



# EMI TEST REPORT

**Test Report No. : 11202771H-B**

**Applicant** : Sharp Corporation, Consumer Electronics Company,  
Communication Systems Division

**Type of Equipment** : Smart Phone

**Model No.** : SH-04H

**FCC ID** : APYHRO00232

**Test standard** : FCC Part 15 Subpart B 2015 Class B

**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 above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
6. This test report covers EMC technical requirements. It does not cover administrative issues such as Manual or non-EMC test related Requirements. (if applicable)

**Date of test:** March 25, 2016

**Representative  
test engineer:**

Keisuke Kawamura  
Engineer  
Consumer Technology Division

**Approved by :**

Motoya Imura  
Engineer  
Consumer Technology Division



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.  
\*As for the range of Accreditation in NVLAP, you may refer to the WEB address,  
[http://japan.ul.com/resources/emc\\_accredited/](http://japan.ul.com/resources/emc_accredited/)

**UL Japan, Inc.**

**Ise EMC Lab.**

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## **SECTION 1: Customer information**

Company Name : Sharp Corporation, Consumer Electronics Company, Communication Systems Division  
Address : 2-13-1 Iida Hachihonmatsu HigashiHiroshima-City, Hiroshima, 739-0192 Japan  
Telephone Number : +81-82-420-1552  
Facsimile Number : +81-82-420-1555  
Contact Person : Hiroyuki Uwatoko

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

### **2.1 Identification of E.U.T.**

Type of Equipment : Smart Phone  
Model No. : SH-04H  
Serial No. : Refer to Section 4, Clause 4.2  
Receipt Date of Sample : March 25, 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**

Feature of EUT : SH-04H is Quad-band LTE(Band 1 / 3 / 19 /21), Quad-band WCDMA(FDD I / V / VI / X IX) & Quad-band GSM(850 / 900 / 1800 / 1900) Multi-mode Smart Phone.  
The EUT has the function that NFC, Bluetooth and Wireless-LAN technology interface for establishing contact and transmitting data with certain device.  
Clock frequencies in the system : CPU: 2.1504 GHz (max)  
Source oscillation: 19.2MHz, 27.12MHz(NFC), 27MHz(DTV), 48MHz(BT/WLAN)

## **SECTION 3: Test specification, procedures & results**

### **3.1 Test specification**

Test specification : FCC Part 15 Subpart B: 2015, final revised on November 23, 2015  
\*Some parts are effective on and after December 17, 2015 or December 23, 2015.  
The revision does not affect the test specification applied to the EUT.

Title : FCC 47CFR Part15 Radio Frequency Device  
Subpart B Unintentional Radiators

### **3.2 Procedures and results**

Item	Test Procedure	Limits	Deviation	Worst margin	Result
Conducted emission	ANSI C63.4: 2014 7. AC powerline conducted emission measurements	Class B	N/A	[QP] 3.9 dB 0.16878 MHz, L [AV] 6.3 dB 0.16878 MHz, L	Complied
Radiated emission	ANSI C63.4: 2014 8. Radiated emission measurements	Class B	N/A	10.8 dB 798.001 MHz, Vertical, QP	Complied

\*Note: UL Japan, Inc's EMI Work Procedure 13-EM-W0420.

### **3.3 Addition to standard**

No addition, exclusion nor deviation has been made from the standard.

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### 3.4 Uncertainty

#### EMI

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

Frequency range	Conducted emission using AMN(LISN) ( $\pm$ dB)
0.009 – 0.15MHz	3.5 dB
0.15 – 30MHz	2.9 dB

Test distance	Radiated emission ( $\pm$ dB)
	9 kHz - 30 MHz
3m	3.8 dB
10m	3.7 dB

\*Measurement distance

Polarity	Radiated emission (Below 1GHz)			
	(3 m*)( $\pm$ dB)		(10 m*)( $\pm$ dB)	
	30 – 300 MHz	300 – 1000MHz	30 – 300 MHz	300 – 1000MHz
Horizontal	4.8 dB	5.2 dB	4.8 dB	5.0 dB
Vertical	4.5 dB	5.9 dB	4.8 dB	5.1 dB

Radiated emission				
(3 m*)( $\pm$ dB)	(1 m*)( $\pm$ dB)	(0.5 m*)( $\pm$ dB)	(10 m*)( $\pm$ dB)	
1 – 6GHz	6 – 18GHz	10 – 26.5 GHz	26.5 – 40GHz	1 -18 GHz
5.1 dB	5.3 dB	5.1 dB	5.1 dB	5.3 dB

#### Conducted Emission test

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

#### Radiated emission test(3 m)

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

### 3.5 Test Location

UL Japan, Inc. Ise EMC Lab. \*NVLAP Lab. code: 200572-0  
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Telephone : +81 596 24 8999 Facsimile : +81 596 24 8124

	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	2973C-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	2973C-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	4.0 x 4.5 x 2.7m	4.0 x 4.5 m	-
No.6 measurement room	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	3.1 x 5.0 x 2.7m	N/A	-
No.9 measurement room	-	8.8 x 4.6 x 2.8m	2.4 x 2.4m	-
No.11 measurement room	-	6.2 x 4.7 x 3.0m	4.8 x 4.6m	-

\* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

### 3.6 Test data, Test instruments, and Test set up

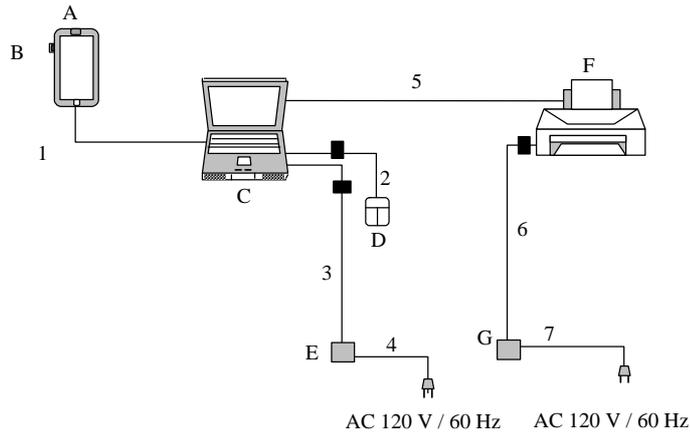
Refer to APPENDIX.

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

### 4.1 Operating modes

The mode(s) : 1) USB Data Com Mode  
The USB data is communicated between EUT and Personal computer (Pair of EUT).  
2) Standby Mode  
Standby state for USB communication.

### 4.2 Configuration and peripherals



■ : Ferrite core which has been standard on support equipment.

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

### Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Smart Phone	SH-04H	004401/11/569114/5	Sharp Corporation	EUT
B	microSD Memory Card	SD-C02G	None	TOSHIBA	-
C	Personal Computer	PP11L	CN-0D4571-48643-58P-1053	Dell	-
D	Mouse	M-UAG120	LZ733B70EVV	TOSHIBA	-
E	AC Adapter(PC)	PA-1650-05D3	CN-0YD637-71615-64Q-2243	Dell	-
F	Printer	895Cxi	SG8BA1W18J	Hewlett Packard	-
G	AC Adapter(Printer)	C4557-60004	C8L01B	Hewlett Packard	-

### List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB Data Cable	0.95	Shielded	Shielded	-
2	Mouse Cable	0.72	Unshielded	Unshielded	-
3	AC Adaptor Cable (PC)	1.76	Unshielded	Unshielded	-
4	AC Power Cable (PC)	0.85	Unshielded	Unshielded	-
5	Parallel Cable	1.85	Shielded	Shielded	-
6	AC Adapter Cable (printer)	2.00	Unshielded	Unshielded	-
7	AC Power Cable (printer)	1.75	Unshielded	Unshielded	-

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## **SECTION 5: Conducted Emission**

### **5.1 Operating environment**

Test place : No. 1 semi anechoic chamber  
Temperature : See data  
Humidity : See data

### **5.2 Test configuration**

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of EUT and its peripherals was aligned and 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 the LISN/AMN. I/O cables that were connected to the other peripherals were bundled in center. They were folded back and forth forming a bundle 30 cm to 40 cm long and were hung 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/AMN to the input power source. All unused 50 ohm connectors of the LISN/AMN were resistivity terminated in 50 ohm when not connected to the measuring equipment.

Photographs of the set up are shown in Appendix 3.

Frequency range : 0.15 MHz - 30 MHz  
EUT position : Table top  
EUT operation mode : See Clause 4.1

### **5.3 Test procedure**

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT within a semi anechoic chamber. The EUT was connected to a Line Impedance Stabilization Network (LISN)/ Artificial Mains network (AMN). An overview sweep with peak detection has been performed. The measurements have been performed with a quasi-peak detector and if required, with an average detector.

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

Detector Type : Quasi-Peak and CISPR AV  
IF Bandwidth : 9 kHz

### **5.4 Test result**

Summary of the test results: Pass

Date: March 25, 2016                      Test engineer: Keisuke Kawamura

## **SECTION 6: Radiated Emission**

### **6.1 Operating environment**

Test place : No. 1 semi anechoic chamber  
Temperature : See data  
Humidity : See data

### **6.2 Test configuration**

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

The EUT was set on the edge of the tabletop.

Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

Photographs of the set up are shown in Appendix 3.

### **6.3 Test conditions**

Frequency range : 30 MHz - 300 MHz (Biconical antenna) / 300 MHz - 1000 MHz (Logperiodic antenna)  
1000 MHz - 13000 MHz (Horn antenna)  
Test distance : 3 m  
EUT position : Table top  
EUT operation mode : See Clause 4.1

### **6.4 Test procedure**

The height of the measuring antenna 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 with the Test Receiver.

The radiated emission measurements were made with the following detector function of the Test Receiver.

Frequency	Below 1GHz	Above 1GHz *1)
Instrument used	Test Receiver	Test Receiver
IF Bandwidth	QP: BW 120kHz	PK: BW 1MHz, CISPR AV: BW 1MHz

\*1) The measurement data was adjusted to a 3 m distance using the following Distance Factor.

Distance Factor:  $20 \times \log(3.4\text{m} / 3\text{m}) = 1.09 \text{ dB}$

- 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.

### **6.5 Test result**

Summary of the test results: Pass

Date: March 25, 2016

Test engineer: Keisuke Kawamura

**APPENDIX 1: Test data**

**Conducted Emission**

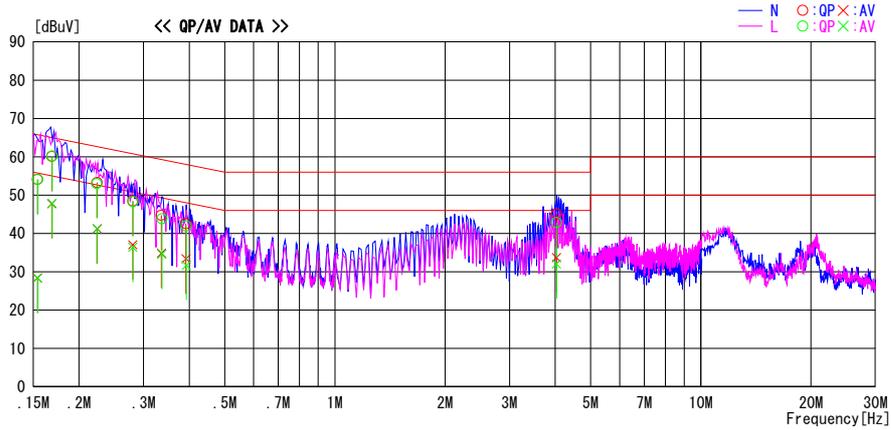
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2016/03/25

Report No. : 11202771H  
Temp./Humi. : 18deg. C / 30% RH  
Engineer : Keisuke Kawamura

Mode / Remarks : USB Data Com Mode

LIMIT : FCC15.107(a) QP ClassB  
FCC15.107(a) AV ClassB



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15391	40.9	15.2	13.2	54.1	28.4	65.8	55.8	11.7	27.4	N	
0.16853	46.9	34.6	13.2	60.1	47.8	65.0	55.0	4.9	7.2	N	
0.22421	40.0	27.9	13.3	53.3	41.2	62.7	52.7	9.4	11.5	N	
0.28046	35.2	23.8	13.3	48.5	37.1	60.8	50.8	12.3	13.7	N	
0.33568	31.4	21.6	13.3	44.7	34.9	59.3	49.3	14.6	14.4	N	
0.39203	29.3	20.1	13.3	42.6	33.4	58.0	48.0	15.4	14.6	N	
4.03419	31.2	19.8	13.9	45.1	33.7	56.0	46.0	10.9	12.3	N	
0.15423	40.9	15.2	13.2	54.1	28.4	65.8	55.8	11.7	27.4	L	
0.16878	47.0	34.7	13.2	60.2	47.9	65.0	55.0	4.8	7.1	L	
0.22361	39.7	27.9	13.3	53.0	41.2	62.7	52.7	9.7	11.5	L	
0.28058	35.0	23.1	13.3	48.3	36.4	60.8	50.8	12.5	14.4	L	
0.33674	30.5	21.3	13.3	43.8	34.6	59.3	49.3	15.5	14.7	L	
0.39271	28.6	18.4	13.3	41.9	31.7	58.0	48.0	16.1	16.3	L	
4.03419	28.9	18.2	13.9	42.8	32.1	56.0	46.0	13.2	13.9	L	

CHART : WITH FACTOR. Peak hold data. CALCULATION : RESULT = READING + C.F (LISN + ATTN. + CABLE)  
Except for the above table : adequate margin data below the limits.

\*The limit is rounded down to one decimal place.

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

## Conducted Emission

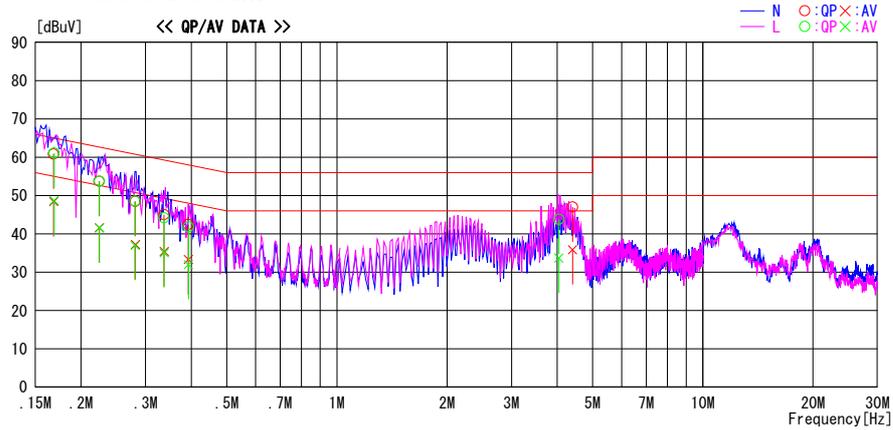
### DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2016/03/25

Report No. : 11202771H  
Temp./Humi. : 18deg. C / 30% RH  
Engineer : Keisuke Kawamura

Mode / Remarks : Standby Mode

LIMIT : FCC15.107(a) QP ClassB  
FCC15.107(a) AV ClassB



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.16831	47.6	35.2	13.2	60.8	48.4	65.0	55.0	4.2	6.6	N	
0.22416	40.4	28.3	13.3	53.7	41.6	62.7	52.7	9.0	11.1	N	
0.28133	35.2	23.9	13.3	48.5	37.2	60.8	50.8	12.3	13.6	N	
0.33724	31.7	22.1	13.3	45.0	35.4	59.3	49.3	14.3	13.9	N	
0.39282	29.2	20.0	13.3	42.5	33.3	58.0	48.0	15.5	14.7	N	
4.40280	33.0	21.9	14.0	47.0	35.9	56.0	46.0	9.0	10.1	N	
0.16878	47.9	35.5	13.2	61.1	48.7	65.0	55.0	3.9	6.3	L	
0.22464	40.4	28.3	13.3	53.7	41.6	62.6	52.6	8.9	11.0	L	
0.28086	35.3	23.7	13.3	48.6	37.0	60.8	50.8	12.2	13.8	L	
0.33717	30.9	21.8	13.3	44.2	35.1	59.3	49.3	15.1	14.2	L	
0.39326	28.5	18.7	13.3	41.8	32.0	58.0	48.0	16.2	16.0	L	
4.04028	29.9	19.8	13.9	43.8	33.7	56.0	46.0	12.2	12.3	L	

CHART : WITH FACTOR, Peak hold data. CALCULATION : RESULT = READING + C.F (LISN + ATTN. + CABLE)  
Except for the above table : adequate margin data below the limits.

\*The limit is rounded down to one decimal place.

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Radiated Emission**  
**(Below 1GHz)**

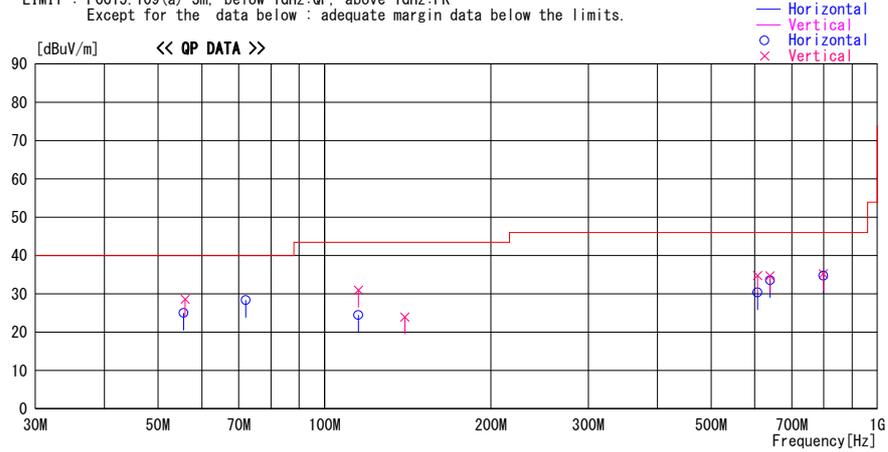
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2016/03/25

Report No. : 11202771H  
Temp./Humi. : 18deg.C. / 30%RH  
Engineer : Keisuke Kawamura

Mode / Remarks : USB Data Com Mode Worst-Axis(Hori:X / Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
55.651	47.4	QP	8.8	-31.2	25.0	140	341	Hori.	40.0	15.0	
55.972	51.1	QP	8.7	-31.2	28.6	0	100	Vert.	40.0	11.4	
72.021	53.4	QP	6.2	-31.2	28.4	109	257	Hori.	40.0	11.6	
115.191	42.8	QP	12.2	-30.5	24.5	214	275	Hori.	43.5	19.0	
115.191	49.3	QP	12.2	-30.5	31.0	148	100	Vert.	43.5	12.5	
139.778	40.0	QP	14.3	-30.3	24.0	152	100	Vert.	43.5	19.5	
607.133	36.5	QP	19.5	-25.6	30.4	202	118	Hori.	46.0	15.6	
607.133	40.9	QP	19.5	-25.6	34.8	323	100	Vert.	46.0	11.2	
639.085	39.3	QP	19.8	-25.5	33.6	152	139	Hori.	46.0	12.4	
639.085	40.4	QP	19.8	-25.5	34.7	0	100	Vert.	46.0	11.3	
798.001	37.3	QP	22.0	-24.6	34.7	161	116	Hori.	46.0	11.3	
798.001	37.8	QP	22.0	-24.6	35.2	64	100	Vert.	46.0	10.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE + ATTEN. - GAIN(AMP))

\*The limit is rounded down to one decimal place.  
\*The test result is rounded off to one or two decimal places, so some differences might be observed.

## Radiated Emission (Below 1GHz)

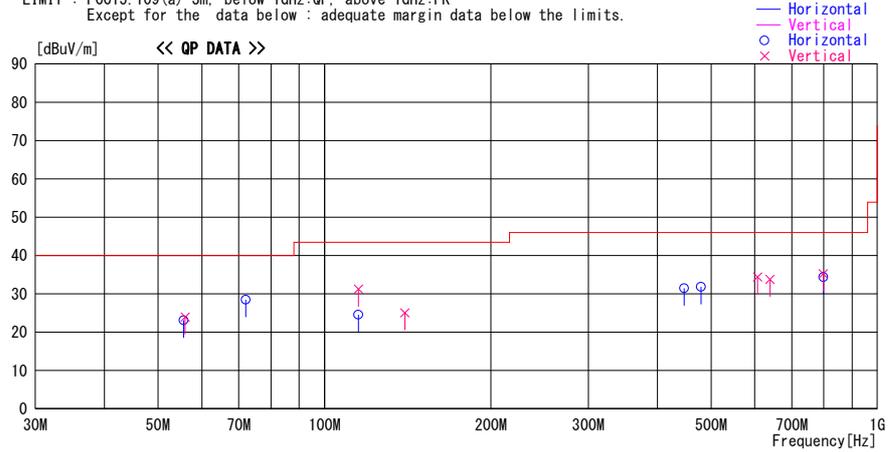
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Date : 2016/03/25

Report No. : 11202771H  
Temp./Humi. : 18deg.C. / 30%RH  
Engineer : Keisuke Kawamura

Mode / Remarks : Standby Mode Worst-Axis(Hori:X / Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
55.651	45.5	QP	8.8	-31.2	23.1	142	344	Hori.	40.0	16.9	
55.972	46.5	QP	8.7	-31.2	24.0	0	100	Vert.	40.0	16.0	
72.021	53.5	QP	6.2	-31.2	28.5	109	256	Hori.	40.0	11.5	
115.191	42.9	QP	12.2	-30.5	24.6	214	275	Hori.	43.5	18.9	
115.191	49.5	QP	12.2	-30.5	31.2	148	100	Vert.	43.5	12.3	
139.778	41.1	QP	14.3	-30.3	25.1	152	100	Vert.	43.5	18.4	
447.365	40.4	QP	17.9	-26.8	31.5	140	100	Hori.	46.0	14.5	
607.133	40.5	QP	19.5	-25.6	34.4	323	100	Vert.	46.0	11.6	
479.317	40.4	QP	18.0	-26.6	31.8	122	100	Hori.	46.0	14.2	
639.085	39.5	QP	19.8	-25.5	33.8	0	100	Vert.	46.0	12.2	
798.001	37.0	QP	22.0	-24.6	34.4	161	116	Hori.	46.0	11.6	
798.001	37.8	QP	22.0	-24.6	35.2	64	100	Vert.	46.0	10.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE + ATTEN. - GAIN(AMP))

\*The limit is rounded down to one decimal place.

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Radiated Emission**  
(Above 1GHz)

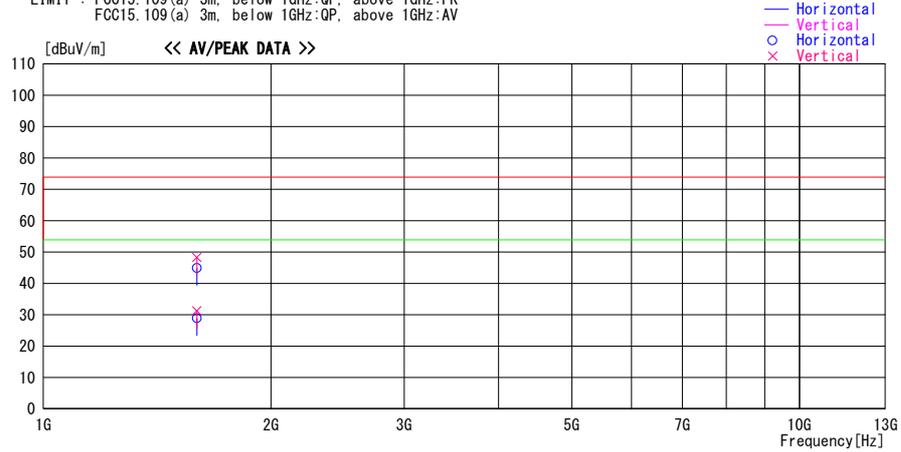
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2016/03/25

Report No. : 11202771H  
Temp./Humi. : 18deg.C. / 30%RH  
Engineer : Keisuke Kawamura

Mode / Remarks : USB Data Com Mode Worst-Axis(Hori:X / Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK  
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain							
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
1596.192	52.3	PK	25.6	-33.0	44.9	96	100	Hori.	73.9	29.0	
1596.192	55.7	PK	25.6	-33.0	48.3	0	100	Vert.	73.9	25.6	
1596.192	38.7	AV	25.6	-33.0	31.3	0	100	Vert.	53.9	22.6	
1596.192	36.3	AV	25.6	-33.0	28.9	96	100	Hori.	53.9	25.0	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE + ATTEN. - GAIN(AMP) + D.Factor)

\*The limit is rounded down to one decimal place.  
\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Radiated Emission**  
(Above 1GHz)

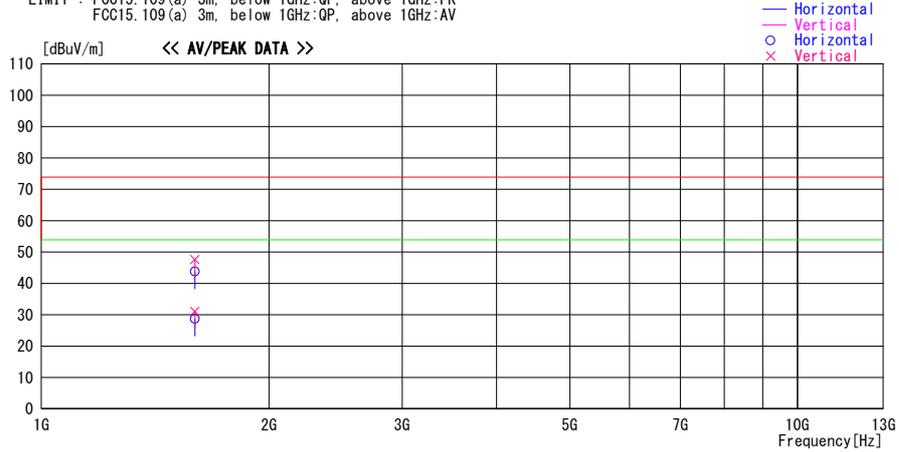
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2016/03/25

Report No. : 11202771H  
Temp./Humi. : 18deg.C / 30%RH  
Engineer : Keisuke Kawamura

Mode / Remarks : Standby Mode Worst-Axis(Hori:X / Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK  
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain							
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
1596.192	51.2	PK	25.6	-33.0	43.8	96	100	Hori.	73.9	30.1	
1596.192	55.0	PK	25.6	-33.0	47.6	0	100	Vert.	73.9	26.3	
1596.192	38.5	AV	25.6	-33.0	31.1	0	100	Vert.	53.9	22.8	
1596.192	36.1	AV	25.6	-33.0	28.7	96	100	Hori.	53.9	25.2	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE + ATTEN. - GAIN(AMP) + D.Factor)

\*The limit is rounded down to one decimal place.  
\*The test result is rounded off to one or two decimal places, so some differences might be observed.

## **APPENDIX 2: Test instruments**

### **EMI Test Instruments**

<b>Control No.</b>	<b>Instrument</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Serial No</b>	<b>Test Item</b>	<b>Calibration Date * Interval(month)</b>
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE/CE	2015/09/19 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	RE/CE	2016/01/21 * 12
MJM-25	Measure	KOMELON	KMC-36	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MTR-09	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	RE/CE	2015/06/08 * 12
KBA-05	Biconical Antenna	Schwarzbeck	BBA9106	2513	RE	2015/11/02 * 12
KLA-04	Logperiodic Antenna	Schwarzbeck	USLP9143	361	RE	2015/11/03 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2015/11/10 * 12
MCC-02	Coaxial Cable	Suhner/storm/Agilent/ TSJ	-	-	RE	2015/09/29 * 12
MPA-19	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	RE	2016/02/25 * 12
MMM-03	Digital Tester	Fluke	FLUKE 26-3	78030621	RE/CE	2015/08/19 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2015/05/18 * 12
MPA-01	Pre Amplifier	Agilent	8449B	3008A01671	RE	2016/02/26 * 12
MCC-165	Microwave Cable	Junkosha	MWX221	1203S213(1m) / 1311S166(5m)	RE	2015/11/10 * 12
MLS-25	LISN(AMN)	Schwarzbeck	NSLK8127	8127-731	CE(AE)	2015/07/17 * 12
MLS-24	LISN(AMN)	Schwarzbeck	NSLK8127	8127-730	CE(EUT)	2015/07/10 * 12
MTA-52	Terminator	TME	CT-01BP	-	CE	2015/12/01 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/ 3D-2W(7.5m)/ RG400u(1.5m)/ RFM-E421(Switcher)	-/01068 (Switcher)	CE	2015/09/29 * 12
MAT-64	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2016/01/14 * 12

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

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

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

#### **Test Item:**

**CE: Conducted Emissions**

**RE: Radiated Emissions**

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**Ise EMC Lab.**

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