EMI TEST REPORT

Test Report No. : 10276508H-B

Applicant	:	**Sharp Corporation, Communication Systems Division.**
Type of Equipment	:	**Cellular Phone**
Model No.	:	**SH-07F**
FCC ID	:	**APYHRO00209**
Test standard	:	**FCC Part 15 Subpart B 2014 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.

Date of test: March 31, 2014

Representative test engineer:

Tsubasa Takayama
Engineer
Consumer Technology Division

Approved by :

Masanori Nishiyama
Manager
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://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

REVISION HISTORY

Original Test Report No.: 10276508H-B

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10276508H-B	April 7, 2014	-	-

CONTENTS **PAGE**

SECTION 1: Customer information

Company Name	:	Sharp Corporation, Communication Systems Division.
Address	:	2-13-1 Iida Hachihonmatsu HigashiHiroshima-City, Hiroshima, 739-0192 Japan.
Telephone Number	:	+81-82-420-1827
Facsimile Number	:	+81-82-420-1572
Contact Person	:	Hachiro Hidaka

SECTION 2: Equipment Under Test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Cellular Phone
Model No.	:	SH-07F
Serial No.	:	Refer to Section 4, Clause 4.2
Receipt Date of Sample	:	March 28, 2014
Country of Mass-production	:	China
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-07F is Quint-band W-CDMA(FDD I / V / VI / IX / XIX) and Quad-band GSM(850/900/1800/1900) Cellular Phone.
Clock frequency(ies) in the system	:	CPU: 48MHz (inside: 1,248MHz(max)) Source oscillation: 52MHz, RTC: 32.768kHz , FeliCa: 27.12MHz, 1seg TV: 32MHz

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test Specification : Test specification: FCC Part 15 Subpart B: 2014, final revised on March 6, 2014 and effective April 7, 2014

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

* The revision on March 6, 2014 does not affect the test specification applied to the EUT.

3.2 Procedures and results

Item	Test Procedure	Limits	Deviation	Worst margin	Result
Conducted emission	ANSI C63.4: 2009 7. AC powerline conducted emission measurements	Class B	N/A	**[QP]** 5.7dB 0.16220MHz, L **[AV]** 4.4dB 2.19781MHz, L	Complied
Radiated emission	ANSI C63.4: 2009 8. Radiated emission measurements	Class B	N/A	3.4dB 31.623MHz, 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.

3.4 Uncertainty

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

Test room (semi-anechoic chamber)	**Conducted emission (±dB)**
	150kHz-30MHz
No.1	3.5dB
No.2	3.5dB
No.3	3.6dB
No.4	3.5dB

Test room (semi-anechoic chamber)	**Radiated emission**						
	(3m*)(±dB)				**(1m*)(±dB)**		**(0.5m*)(±dB)**
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz	1GHz -10GHz	10GHz -18GHz	18GHz -26.5GHz	26.5GHz -40GHz
No.1	4.0dB	5.1dB	5.0dB	5.1dB	6.0dB	4.9dB	4.3dB
No.2	3.9dB	5.2dB	5.0dB	4.9dB	5.9dB	4.7dB	4.2dB
No.3	4.3dB	5.1dB	5.2dB	5.2dB	6.0dB	4.8dB	4.2dB
No.4	4.6dB	5.2dB	5.0dB	5.2dB	6.0dB	5.7dB	4.2dB

*3m/1m/0.5m = Measurement distance

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

Radiated emission test(3m)
The data listed in this report meets the limits unless the uncertainty is taken into consideration.

3.5 Test Location

UL Japan, Inc. Ise HQ EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999 Facsimile : +81 596 24 8124

	FCC Registration Number	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	313583	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	655103	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	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	134570	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 set up, Data of EMI, and Test instruments

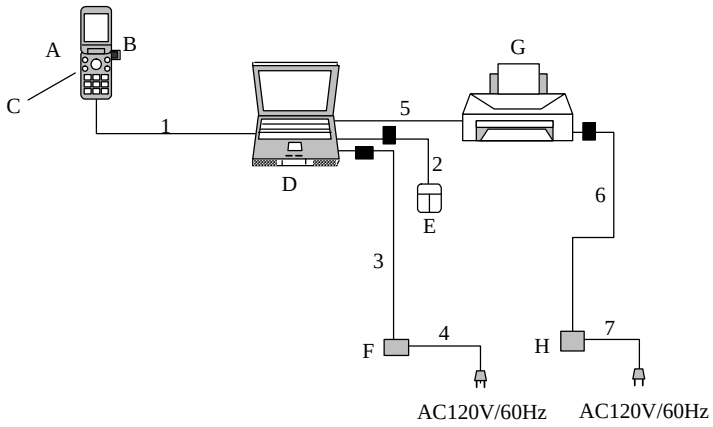
Refer to APPENDIX.

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



■ : Standard Ferrite Core

*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	Cellular Phone	SH-07F	004401/11/505511/9	Sharp Corporation	EUT
B	microSD Memory Card	SD-C02G	None	Toshiba	-
C	Lithium-Ion Battery	SH39	XCA	Sharp Corporation	EUT
D	Personal Computer	PP11L	CN-0D4571-48643-58P-1053	Dell	-
E	Mouse	M-UAG120	LZ733B70EVV	Toshiba	-
F	AC Adapter (PC)	LA65NS1-00	CN-0YD637-71615-64Q-2243	Dell	-
G	Printer	895Cxi	SG8BA1W18J	Hewlett Packard	-
H	AC Adapter (Printer)	C4557-60004	C8L01B	Hewlett Packard	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB Data Cable	0.80	Shielded	Shielded	-
2	Mouse Cable	0.72	Unshielded	Unshielded	-
3	AC Adaptor Cable (PC)	1.76	Unshielded	Unshielded	-
4	AC Power Cable (PC)	1.20	Unshielded	Unshielded	-
5	Parallel Cable	1.65	Shielded	Shielded	-
6	AC Adapter Cable (printer)	2.00	Unshielded	Unshielded	-
7	AC Power Cable (printer)	1.75	Unshielded	Unshielded	-

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, 1.0m by 1.5m, raised 0.8m above the conducting ground plane.
The rear of tabletop was located 40cm 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 80cm from any other grounded conducting surface. EUT was located 80cm from the LISN/AMN and excess AC cable was bundled in center. I/O cables that were connected to the other peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm 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-30MHz
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 Average
IF Bandwidth : 9 kHz

5.4 Test result

Summary of the test results: Pass

Date: March 31, 2014 Test engineer: Tsubasa Takayama

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, 1.0m by 1.5m, raised 0.8m 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 : 30MHz-300MHz (Biconical antenna) / 300MHz-1000MHz (Logperiodic antenna)
1000MHz-6500MHz (Horn antenna)
Test distance : 3m
EUT position : Table top
EUT operation mode : See Clause 4.1

6.4 Test procedure

The height of the measuring antenna varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver.
The radiated emission measurements were made with the following detector function of the Test Receiver.

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

- 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 31, 2014 Test engineer: Tsubasa Takayama

APPENDIX 1: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

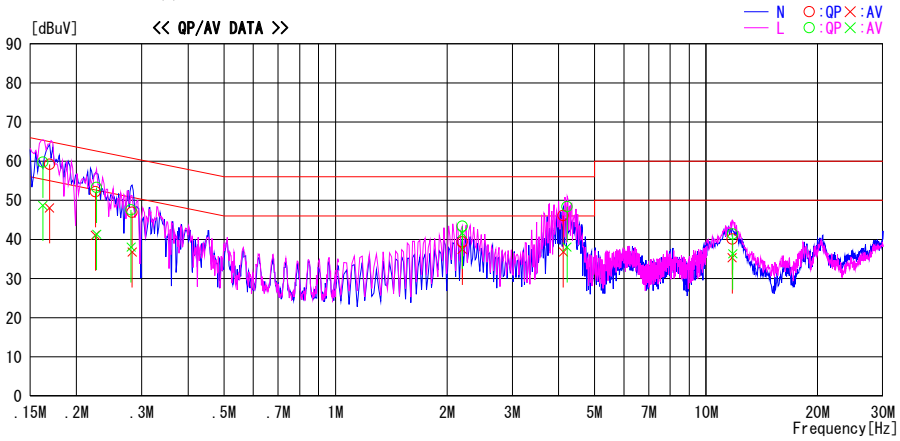
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2014/03/31

Report No. : 10276508H

Temp./Humi. : 22deg. C / 32% RH
Engineer : Tsubasa Takayama

Mode / Remarks : USB Data Com Mode

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



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.16920	46.0	34.9	13.2	59.2	48.1	65.0	55.0	5.8	6.9	N	
0.22497	38.9	27.8	13.3	52.2	41.1	62.6	52.6	10.4	11.5	N	
0.28251	33.6	23.5	13.3	46.9	36.8	60.7	50.7	13.8	13.9	N	
2.19781	25.8	23.9	13.6	39.4	37.5	56.0	46.0	16.6	8.5	N	
4.11782	32.2	22.9	13.9	46.1	36.8	56.0	46.0	9.9	9.2	N	
11.75811	25.3	20.5	14.8	40.1	35.3	60.0	50.0	19.9	14.7	N	
0.16220	46.5	35.5	13.2	59.7	48.7	65.4	55.4	5.7	6.7	L	
0.22671	40.0	28.0	13.3	53.3	41.3	62.6	52.6	9.3	11.3	L	
0.28076	34.3	24.8	13.3	47.6	38.1	60.8	50.8	13.2	12.7	L	
2.19781	29.8	28.0	13.6	43.4	41.6	56.0	46.0	12.6	4.4	L	
4.21539	34.5	24.2	13.9	48.4	38.1	56.0	46.0	7.6	7.9	L	
11.79829	26.6	21.5	14.8	41.4	36.3	60.0	50.0	18.6	13.7	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT=READING+C.F(LISN LOSS+ATT LOSS +CABLE LOSS)
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

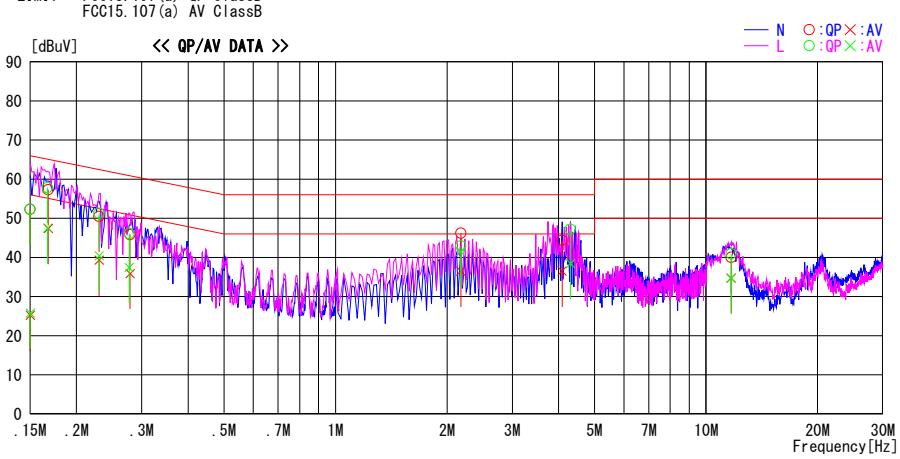
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2014/03/31

Report No. : 10276508H

Temp./Humi. : 22deg. C / 32% RH
Engineer : Tsubasa Takayama

Mode / Remarks : Standby Mode

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



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15000	39.1	12.0	13.2	52.3	25.2	66.0	56.0	13.7	30.8	N	
0.16792	44.1	34.2	13.2	57.3	47.4	65.1	55.1	7.8	7.7	N	
0.23020	37.2	26.0	13.3	50.5	39.3	62.4	52.4	11.9	13.1	N	
0.27902	32.5	22.6	13.3	45.8	35.9	60.8	50.8	15.0	14.9	N	
2.17964	32.6	22.9	13.6	46.2	36.5	56.0	46.0	9.8	9.5	N	
4.08815	30.5	22.6	13.9	44.4	36.5	56.0	46.0	11.6	9.5	N	
11.67775	25.3	20.0	14.7	40.0	34.7	60.0	50.0	20.0	15.3	N	
0.15000	39.1	12.6	13.2	52.3	25.8	66.0	56.0	13.7	30.2	L	
0.16719	44.6	34.3	13.2	57.8	47.5	65.1	55.1	7.3	7.6	L	
0.23020	38.0	27.1	13.3	51.3	40.4	62.4	52.4	11.1	12.0	L	
0.27727	32.8	24.1	13.3	46.1	37.4	60.9	50.9	14.8	13.5	L	
2.17964	29.3	27.9	13.6	42.9	41.5	56.0	46.0	13.1	4.5	L	
4.30627	33.3	24.5	13.9	47.2	38.4	56.0	46.0	8.8	7.6	L	
11.67775	26.2	20.1	14.7	40.9	34.8	60.0	50.0	19.1	15.2	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT=READING+C.F(LISN LOSS+ATT LOSS +CABLE LOSS)
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

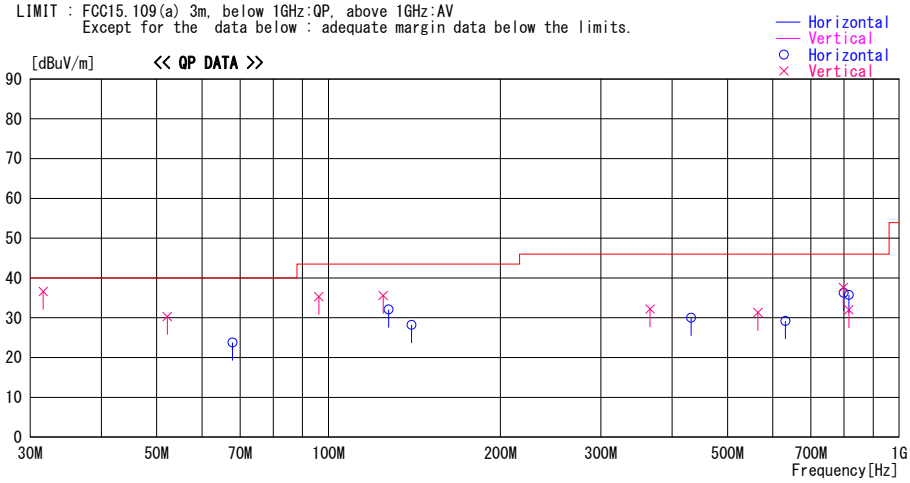
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2014/03/31

Report No. : 10276508H

Temp./Humi. : 22deg. C / 32% RH
Engineer : Tsubasa Takayama

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

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



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
31.623	51.1	QP	16.9	-31.4	36.6	31	100	Vert.	40.0	3.4	
52.184	51.2	QP	10.1	-31.0	30.3	182	100	Vert.	40.0	9.7	
67.876	48.0	QP	6.6	-30.8	23.8	172	370	Hori.	40.0	16.2	
96.112	56.1	QP	9.6	-30.4	35.3	181	100	Vert.	43.5	8.2	
124.690	52.5	QP	13.2	-30.1	35.6	189	100	Vert.	43.5	7.9	
127.395	48.7	QP	13.5	-30.1	32.1	201	253	Hori.	43.5	11.4	
139.840	43.7	QP	14.5	-30.0	28.2	134	251	Hori.	43.5	15.3	
365.920	43.4	QP	16.3	-27.5	32.2	21	181	Vert.	46.0	13.8	
432.020	39.3	QP	17.5	-26.8	30.0	2	100	Hori.	46.0	16.0	
565.333	38.2	QP	19.0	-25.9	31.3	32	147	Vert.	46.0	14.7	
632.000	34.9	QP	19.7	-25.4	29.2	32	163	Hori.	46.0	16.8	
797.882	40.3	QP	22.0	-24.7	37.6	36	100	Vert.	46.0	8.4	
799.404	39.0	QP	22.0	-24.7	36.3	143	142	Hori.	46.0	9.7	
815.990	38.2	QP	22.0	-24.5	35.7	143	142	Hori.	46.0	10.3	
815.992	34.5	QP	22.0	-24.5	32.0	338	100	Vert.	46.0	14.0	

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)

*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

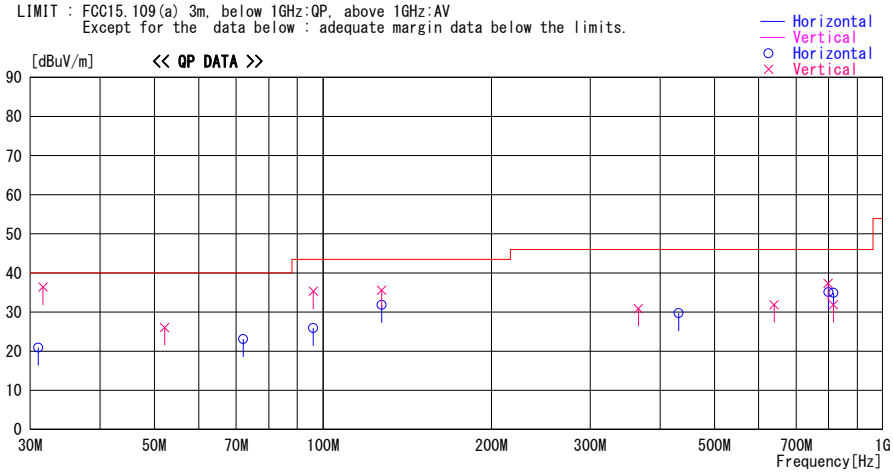
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2014/03/31

Report No. : 10276508H

Temp./Humi. : 22deg. C / 32% RH
Engineer : Tsubasa Takayama

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

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



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
31.020	35.2	QP	17.1	-31.4	20.9	133	298	Hori.	40.0	19.1	
31.631	50.9	QP	16.9	-31.4	36.4	23	100	Vert.	40.0	3.6	
52.144	46.9	QP	10.2	-31.0	26.1	182	100	Vert.	40.0	13.9	
72.000	47.5	QP	6.4	-30.8	23.1	182	362	Hori.	40.0	16.9	
96.112	56.1	QP	9.6	-30.4	35.3	172	100	Vert.	43.5	8.2	
96.112	46.7	QP	9.6	-30.4	25.9	92	250	Hori.	43.5	17.6	
127.334	52.2	QP	13.5	-30.1	35.6	188	100	Vert.	43.5	7.9	
127.425	48.4	QP	13.5	-30.1	31.8	209	256	Hori.	43.5	11.7	
365.920	42.1	QP	16.3	-27.5	30.9	33	184	Vert.	46.0	15.1	
432.020	39.0	QP	17.5	-26.8	29.7	7	100	Hori.	46.0	16.3	
639.110	37.6	QP	19.7	-25.4	31.9	7	120	Vert.	46.0	14.1	
797.882	40.0	QP	22.0	-24.7	37.3	32	100	Vert.	46.0	8.7	
799.404	37.8	QP	22.0	-24.7	35.1	121	155	Hori.	46.0	10.9	
815.990	37.4	QP	22.0	-24.5	34.9	132	138	Hori.	46.0	11.1	
815.992	34.4	QP	22.0	-24.5	31.9	332	100	Vert.	46.0	14.1	

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

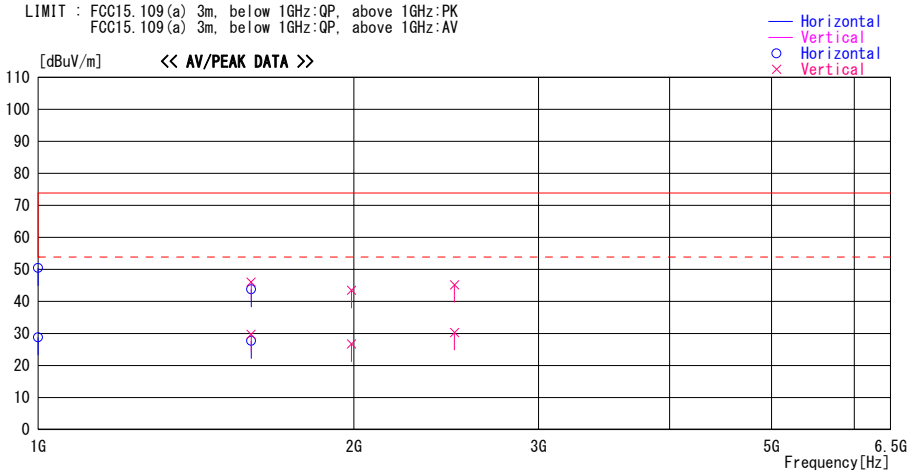
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2014/03/31

Report No. : 10276508H

Temp./Humi. : 22deg. C / 32% RH
Engineer : Tsubasa Takayama

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

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



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
1000.002	41.0	AV	23.3	-35.5	28.8	2	109	Hori.	53.9	25.1	
1000.002	62.7	PK	23.3	-35.5	50.5	2	109	Hori.	73.9	23.4	
1596.193	37.5	AV	24.9	-34.7	27.7	198	107	Hori.	53.9	26.2	
1596.193	55.9	PK	24.9	-34.7	46.1	221	100	Vert.	73.9	27.8	
1596.193	39.5	AV	24.9	-34.7	29.7	221	100	Vert.	53.9	24.2	
1596.193	53.6	PK	24.9	-34.7	43.8	198	107	Hori.	73.9	30.1	
1988.979	35.6	AV	25.4	-34.3	26.7	92	128	Vert.	53.9	27.2	
1988.979	52.4	PK	25.4	-34.3	43.5	92	128	Vert.	73.9	30.4	
2493.982	37.9	AV	26.5	-34.1	30.3	49	172	Vert.	53.9	23.6	
2493.982	52.8	PK	26.5	-34.1	45.2	49	172	Vert.	73.9	28.7	

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

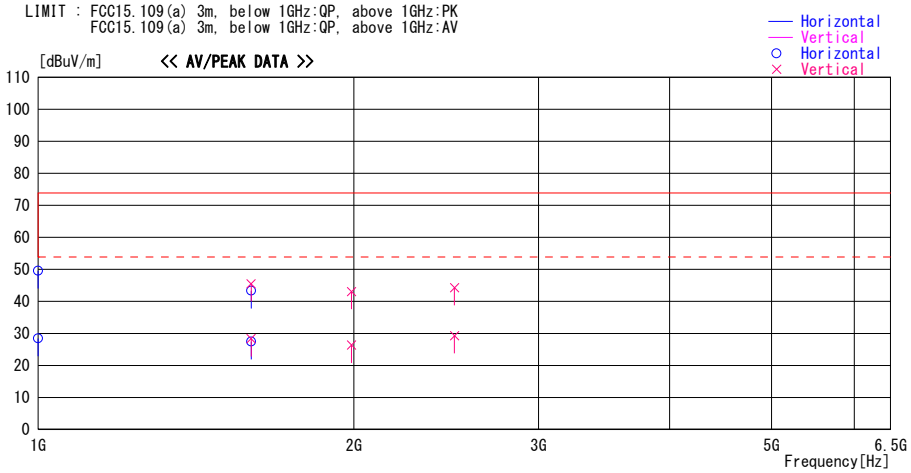
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2014/03/31

Report No. : 10276508H

Temp./Humi. : 22deg. C / 32% RH
Engineer : Tsubasa Takayama

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

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



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
1000.002	40.7	AV	23.3	-35.5	28.5	6	109	Hori.	53.9	25.4	
1000.002	61.8	PK	23.3	-35.5	49.6	6	109	Hori.	73.9	24.3	
1596.193	37.3	AV	24.9	-34.7	27.5	192	107	Hori.	53.9	26.4	
1596.151	55.3	PK	24.9	-34.7	45.5	215	100	Vert.	73.9	28.4	
1596.151	38.2	AV	24.9	-34.7	28.4	215	100	Vert.	53.9	25.5	
1596.193	53.1	PK	24.9	-34.7	43.3	192	107	Hori.	73.9	30.6	
1988.921	35.3	AV	25.4	-34.3	26.4	102	122	Vert.	53.9	27.5	
1988.921	52.0	PK	25.4	-34.3	43.1	102	122	Vert.	73.9	30.8	
2493.972	36.9	AV	26.5	-34.1	29.3	51	172	Vert.	53.9	24.6	
2493.972	51.9	PK	26.5	-34.1	44.3	51	172	Vert.	73.9	29.6	

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.

APPENDIX 2: Test instruments

EMI Test Instruments

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE	2013/08/01 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	RE	2014/02/20 * 12
MJM-21	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MTR-09	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	RE	2013/06/07 * 12
KBA-05	Biconical Antenna	Schwarzbeck	BBA9106	2513	RE	2013/11/24 * 12
KLA-04	Logperiodic Antenna	Schwarzbeck	USLP9143	361	RE	2013/11/24 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2013/11/26 * 12
MCC-02	Coaxial Cable	Suhner/storm/Agilent/ TSJ	-	-	RE	2013/09/12 * 12
MPA-19	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	RE	2014/02/17 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2013/05/13 * 12
MPA-01	Pre Amplifier	Agilent	8449B	3008A01671	RE	2014/02/05 * 12
MCC-165	Microwave Cable	Junkosha	MWX221	1203S213(1m) / 1311S166(5m)	RE	2013/11/27 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	8127383	CE(EUT)	2013/07/11 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	8127384	CE(AE)	2014/03/10 * 12
MTA-30	Terminator	TME	CT-01	-	CE	2014/01/20 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/ 3D-2W(7.5m)/ RG400u(1.5m)/ RFM-E421(Switcher)	-/01068(Switcher)	CE	2013/09/12 * 12
MAT-64	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2014/01/29 * 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