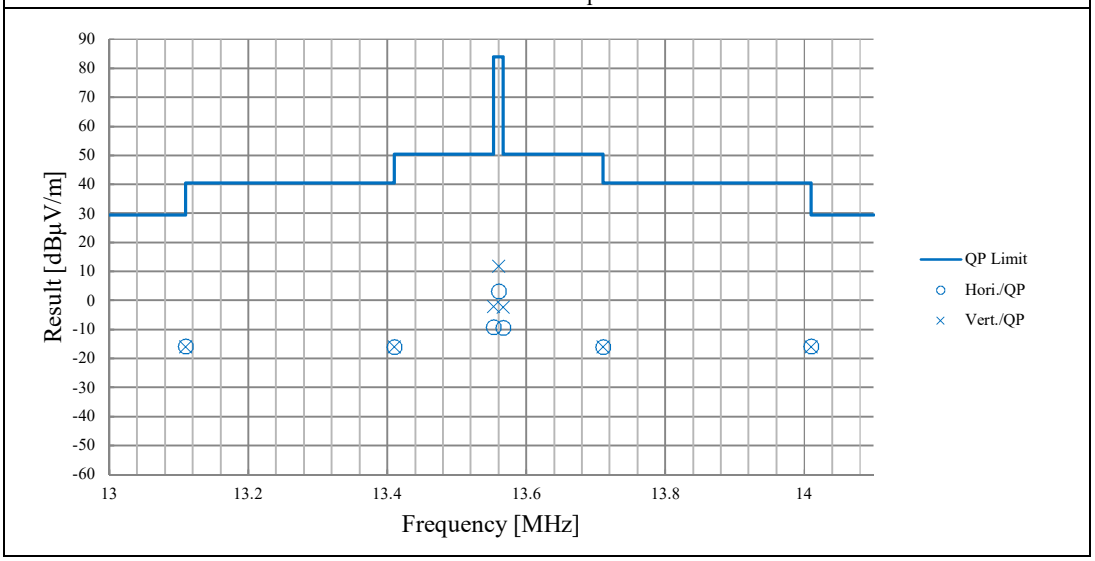
UL Japan, Inc.
Shonan EMC Lab. No.3 Semi Anechoic Chamber

Company:	SONY	Regulation:	FCC Part15 Subpart C 15.225
Equipment:	Digital Music Player	Test Distance:	3 m
Model:	DMP-Z1	Date:	August 13, 2018
Sample No.:	1000688	Temperature:	21 deg.C
Power:	AC 120 V, 60 Hz	Humidity:	55 %RH
Mode:	NFC Communication	ENGINEER:	Shiro Kobayashi
EUT axis:	Below 30 MHz, NFC type F, with Tag		
	Above 30MHz, NFC type F, with Tag		
Remarks:	These plots data contains sufficient number to show the trend of characteristic features for EUT.		

Spurious emission plot



Within band plot



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

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

Company	SONY		
Equipment	Digital Music Player	Regulation	FCC Part15 Subpart C 15.225 (e)
Model	DMP-Z1	Date	August 6, 2018
Serial No.	1000687	Temperature	25 deg.C
Power	DC 19.5 V(AC Adapter Output)	Humidity	43 %RH
Mode	NFC Transmitting(Unmodulated)	ENGINEER	Kazuya Noda

Temperature Variation: -20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559927	-0.000073	-0.00054	0.010
after 2minutes	13.56	13.559929	-0.000071	-0.00052	0.010
after 5minutes	13.56	13.559922	-0.000078	-0.00058	0.010
after 10minutes	13.56	13.559920	-0.000080	-0.00059	0.010

Temperature Variation: -10deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559986	-0.000014	-0.00010	0.010
after 2minutes	13.56	13.559987	-0.000013	-0.00010	0.010
after 5minutes	13.56	13.559985	-0.000015	-0.00011	0.010
after 10minutes	13.56	13.559982	-0.000018	-0.00013	0.010

Temperature Variation: 0deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560014	0.000014	0.00010	0.010
after 2minutes	13.56	13.560013	0.000013	0.00010	0.010
after 5minutes	13.56	13.560014	0.000014	0.00010	0.010
after 10minutes	13.56	13.560010	0.000010	0.00007	0.010

Temperature Variation: 10deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560019	0.000019	0.00014	0.010
after 2minutes	13.56	13.560025	0.000025	0.00018	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

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559990	-0.000010	-0.00007	0.010
after 2minutes	13.56	13.559996	-0.000004	-0.00003	0.010
after 5minutes	13.56	13.559997	-0.000003	-0.00002	0.010
after 10minutes	13.56	13.560003	0.000003	0.00002	0.010

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

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	13.559970	-0.000030	-0.00022	0.010
after 2minutes	13.56	13.559967	-0.000033	-0.00024	0.010
after 5minutes	13.56	13.559970	-0.000030	-0.00022	0.010
after 10minutes	13.56	13.559975	-0.000025	-0.00018	0.010

Temperature Variation: 40deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559941	-0.000059	-0.00044	0.010
after 2minutes	13.56	13.559940	-0.000060	-0.00044	0.010
after 5minutes	13.56	13.559945	-0.000055	-0.00041	0.010
after 10minutes	13.56	13.559944	-0.000056	-0.00041	0.010

Temperature Variation: 50deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559932	-0.000068	-0.00050	0.010
after 2minutes	13.56	13.559931	-0.000069	-0.00051	0.010
after 5minutes	13.56	13.559927	-0.000073	-0.00054	0.010
after 10minutes	13.56	13.559927	-0.000073	-0.00054	0.010

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Data of Frequency Tolerance

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

Company	SONY		
Equipment	Digital Music Player	Regulation	FCC Part15 Subpart C 15.225 (e)
Model	DMP-Z1	Date	August 23, 2018
Serial No.	1000687	Temperature	26 deg.C
Power	DC 19.5 V(AC Adapter Output)	Humidity	47 %RH
Mode	NFC Transmitting(Unmodulated)	ENGINEER	Kazuya Noda

Voltage Variation: DC 16.575 V
Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559971	-0.000029	-0.00021	0.010
after 2minutes	13.56	13.559961	-0.000039	-0.00029	0.010
after 5minutes	13.56	13.559962	-0.000038	-0.00028	0.010
after 10minutes	13.56	13.559966	-0.000034	-0.00025	0.010

Voltage Variation: DC 22.425 V
Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559966	-0.000034	-0.00025	0.010
after 2minutes	13.56	13.559970	-0.000030	-0.00022	0.010
after 5minutes	13.56	13.559965	-0.000035	-0.00026	0.010
after 10minutes	13.56	13.559967	-0.000033	-0.00024	0.010

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Data of Frequency Tolerance

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

Company	SONY		
Equipment	Digital Music Player	Regulation	FCC Part15 Subpart C 15.225 (e)
Model	DMP-Z1	Date	August 23, 2018
Serial No.	1000687	Temperature	26 deg.C
Power	DC 3.7V(Battery Output)	Humidity	47 %RH
Mode	NFC Transmitting(Unmodulated)	ENGINEER	Kazuya Noda

Voltage Variation: DC 3.145 V
Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559971	-0.000029	-0.00021	0.010
after 2minutes	13.56	13.559965	-0.000035	-0.00026	0.010
after 5minutes	13.56	13.559965	-0.000035	-0.00026	0.010
after 10minutes	13.56	13.559966	-0.000034	-0.00025	0.010

Voltage Variation: DC 4.255 V
Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559966	-0.000034	-0.00025	0.010
after 2minutes	13.56	13.559966	-0.000034	-0.00025	0.010
after 5minutes	13.56	13.559971	-0.000029	-0.00021	0.010
after 10minutes	13.56	13.559971	-0.000029	-0.00021	0.010

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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
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Facsimile : +81 463 50 6401

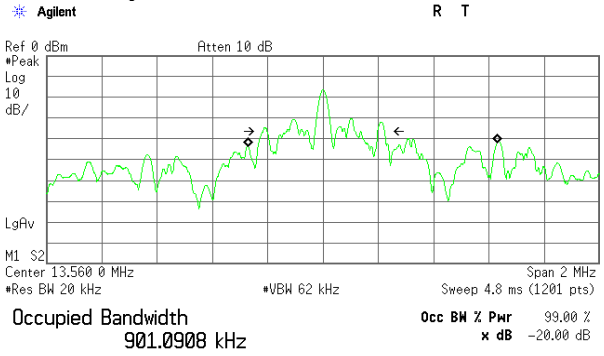
20dB bandwidth & 99% Occupied bandwidth: FCC 15.215 / RSS-Gen

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

Company:	SONY	Regulation:	FCC Part15 Subpart C 15.215
Equipment:	Digital Music Player		
Model:	DMP-Z1	Date:	August 6, 2018
Sample No.:	1000687	Temperature:	25 deg.C
Power:	DC 19.5 V(AC Adapter Output)	Humidity:	43 %RH
Mode:	NFC Communication	ENGINEER:	Kazuya Noda

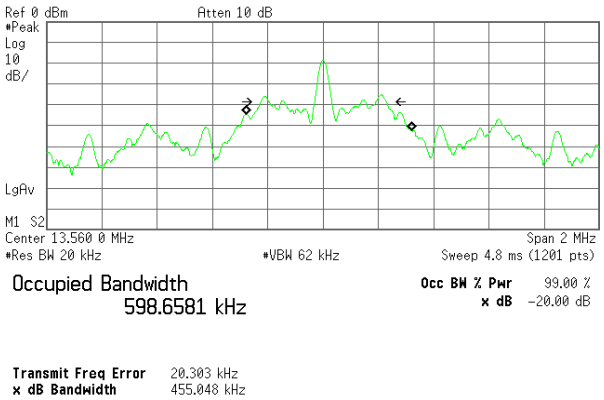
Tag A

20 dB Bandwidth: 441.742 kHz
99 % Occupied Bandwidth: 901.091 kHz



Tag F

20 dB Bandwidth: 455.048 kHz
99 % Occupied Bandwidth: 598.658 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

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

UL Japan, Inc.
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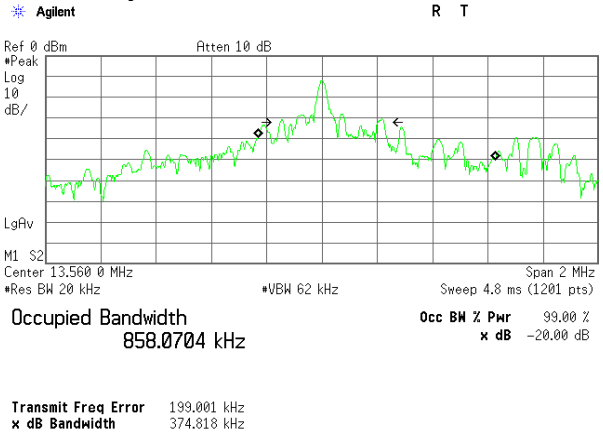
Company:	SONY	Regulation:	FCC Part15 Subpart C 15.215
Equipment:	Digital Music Player		
Model:	DMP-Z1	Date:	August 6, 2018
Sample No.:	1000687	Temperature:	25 deg.C
Power:	DC 19.5 V(AC Adapter Output)	Humidity:	43 %RH
Mode:	NFC Communication	ENGINEER:	Kazuya Noda

without Tag

20 dB Bandwidth: 199.001 kHz

99 % Occupied Bandwidth: 858.070 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	FT/BW	2017/08/20 * 12
SRENT-09	Spectrum Analyzer	Agilent	E4440A	MY46186392	FT	2017/11/08 * 12
SSCA-01	Search coil	LANGER	RF-R 400-1	02-0634	FT/BW	Pre Check
KTS-07	Digital Tester	SANWA	PC500	7019232	FT/BW	2017/10/11 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	FT/BW	2017/12/21 * 12
SCH-01	Temperature and Humidity Chamber	Espec	PL-1KT	14020837	FT	2018/04/11 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2018/06/02 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2018/06/17 * 12
SLA-07	Logperiodic Antenna	Schwarzbeck	VUSLP9111B	196	RE	2018/06/17 * 12
SAT6-13	Attenuator	JFW	50HF-006N	-	RE	2018/02/09 * 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	2018/04/09 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2018/02/16 * 12
STR-08	Test Receiver	Rohde & Schwarz	ESW44	101581	RE, CE	2017/11/24 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RFI,MF)	-	RE, CE	-
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2017/10/30 * 12
SJM-02	Measure	KOMELON	KMC-36	-	RE, CE	-
STS-03	Digital Hitester	Hioki	3805-50	080997823	RE, CE	2017/10/16 * 12
SLP-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100218	RE	2017/10/16 * 12
SCC-C9/C10/SRSE-03	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271(RF Selector)	CE	2018/04/09 * 12
SLS-05	LISN	Rohde & Schwarz	ENV216	100516	CE	2018/02/26 * 12
SAT3-07	Attenuator	JFW	50HF-003N	-	CE	2017/09/08 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2017/12/21 * 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：
CE: Conducted emission,
RE: Radiated emission,
FT: Frequency Tolerance
BW: Bandwidth measurement