



RADIO TEST REPORT

Test Report No.: 11306371S-E-R1

Applicant : Sony Corporation
Type of Equipment : Digital Paper
Model No. : DPT-RP1
FCC ID : AK8DPTRP1
Test regulation : FCC Part15 Subpart C: 2016
Test result : Complied

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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.
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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 test report covers Radio technical requirements.
It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
8. This report is a revised version of 11306371S-E. 11306371S-E is replaced with this report.

Date of test:

June 6 to July 2, 2016

Representative test engineer:

Hiroyuki Morikawa

Engineer

Consumer Technology Division

Approved by :

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.

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13-EM-F0429

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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 Paper
 Model No. : DPT-RP1
 Serial No. : Refer to Section 4, Clause 4.2
 Rating : DC 3.7 V
 Receipt Date of Sample : May 30, 2016
 Country of Mass-production : Japan
 Condition of EUT : Production 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: DPT-RP1 (referred to as the EUT in this report) is a Digital Paper .

Clock frequency : 156 MHz (CPLD), 667 MHz (LPDDR3), 200 MHz (eMMC), 40 MHz (WLAN/BT)
 208 MHz (WLAN/BT), 32.768 kHz (clock) , 26 MHz (CPU), 27 MHz (NFC)

Radio Specification

Equipment name	IEEE 802.11 2x2 MIMO a/b/g/n/ac Wireless LAN + Bluetooth + NFC			
Frequency of operation	Bluetooth	2.4GHz band: 2402-2480 MHz (BDR (Basic Data Rate), EDR (Enhanced Data Rate), LE (Low Energy mode))		
	WLAN	2.4GHz band: 2412-2462 MHz (b.g.n(HT20)); W52 (U-NII-1): 5180-5240 MHz (a,n(HT20),ac(VHT20)) / 5190-5230 MHz (n(HT40),ac(VHT40)) / 5210 MHz (ac(VHT80)); W53 (U-NII-2A): 5260-5320 MHz (a,n(HT20),ac(VHT20)) / 5270-5310 MHz (n(HT40),ac(VHT40)) / 5290 MHz (ac(VHT80)); W56 (U-NII-2C): 5500-5720 MHz (a,n(HT20),ac(VHT20)) / 5510-5710 MHz (n(HT40),ac(VHT40)) / 5530-5690 MHz (ac(VHT80)) W58 (U-NII-3): 5745-5825 MHz (a,n(HT20),ac(VHT20)) / 5755-5795 MHz (n(HT40),ac(VHT40)) / 5775 MHz (ac(VHT80))		
		NFC	13.56 MHz	
Operation mode	Wi-Fi	Bluetooth	NFC	
Channel spacing	5 MHz (2.4 GHz band), 20 MHz (W52, W53, W56, W58)	1 MHz (BDR, EDR), 2 MHz (LE)	-	
Bandwidth	20 MHz (b.g.a,n(HT20),ac(VHT20)), 40 MHz (n(HT40),ac(VHT40)), 80 MHz (ac(VHT80))	79 MHz	-	
Type of modulation	DSSS: DBPSK, DQPSK, CCK OFDM: BPSK, QPSK, 16QAM, 64QAM, 256QAM(*1) (*1. 256QAM is only supported by 11ac mode.)	FHSS: GFSK (*. EDR: GFSK+ $\pi/4$ -DQPSK, GFSK+8DPSK)	ASK	
Antenna	antenna #A (Wi-Fi)	antenna #B (Wi-Fi+Bluetooth)		
Antenna type	Loop			
Antenna gain (Peak)	3.75 dBi (2.4 GHz), 2.81 dBi (5 GHz) (*.including cable loss)	1.38 dBi (2.4 GHz), 4.29 dBi (5 GHz) (*.including cable loss)		
Antenna	NFC antenna			
Antenna type	Loop			
Card type	type A, type F			

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C
FCC part 15 final revised on April 6, 2016.
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 13.110-14.010 MHz

The EUT has been tested for compliance with FCC Part 15 Subpart B. Refer to the test report 11306371S-F.

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	14.5 dB Freq.: 0.61428 MHz Phase: L1 Tag: Type F	Complied
Electric field strength of Fundamental emission	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.225 (a)	Radiated	N/A	59.6 dB Polarization: Vertical	Complied
Electric field strength of Spurious emission (within the 13.110-14.010 MHz band)	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.225 (b)(c)	Radiated	N/A	40.5 dB Freq.: 13.567 MHz Polarization: Vertical	Complied
Electric field strength of Spurious emission (outside of the 13.110-14.010 MHz band)	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.209 FCC 15.225 (d)	Radiated	N/A	7.4 dB Freq.: 585.00 MHz Polarization: Horizontal	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	N/A	-	Complied

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

FCC Part 15.31 (e)

This EUT provides stable voltage (DC 3 V and 1.8 V) 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 requirement.

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 (±)
Conducted emission (AC Mains) AMN/LISN	150 kHz-30 MHz	2.1 dB	2.1 dB	2.6 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	2.7 dB	2.7 dB	3.1 dB
	30 MHz-300 MHz	4.4 dB	4.4 dB	4.6 dB
	300 MHz-1 GHz	5.6 dB	5.5 dB	5.3 dB

*1: SAC=Semi-Anechoic Chamber

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

Conducted emission

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

Radiated emission

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

Other tests

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} .

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

Temperature uncertainty for this test was: (±) 0.97 deg.C

Voltage uncertainty for this test was: (±) 0.24 %

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 measurement distance
<input type="checkbox"/> No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
<input type="checkbox"/> No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
<input checked="" type="checkbox"/> No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
<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 checked="" 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	Transmitting	13.56 MHz

Software: NFCPollingMonitor Ver. 1.2.4.1

Power settings: Fixed

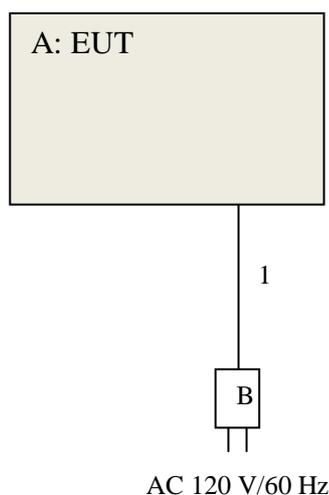
The carrier level and noise levels were confirmed with and without Tag, and the test was made with the condition that has the maximum noise.

Combinations of the worst case

Radiated emission (Carrier)	Radiated spurious emission (Below 30 MHz)	Radiated spurious emission (Above 30 MHz)
With Tag (type F)	With Tag (type F)	With Tag (type A)

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 Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Digital Paper	DPT-RP1	9002003	Sony Corporation	EUT
B	AC Adapter	AC-UUD12	15091AR1000055	Sony Corporation	-

List of cables used

No.	Item	Length (m)	Shield (Cable)	Shield (Connector)	Remarks
1	USB	1.5	Shielded	Shielded	-

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SECTION 5: Conducted emission

5.1 Operating environment

Test place : See test data (APPENDIX 1)

Temperature : See test data (APPENDIX 1)

Humidity : See test data (APPENDIX 1)

5.2 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 Styrofoam and covered with polyvinyl chloride. That has very low permittivity.

The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of peripheral 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. 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.

5.3 Test conditions

Frequency range : 0.15 MHz - 30 MHz

EUT position : Table top

5.4 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

5.5 Results

Summary of the test results : Pass

Refer to APPENDIX 1

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SECTION 6: Radiated emission (Fundamental and Spurious emission)

6.1 Operating environment

Test place : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

6.2 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 Styrofoam and covered with polyvinyl chloride. That has very low permittivity. Photographs of the set up are shown in Appendix 1.

6.3 Test conditions

Frequency range : 9 kHz - 1 GHz
Test distance : 3 m
EUT position : Table top

6.4 Test procedure

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

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 3 m
Frequency: From 9 kHz to 30 MHz at distance 3 m

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.to 360 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 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	9 kHz	9 kHz	120 kHz
Measuring antenna	Loop antenna				Biconical (30 MHz-299.99 MHz) Logperiodic (300 MHz-1 GHz)

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

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

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

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The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise. Refer to the data.

6.5 Results

Summary of the test results : Pass
No spurious emissions exceeded the fundamental emission level.

Refer to APPENDIX 1.

Figure 1. Direction of the Loop Antenna

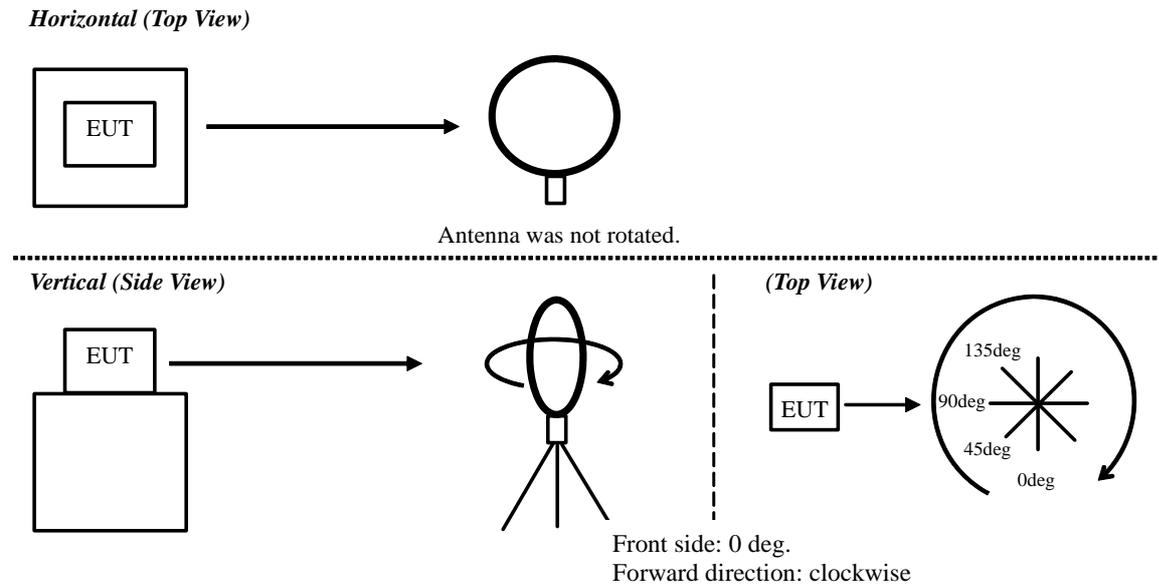
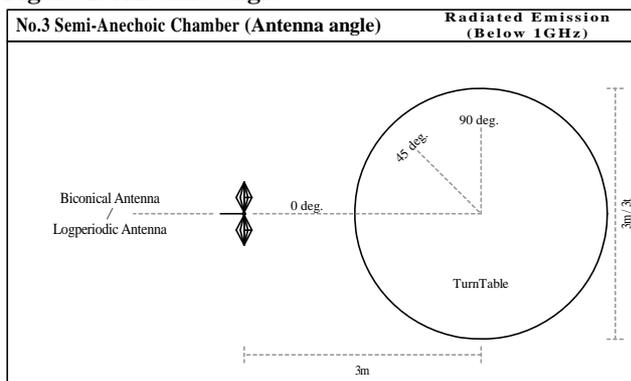


Figure 2. Antenna angle



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SECTION 7: 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 8: 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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DATA OF CONDUCTED EMISSION TEST

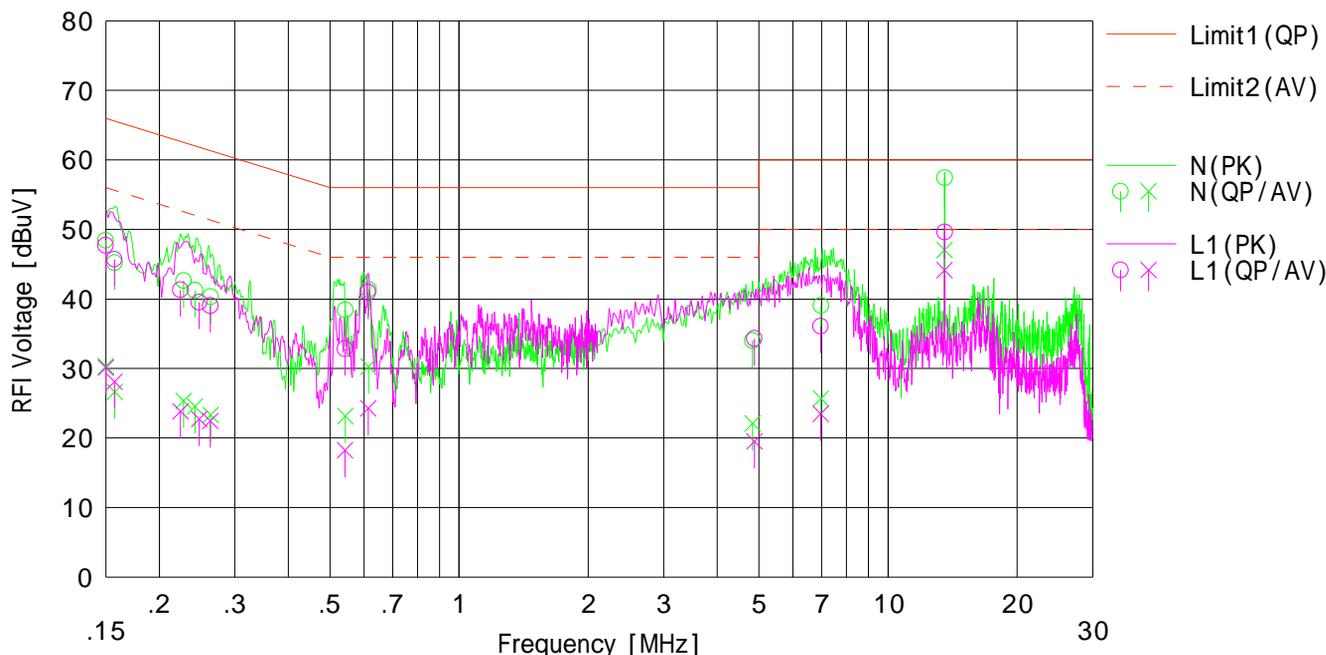
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2016/06/20

Company : Sony Corporation
Kind of EUT : Digital Paper
Model No. : DPT-RP1
Serial No. : 9002003
Remarks : Tag : Type-A

Mode : NFC Communication
Order No. : 11306371S
Power : AC 120 V / 60 Hz
Temp./Humi. : 25 deg.C / 53 %RH

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

Engineer : Yosuke Ishikawa



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	35.90	17.80	12.51	48.41	30.31	66.00	56.00	17.5	25.6	N	
2	0.15741	32.70	14.10	12.51	45.21	26.61	65.60	55.60	20.3	28.9	N	
3	0.22788	30.10	12.80	12.53	42.63	25.33	62.53	52.53	19.9	27.2	N	
4	0.24228	28.70	12.00	12.53	41.23	24.53	62.02	52.02	20.7	27.4	N	
5	0.26348	27.80	10.80	12.53	40.33	23.33	61.32	51.32	20.9	27.9	N	
6	0.54260	25.90	10.60	12.54	38.44	23.14	56.00	46.00	17.5	22.8	N	
7	0.61501	28.80	17.70	12.56	41.36	30.26	56.00	46.00	14.6	15.7	N	
8	4.83725	21.00	9.10	13.01	34.01	22.11	56.00	46.00	21.9	23.8	N	
9	6.97724	25.80	12.40	13.28	39.08	25.68	60.00	50.00	20.9	24.3	N	
10	13.56000	43.40	33.00	14.04	57.44	47.04	60.00	50.00	2.5	2.9	N	Reference Data
11	0.15000	35.20	17.60	12.51	47.71	30.11	66.00	56.00	18.2	25.8	L1	
12	0.15714	33.20	15.60	12.51	45.71	28.11	65.61	55.61	19.9	27.5	L1	
13	0.22420	28.80	11.30	12.52	41.32	23.82	62.66	52.66	21.3	28.8	L1	
14	0.24780	27.00	10.20	12.53	39.53	22.73	61.83	51.83	22.3	29.1	L1	
15	0.26313	26.50	9.90	12.53	39.03	22.43	61.33	51.33	22.3	28.9	L1	
16	0.54162	20.30	5.70	12.54	32.84	18.24	56.00	46.00	23.1	27.7	L1	
17	0.61380	28.40	11.70	12.56	40.96	24.26	56.00	46.00	15.0	21.7	L1	
18	4.88063	21.30	6.50	13.02	34.32	19.52	56.00	46.00	21.6	26.4	L1	
19	6.96669	22.80	10.20	13.28	36.08	23.48	60.00	50.00	23.9	26.5	L1	
20	13.56000	35.60	30.10	14.04	49.64	44.14	60.00	50.00	10.3	5.8	L1	Reference Data

Calculation:Result [dBuV]=Reading [dBuV]+C.Fac(LISN+Cable+ATT) [dB]
LISN:SLS-02

DATA OF CONDUCTED EMISSION TEST

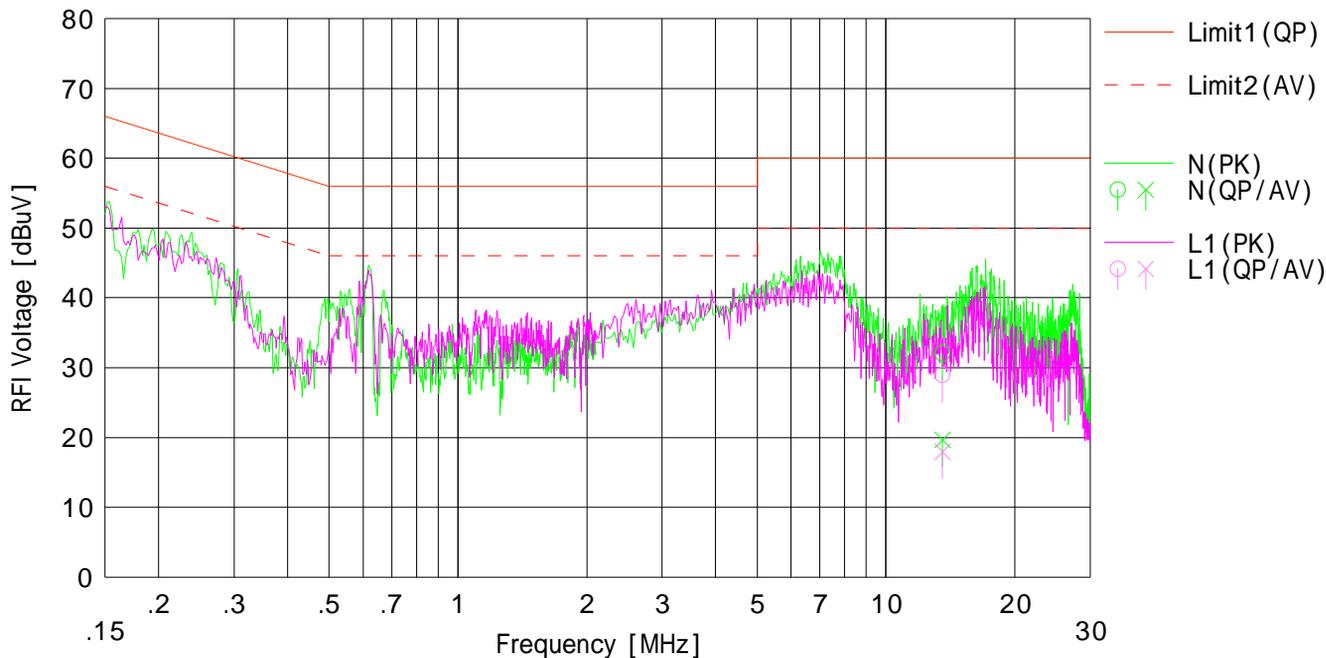
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2016/06/20

Company : Sony Corporation
 Kind of EUT : Digital Paper
 Model No. : DPT-RP1
 Serial No. : 9002003
 Remarks : Tag : Type-A(Antenna Terminate)

Mode : NFC Communication
 Order No. : 11306371S
 Power : AC 120 V / 60 Hz
 Temp./Humi. : 25 deg.C / 53 %RH

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

Engineer : Yosuke Ishikawa



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	13.56000	18.00	5.60	14.04	32.04	19.64	60.00	50.00	27.9	30.3	N	
2	13.56000	14.90	3.90	14.04	28.94	17.94	60.00	50.00	31.0	32.0	L1	

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
 LISN: SLS-02

DATA OF CONDUCTED EMISSION TEST

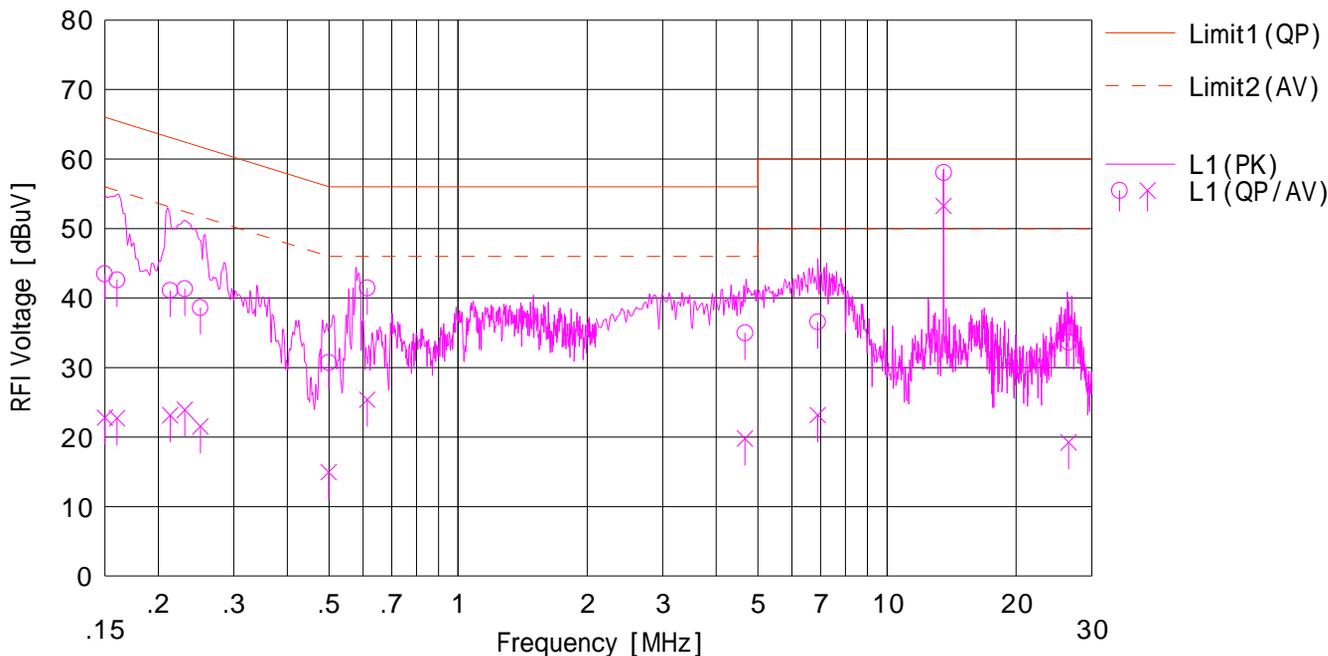
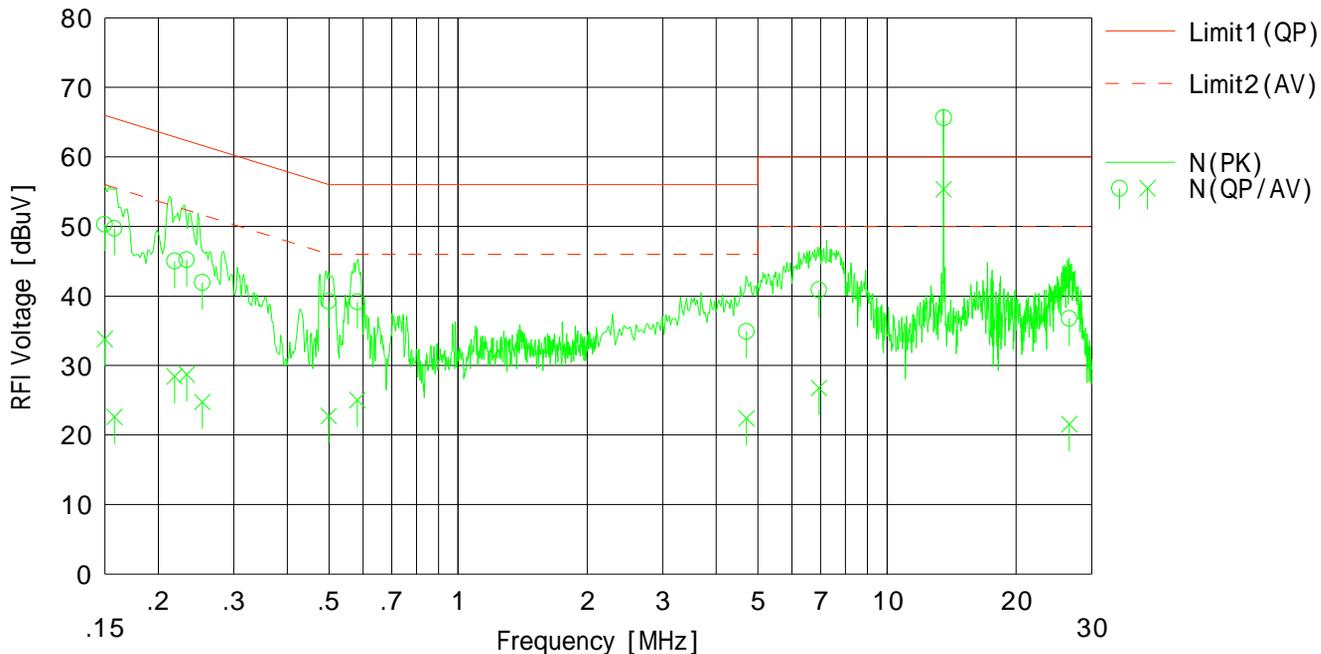
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Date : 2016/06/20

Company : Sony Corporation
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 Model No. : DPT-RP1
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 Remarks : Tag : Type-F

Mode : NFC Communication
 Order No. : 11306371S
 Power : AC 120 V / 60 Hz
 Temp./Humi. : 25 deg.C / 53 %RH

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

Engineer : Yosuke Ishikawa



Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
 LISN: SLS-02

DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2016/06/20

Company : Sony Corporation
 Kind of EUT : Digital Paper
 Model No. : DPT-RP1
 Serial No. : 9002003
 Remarks : Tag : Type-F

Mode : NFC Communication
 Order No. : 11306371S
 Power : AC 120 V / 60 Hz
 Temp./Humi. : 25 deg.C / 53 %RH

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

Engineer : Yosuke Ishikawa

<< QP/AV DATA >>

No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	37.80	21.30	12.51	50.31	33.81	66.00	56.00	15.6	22.1	N	
2	0.15795	37.20	10.10	12.51	49.71	22.61	65.57	55.57	15.8	32.9	N	
3	0.21841	32.50	15.90	12.52	45.02	28.42	62.88	52.88	17.8	24.4	N	
4	0.23281	32.70	16.20	12.53	45.23	28.73	62.35	52.35	17.1	23.6	N	
5	0.25321	29.40	12.20	12.53	41.93	24.73	61.65	51.65	19.7	26.9	N	
6	0.49898	26.70	10.20	12.54	39.24	22.74	56.02	46.02	16.7	23.2	N	
7	0.58244	26.60	12.50	12.55	39.15	25.05	56.00	46.00	16.8	20.9	N	
8	4.70220	21.90	9.40	13.00	34.90	22.40	56.00	46.00	21.1	23.6	N	
9	6.93652	27.60	13.50	13.27	40.87	26.77	60.00	50.00	19.1	23.2	N	
10	13.56000	51.60	41.30	14.04	65.64	55.34	60.00	50.00	-5.7	-5.4	N	Reference Data
11	26.58915	22.20	7.00	14.55	36.75	21.55	60.00	50.00	23.2	28.4	N	
12	0.15000	31.00	10.30	12.51	43.51	22.81	66.00	56.00	22.4	33.1	L1	
13	0.16032	30.10	10.20	12.52	42.62	22.72	65.45	55.45	22.8	32.7	L1	
14	0.21326	28.60	10.60	12.52	41.12	23.12	63.08	53.08	21.9	29.9	L1	
15	0.23043	28.80	11.40	12.53	41.33	23.93	62.43	52.43	21.1	28.5	L1	
16	0.25061	26.10	9.00	12.53	38.63	21.53	61.74	51.74	23.1	30.2	L1	
17	0.49967	18.20	2.40	12.54	30.74	14.94	56.01	46.01	25.2	31.0	L1	
18	0.61428	28.90	12.80	12.56	41.46	25.36	56.00	46.00	14.5	20.6	L1	
19	4.66988	22.00	6.80	12.99	34.99	19.79	56.00	46.00	21.0	26.2	L1	
20	6.89403	23.30	9.90	13.27	36.57	23.17	60.00	50.00	23.4	26.8	L1	
21	13.56000	44.00	39.20	14.04	58.04	53.24	60.00	50.00	1.9	-3.3	L1	Reference Data
22	26.51504	19.10	4.70	14.54	33.64	19.24	60.00	50.00	26.3	30.7	L1	

DATA OF CONDUCTED EMISSION TEST

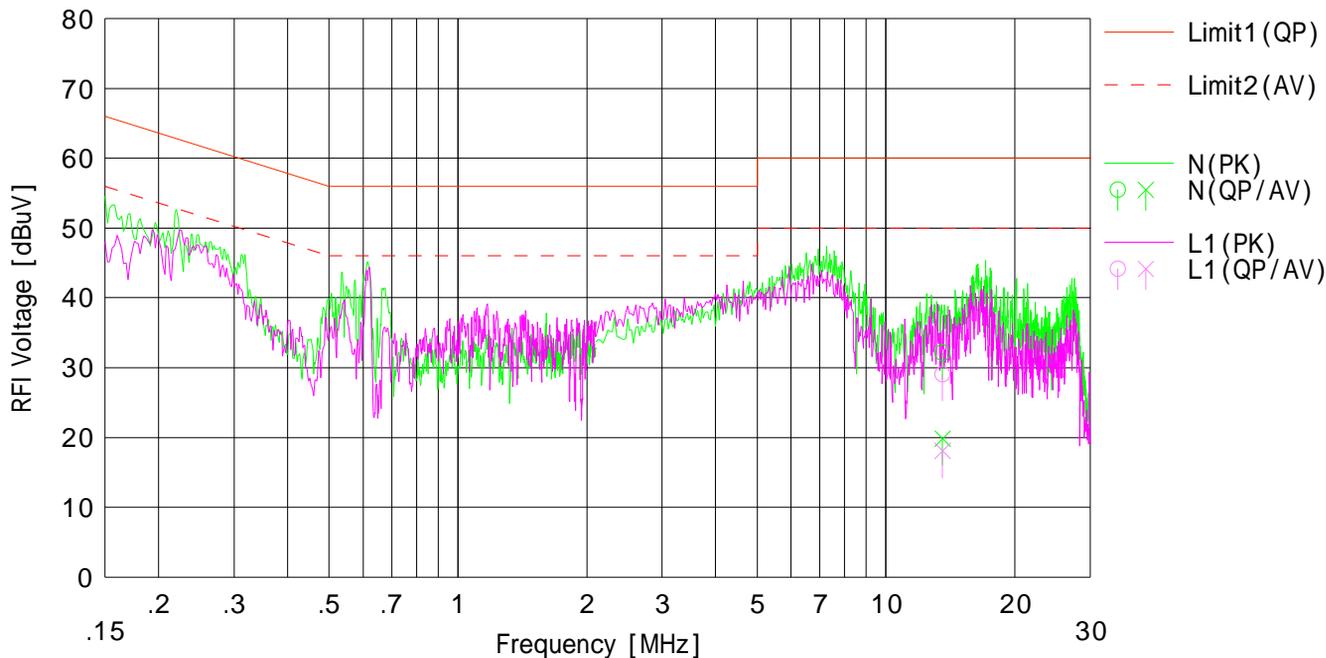
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2016/06/20

Company : Sony Corporation
 Kind of EUT : Digital Paper
 Model No. : DPT-RP1
 Serial No. : 9002003
 Remarks : Tag : Type-F (Antenna Terminate)

Mode : NFC Communication
 Order No. : 11306371S
 Power : AC 120 V / 60 Hz
 Temp./Humi. : 25 deg.C / 53 %RH

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

Engineer : Yosuke Ishikawa



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	13.56000	18.10	5.80	14.04	32.14	19.84	60.00	50.00	27.8	30.1	N	
2	13.56000	15.00	4.00	14.04	29.04	18.04	60.00	50.00	30.9	31.9	L1	

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
 LISN: SLS-02

DATA OF CONDUCTED EMISSION TEST

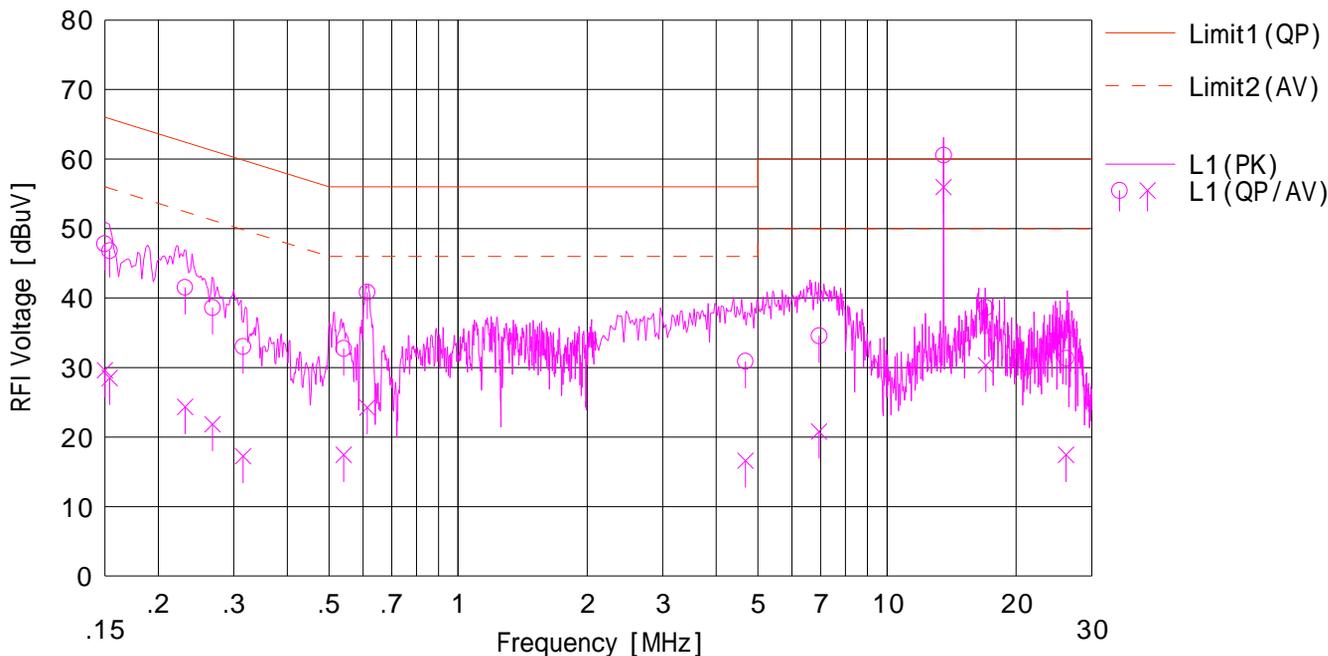
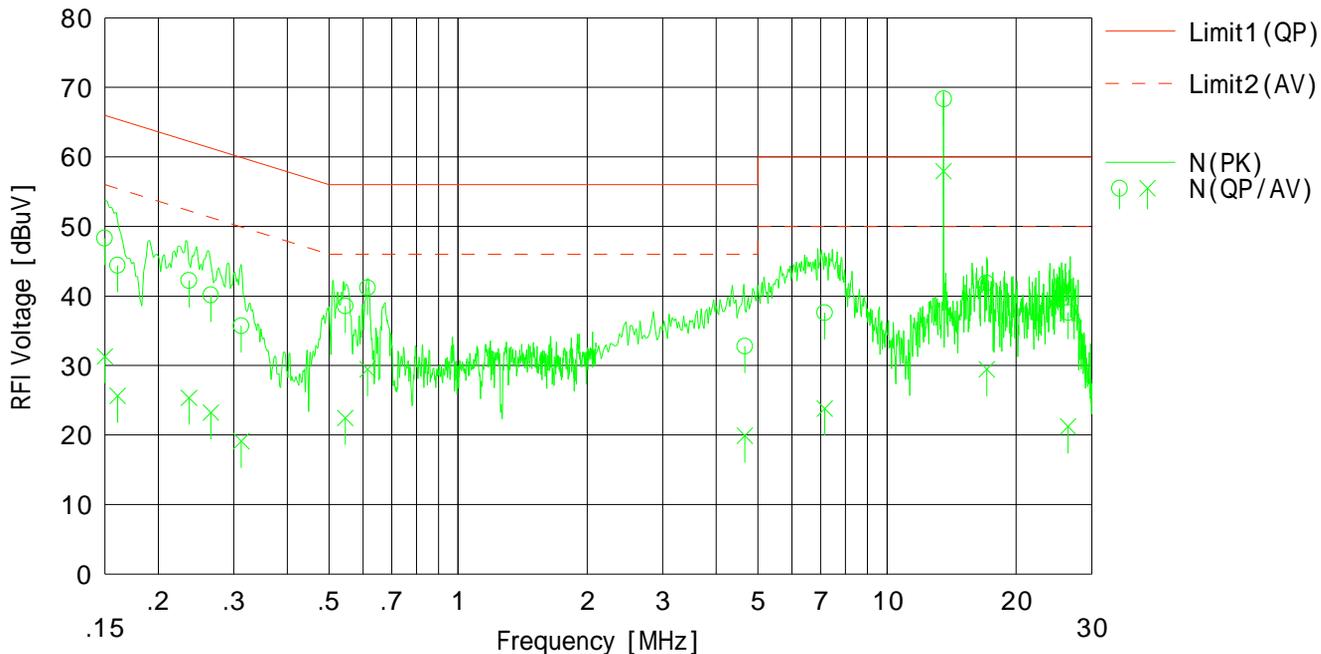
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2016/06/20

Company : Sony Corporation
 Kind of EUT : Digital Paper
 Model No. : DPT-RP1
 Serial No. : 9002003
 Remarks : Tag : Non Tag

Mode : NFC Communication
 Order No. : 11306371S
 Power : AC 120 V / 60 Hz
 Temp./Humi. : 25 deg.C / 53 %RH

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

Engineer : Yosuke Ishikawa



Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
 LISN: SLS-02

DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2016/06/20

Company : Sony Corporation
Kind of EUT : Digital Paper
Model No. : DPT-RP1
Serial No. : 9002003
Remarks : Tag : Non Tag

Mode : NFC Communication
Order No. : 11306371S
Power : AC 120 V / 60 Hz
Temp./Humi. : 25 deg.C / 53 %RH

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

Engineer : Yosuke Ishikawa

<< QP/AV DATA >>

No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
		1	0.15000		35.80	18.80	12.51	48.31	31.31	66.00		
2	0.16063	31.90	13.10	12.52	44.42	25.62	65.43	55.43	21.0	29.8	N	
3	0.23597	29.70	12.80	12.53	42.23	25.33	62.24	52.24	20.0	26.9	N	
4	0.26517	27.60	10.70	12.53	40.13	23.23	61.27	51.27	21.1	28.0	N	
5	0.31237	23.20	6.60	12.52	35.72	19.12	59.91	49.91	24.1	30.7	N	
6	0.54540	26.00	9.90	12.54	38.54	22.44	56.00	46.00	17.4	23.5	N	
7	0.61510	28.60	16.90	12.56	41.16	29.46	56.00	46.00	14.8	16.5	N	
8	4.66015	19.80	6.90	12.99	32.79	19.89	56.00	46.00	23.2	26.1	N	
9	7.16237	24.30	10.50	13.31	37.61	23.81	60.00	50.00	22.3	26.1	N	
10	13.56000	54.30	43.90	14.04	68.34	57.94	60.00	50.00	-8.4	-8.0	N	Reference Data
11	17.07760	27.50	15.10	14.33	41.83	29.43	60.00	50.00	18.1	20.5	N	
12	26.47400	23.10	6.70	14.54	37.64	21.24	60.00	50.00	22.3	28.7	N	
13	0.15000	35.30	17.10	12.51	47.81	29.61	66.00	56.00	18.1	26.3	L1	
14	0.15415	34.30	16.00	12.51	46.81	28.51	65.77	55.77	18.9	27.2	L1	
15	0.23080	29.00	11.80	12.53	41.53	24.33	62.42	52.42	20.8	28.0	L1	
16	0.26762	26.10	9.30	12.53	38.63	21.83	61.19	51.19	22.5	29.3	L1	
17	0.31545	20.50	4.70	12.52	33.02	17.22	59.83	49.83	26.8	32.6	L1	
18	0.54107	20.20	4.90	12.54	32.74	17.44	56.00	46.00	23.2	28.5	L1	
19	0.61436	28.30	11.70	12.56	40.86	24.26	56.00	46.00	15.1	21.7	L1	
20	4.67607	17.90	3.60	12.99	30.89	16.59	56.00	46.00	25.1	29.4	L1	
21	6.95442	21.30	7.50	13.28	34.58	20.78	60.00	50.00	25.4	29.2	L1	
22	13.56000	46.50	41.90	14.04	60.54	55.94	60.00	50.00	-0.6	-6.0	L1	Reference Data
23	17.01277	24.30	16.00	14.32	38.62	30.32	60.00	50.00	21.3	19.6	L1	
24	26.17483	16.80	2.90	14.54	31.34	17.44	60.00	50.00	28.6	32.5	L1	

DATA OF CONDUCTED EMISSION TEST

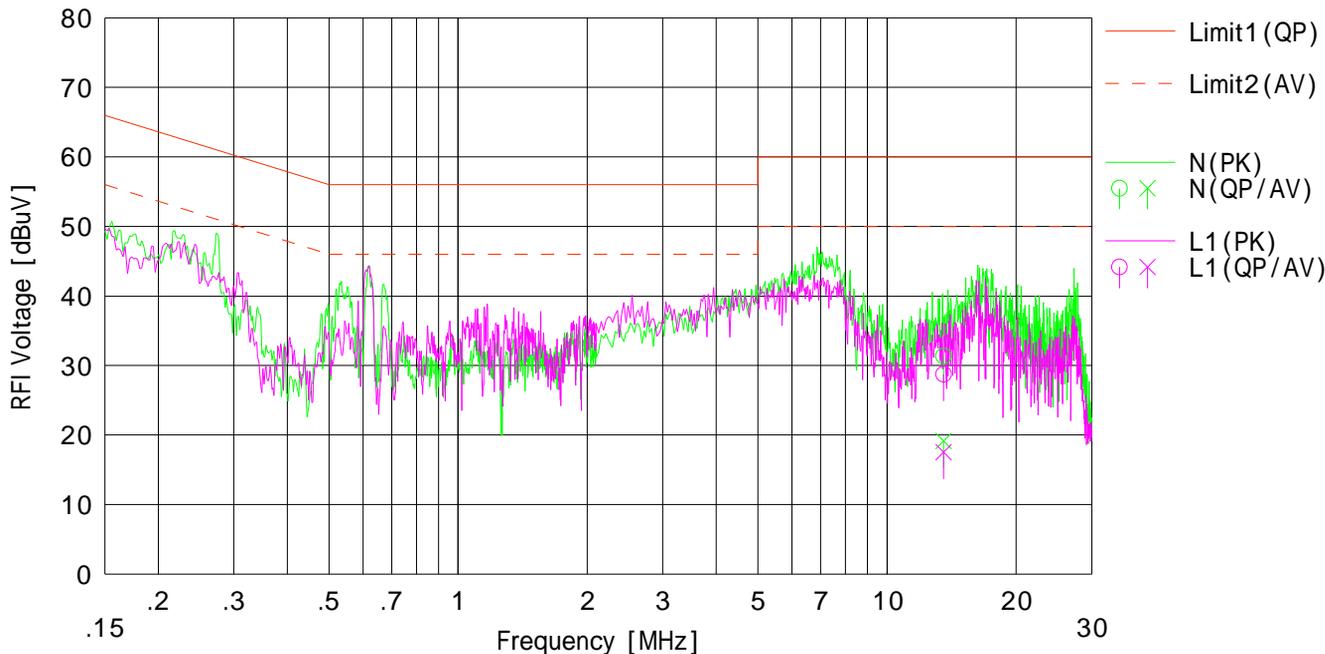
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2016/06/20

Company : Sony Corporation
 Kind of EUT : Digital Paper
 Model No. : DPT-RP1
 Serial No. : 9002003
 Remarks : Tag : Non Tag (Antenna Terminate)

Mode : NFC Communication
 Order No. : 11306371S
 Power : AC 120 V / 60 Hz
 Temp./Humi. : 25 deg.C / 53 %RH

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

Engineer : Yosuke Ishikawa



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]				
1	13.56000	17.30	5.10	14.04	31.34	19.14	60.00	50.00	28.6	30.8	N	
2	13.56000	14.70	3.50	14.04	28.74	17.54	60.00	50.00	31.2	32.4	L1	

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
 LISN: SLS-02

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	Regulation: FCC Part15 Subpart C 15.225
Equipment: Digital Paper	Test Distance: 3m
Model: DPT-RP1	Date: June 06, 2016
Sample No.: 9002003	Temperature: 25 deg.C
Power: DC 3.7 V	Humidity: 53 %RH
Mode: Transmitting 13.56MHz	ENGINEER: Yosuke Ishikawa

Remarks: : NFC type F (Axis:Hor_X / 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	60.4	71.6	18.4	6.5	32.2	-40.0	13.1	24.3	83.9	70.8	59.6

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	30.1	30.2	18.4	6.5	32.2	-40.0	-17.3	-17.2	29.5	46.8	46.7
2	13.410	30.2	31.6	18.4	6.5	32.2	-40.0	-17.2	-15.75	40.5	57.7	56.3
3	13.553	45.7	56.6	18.4	6.5	32.2	-40.0	-1.6	9.3	50.4	52.0	41.1
4	13.567	46.3	57.2	18.4	6.5	32.2	-40.0	-1.0	9.9	50.4	51.4	40.5
5	13.710	30.2	31.8	18.4	6.5	32.2	-40.0	-17.1	-15.53	40.5	57.6	56.0
6	14.010	30.2	30.2	18.4	6.5	32.2	-40.0	-17.1	-17.13	29.5	46.6	46.6

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±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.

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Radiated Emission

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

Company: Sony Corporation	Regulation: FCC Part15 Subpart C 15.225
Equipment: Digital Paper	Test Distance: 3m
Model: DPT-RP1	Date: June 06, 2016
Sample No.: 9002003	Temperature: 25 deg.C
Power: DC 3.7 V	Humidity: 53 %RH
Mode: Transmitting 13.56MHz	ENGINEER: Yosuke Ishikawa
EUT axis: Below 30 MHz(Horizontal X-axis, Vertical Z-axis), NFC type F, with Tag	
Above 30 MHz(Horizontal: Z-axis, Vertical: Z-axis), NFC type A, 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	29.7	18.6	6.7	32.2	-40.0	-17.1	29.5	46.6	-	134	* Limit: 30m
Hori.	273.003	QP	35.6	18.1	8.5	32.0	0.0	30.2	46.0	15.8	357	93	
Hori.	429.003	QP	42.0	16.4	9.3	31.9	0.0	35.7	46.0	10.3	182	169	
Hori.	506.999	QP	43.3	17.5	9.6	31.9	0.0	38.5	46.0	7.5	148	179	
Hori.	585.000	QP	41.9	18.7	9.9	31.9	0.0	38.6	46.0	7.4	139	183	
Hori.	663.003	QP	38.2	19.8	10.2	31.9	0.0	36.3	46.0	9.7	111	161	
Hori.	834.233	QP	29.9	21.4	10.8	31.4	0.0	30.7	46.0	15.3	100	194	
Vert.	27.12	QP	30.2	18.6	6.7	32.2	-40.0	-16.6	29.5	46.1	-	294	* Limit: 30m
Vert.	40.680	QP	37.4	13.6	6.8	32.2	0.0	25.6	40.0	14.4	100	275	
Vert.	194.999	QP	34.8	16.2	8.0	32.1	0.0	26.9	43.5	16.7	100	310	
Vert.	429.004	QP	41.1	16.4	9.3	31.9	0.0	34.8	46.0	11.2	124	187	
Vert.	507.002	QP	43.1	17.5	9.6	31.9	0.0	38.3	46.0	7.7	105	178	
Vert.	585.002	QP	40.8	18.7	9.9	31.9	0.0	37.5	46.0	8.5	100	167	

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= 53.1dBuV/m, Ver= 64.3 dBuV/m

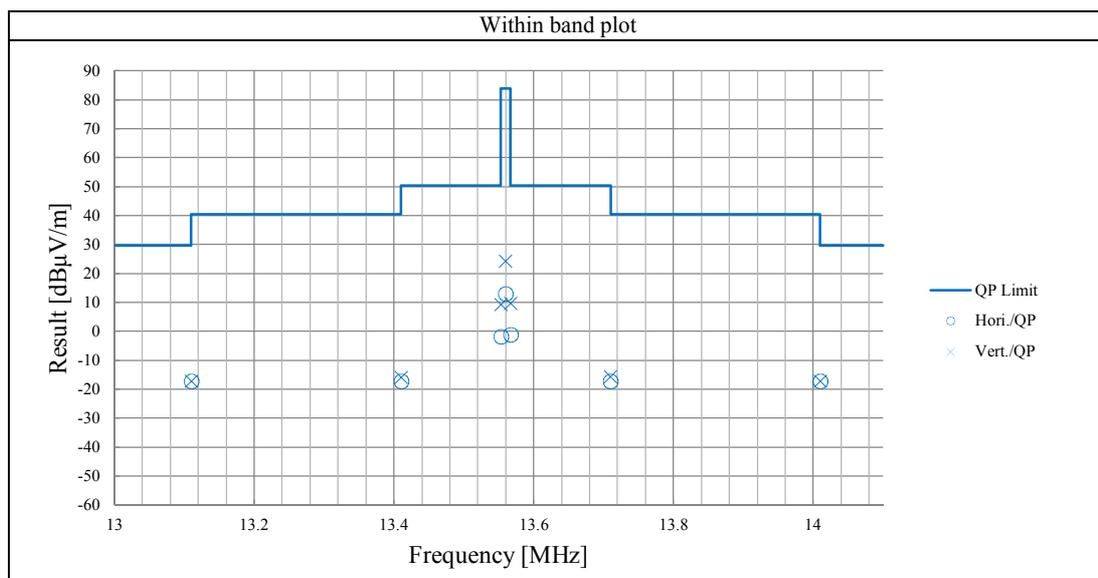
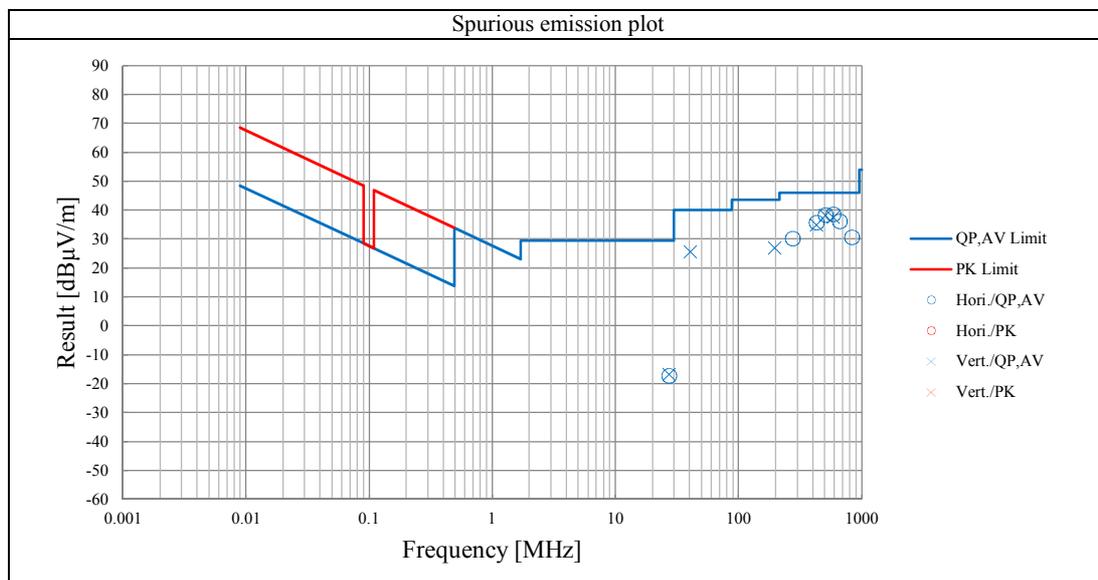
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Radiated Emission (Worst mode plot)

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

Company: Sony Corporation
 Equipment: Digital Paper
 Model: DPT-RP1
 Sample No.: 9002003
 Power: DC 3.7 V
 Mode: Transmitting 13.56MHz
 EUT axis: Below 30 MHz(Horizontal X-axis, Vertical Z-axis), NFC type F, with Tag
 Above 30 MHz(Horizontal: Z-axis, Vertical: Z-axis), NFC type A, with Tag
 Remarks: These plots data contains sufficient number to show the trend of characteristic features for EUT.

Regulation: FCC Part15 Subpart C 15.225
 Test Distance: 3m
 Date: June 06, 2016
 Temperature: 25 deg.C
 Humidity: 53 %RH
 ENGINEER: Yosuke Ishikawa



Data of Frequency Tolerance

UL Japan, Inc.

Shonan EMC Lab. No.5 Shielded room

Company Sony Corporation
 Equipment Digital Paper
 Model DPT-RP1
 Serial No. 9002558
 Power DC 3.7V
 Mode Transmitting 13.56 MHz

Regulation FCC Part15 Subpart C 15.225 (e)
 Date June 27, 2016
 Temperature 24 deg.C
 Humidity 40 %RH
 ENGINEER Makoto Hosaka

Temperature Variation: -20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560069	0.000069	0.00051	0.010
after 2minutes	13.56	13.560069	0.000069	0.00051	0.010
after 5minutes	13.56	13.560069	0.000069	0.00051	0.010
after 10minutes	13.56	13.560068	0.000068	0.00050	0.010

Temperature Variation: -10deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560080	0.000080	0.00059	0.010
after 2minutes	13.56	13.560080	0.000080	0.00059	0.010
after 5minutes	13.56	13.560081	0.000081	0.00060	0.010
after 10minutes	13.56	13.560080	0.000080	0.00059	0.010

Temperature Variation: 0deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560074	0.000074	0.00055	0.010
after 2minutes	13.56	13.560066	0.000066	0.00049	0.010
after 5minutes	13.56	13.560066	0.000066	0.00049	0.010
after 10minutes	13.56	13.560066	0.000066	0.00049	0.010

Temperature Variation: 10deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560034	0.000034	0.00025	0.010
after 2minutes	13.56	13.560032	0.000032	0.00024	0.010
after 5minutes	13.56	13.560032	0.000032	0.00024	0.010
after 10minutes	13.56	13.560033	0.000033	0.00024	0.010

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560009	0.000009	0.00007	0.010
after 2minutes	13.56	13.559990	-0.000010	-0.00007	0.010
after 5minutes	13.56	13.559990	-0.000010	-0.00007	0.010
after 10minutes	13.56	13.559990	-0.000010	-0.00007	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	13.559965	-0.000035	-0.00026	0.010
after 2minutes	13.56	13.559952	-0.000048	-0.00035	0.010
after 5minutes	13.56	13.559952	-0.000048	-0.00035	0.010
after 10minutes	13.56	13.559951	-0.000049	-0.00036	0.010

Temperature Variation: 40deg.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	13.559922	-0.000078	-0.00058	0.010
after 5minutes	13.56	13.559920	-0.000080	-0.00059	0.010
after 10minutes	13.56	13.559920	-0.000080	-0.00059	0.010

Temperature Variation: 50deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559906	-0.000094	-0.00069	0.010
after 2minutes	13.56	13.559901	-0.000099	-0.00073	0.010
after 5minutes	13.56	13.559901	-0.000099	-0.00073	0.010
after 10minutes	13.56	13.559901	-0.000099	-0.00073	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 Paper
 Model DPT-RP1
 Serial No. 9002558
 Power DC 3.7V
 Mode Transmitting 13.56 MHz

Regulation FCC Part15 Subpart C 15.225 (e)
 Date June 27, 2016
 Temperature 24 deg.C
 Humidity 40 %RH
 ENGINEER Makoto Hosaka

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	13.559991	-0.000009	-0.00007	0.010
after 2minutes	13.56	13.559977	-0.000023	-0.00017	0.010
after 5minutes	13.56	13.559975	-0.000025	-0.00018	0.010
after 10minutes	13.56	13.559970	-0.000030	-0.00022	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	13.559975	-0.000025	-0.00018	0.010
after 2minutes	13.56	13.559970	-0.000030	-0.00022	0.010
after 5minutes	13.56	13.559968	-0.000032	-0.00024	0.010
after 10minutes	13.56	13.559965	-0.000035	-0.00026	0.010

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

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Data of Frequency Tolerance

UL Japan, Inc.

Shonan EMC Lab. No.5 Shielded room

Company Sony Corporation
 Equipment Digital Paper
 Model DPT-RP1
 Serial No. 9002558
 Power DC 5V
 Mode Transmitting 13.56 MHz

Regulation FCC Part15 Subpart C 15.225 (e)
 Date July 2, 2016
 Temperature 25 deg.C
 Humidity 51 %RH
 ENGINEER Hiroyuki Morikawa

Voltage Variation: DC 4.55 V (Minimum operating voltage)

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559978	-0.000022	-0.00016	0.010
after 2minutes	13.56	13.559965	-0.000035	-0.00026	0.010
after 5minutes	13.56	13.559963	-0.000037	-0.00027	0.010
after 10minutes	13.56	13.559962	-0.000038	-0.00028	0.010

Voltage Variation: DC 5 V

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559983	-0.000017	-0.00013	0.010
after 2minutes	13.56	13.559967	-0.000033	-0.00024	0.010
after 5minutes	13.56	13.559966	-0.000034	-0.00025	0.010
after 10minutes	13.56	13.559967	-0.000033	-0.00024	0.010

Voltage Variation: DC 5.75 V

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559977	-0.000023	-0.00017	0.010
after 2minutes	13.56	13.559961	-0.000039	-0.00029	0.010
after 5minutes	13.56	13.559960	-0.000040	-0.00029	0.010
after 10minutes	13.56	13.559960	-0.000040	-0.00029	0.010

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Shonan EMC Lab.

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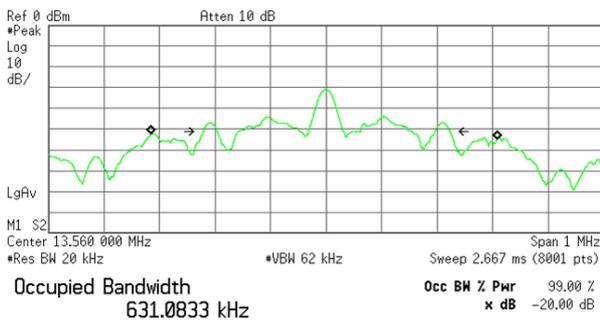
20dB bandwidth & 99% Occupied bandwidth: FCC 15.215 / RSS-Gen

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

Company: Sony Corporation
Equipment: Digital Paper
Model: DPT-RP1
Sample No.: 9002003
Power: DC 3.7 V
Mode: Transmitting 13.56MHz

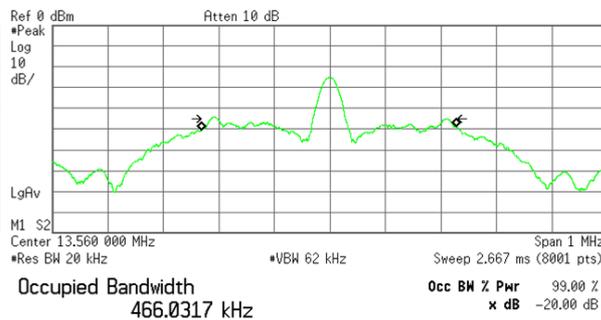
Regulation: FCC Part15 Subpart C 15.215
Date: July 2, 2016
Temperature: 25 deg.C
Humidity: 51 %RH
ENGINEER: Hiroyuki Morikawa

20dB Bandwidth: Type A 449.748 kHz
* Agilent R T



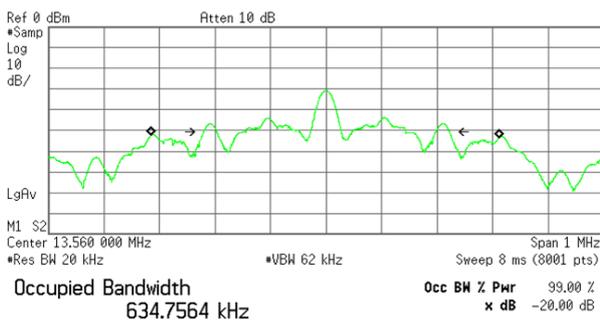
Transmit Freq Error -3.935 kHz
x dB Bandwidth 449.748 kHz

Type F 431.965 kHz
* Agilent R T



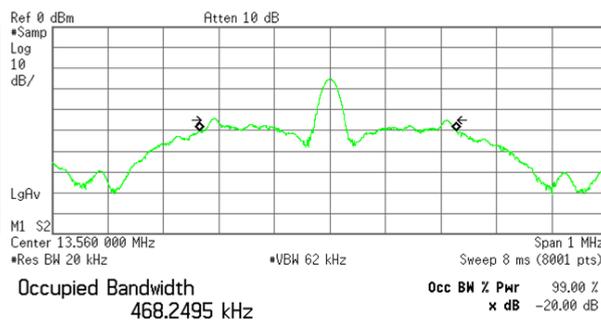
Transmit Freq Error -1.790 kHz
x dB Bandwidth 431.965 kHz

99% Occupied Bandwidth: Type A 634.756 kHz
* Agilent R T



Transmit Freq Error -1.178 kHz
x dB Bandwidth 448.174 kHz*

Type F 468.250 kHz
* Agilent R T



Transmit Freq Error -2.984 kHz
x dB Bandwidth 431.431 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)
SCC-C9/C10/SRSE-03	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271(RF Selector)	CE	2016/04/22 * 12
SLS-02	LISN	Rohde & Schwarz	ENV216	100512	CE	2016/02/08 * 12
SAT3-07	Attenuator	JFW	50HF-003N	-	CE	2015/09/18 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2015/12/07 * 12
STM-05	Terminator	TME	CT-01 BP	-	CE	2015/12/18 * 12
STR-06	Test Receiver	Rohde & Schwarz	ESCI	101259	CE,RE	2016/03/28 * 12
SJM-15	Measure	ASKUL	-	-	CE,RE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RF,MF)	-	CE,RE	-
STS-03	Digital Hitester	Hioki	3805-50	080997823	CE,RE	2015/11/18 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2015/07/16 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2015/10/11 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A0901	RE	2015/10/11 * 12
SAT6-08	Attenuator	HIROSE ELECTRIC CO.,LTD.	AT-406(40)	-	RE	2015/08/31 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2016/04/22 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2016/02/25 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2015/10/22 * 12
SLP-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100218	RE	2015/11/14 * 12
SAT6-12	Attenuator	HIROSE ELECTRIC CO.,LTD.	AT-406(40)	-	RE	2015/08/31 * 12
SCH-01	Temperature and Humidity Chamber	Espec	PL-1KT	14020837	FT	2016/04/14 * 12
SFC-01	Microwave Counter	Agilent	53151A	US40511493	FT	2016/04/13 * 12
SSCA-01	Search coil	LANGER	RF-R 400-1	02-0634	FT, BW	Pre Check
SDPS-04	Power Supply(DC)	TEXIO	PW8-5ADPS	14086035	FT	Pre Check
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	FT, BW	2015/12/07 * 12
KTS-07	Digital Tester	SANWA	PC500	7019232	FT	2015/11/18 * 12
STIM-02	Timer	RS	440 9574	-	FT	-
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	BW	2015/09/16 * 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: 20 dB Bandwidth