



# EMI TEST REPORT

**Test Report No. : 32JE0263-HO-B**

**Applicant** : SHARP CORPORATION  
**Type of Equipment** : Cellular Phone  
**Model No.** : 107SH  
**FCC ID** : APYHRO00175  
**Test standard** : FCC Part 15 Subpart B: 2012 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:**

May 25, 2012

**Representative test engineer:**

Tsubasa Takayama  
Engineer of WiSE Japan,  
UL Verification Service

**Approved by:**

Masanori Nishiyama  
Leader of WiSE Japan,  
UL Verification Service



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>

**UL Japan, Inc.**

**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

13-EM-F0429

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## **SECTION 1: Customer information**

Company Name : Sharp Corporation, Communication Systems Group.  
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 : Hiroyuki Uwatoko

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

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

Type of Equipment : Cellular Phone  
Model No. : 107SH  
Serial No. : Refer to Section 4, Clause 4.2  
Receipt Date of Sample : May 25, 2012  
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 : 107SH is Quad-band (FDD I/FDD V/FDD VIII/FDD XI) WCDMA  
Cellular Phone.  
The EUT has the function that Bluetooth wireless technology interface  
and wireless LAN technical interface for establishing contact and  
transmitting data with certain device.  
Clock frequency(ies) in the system : Source oscillation: 19.2MHz  
RTC: 32.768kHz  
CPU: 1.4GHz(Max)

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

#### **3.1 Test specification**

Test Specification : Test specification: FCC Part 15 Subpart C: 2012, final revised on March 30, 2012 and effective April 30, 2012

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	FCC: ANSI C63.4: 2009 7. AC powerline conducted emission measurements	Class B	N/A	[QP] 15.4dB 0.17072MHz, L [AV] 12.4dB 0.17072MHz, L	Complied
Radiated emission	FCC: ANSI C63.4: 2009 8. Radiated emission measurements	Class B	N/A	9.2dB 599.750MHz, 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	3.6dB
No.3	3.6dB
No.4	3.6dB

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	4.2dB	5.0dB	5.1dB	4.7dB	5.7dB	4.4dB	4.3dB
No.2	4.1dB	5.2dB	5.1dB	4.8dB	5.6dB	4.3dB	4.2dB
No.3	4.5dB	5.0dB	5.2dB	4.8dB	5.6dB	4.5dB	4.2dB
No.4	4.7dB	5.2dB	5.2dB	4.8dB	5.6dB	5.1dB	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 test report has enough margin, more than the site margin.

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### 3.5 Test Location

UL Japan, Inc. Head Office EMC Lab. \*NVLAP Lab. code: 200572-0  
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
Telephone : +81 596 24 8116 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	4.75 x 5.4 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	-	-	8.0 x 4.5 x 2.8m	2.0 x 2.0m	-
No.10 measurement room	-	-	2.6 x 2.8 x 2.5m	2.4 x 2.4m	-
No.11 measurement room	-	-	3.1 x 3.4 x 3.0m	2.4 x 3.4m	-

\* 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

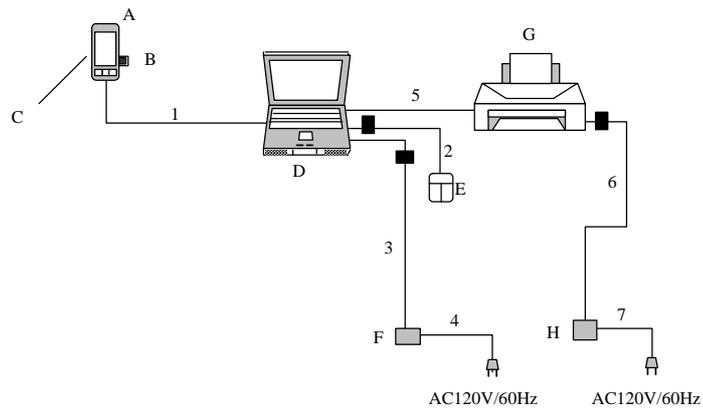
Refer to APPENDIX.

## **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**



\* 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	107SH	004401/11/403934/6	Sharp Corporation	EUT
B	microSD Memory Card	SD-C02G2CYB (PYBKP)	None	TOSHIBA	-
C	Lithium-Ion Battery	SHBEM1	VCA	Sharp Corporation	EUT
D	Personal Computer	PP11L	CN-0D4571-48643-55V-1651	Dell	-
E	Mouse	M-BE55	LZE21450232	Logitec	-
F	AC Adapter(PC)	PA-1650-05D2	CN-0F7970-71615-561-14A1	Dell	-
G	Printer	895Cxi	SG8BL1W16V	Hewlett Packard	-
H	AC Adapter(Printer)	C4557-60004	C8K28B	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)	0.85	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	-

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4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

## **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: May 25, 2012

Test engineer: Tomohisa Nakagawa

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## **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-7000MHz (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, or the Spectrum Analyzer.  
The radiated emission measurements were made with the following detector function of the test receiver and the Spectrum analyzer.

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
IF Bandwidth	QP: BW 120kHz	PK: RBW:1MHz/VBW: 3MHz AV *1): RBW:1MHz/VBW:10Hz

\*1) When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

- The 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 representative Z-axis since no difference was found among each position.

### **6.5 Test result**

Summary of the test results: Pass

Date: May 25, 2012

Test engineer: Tsubasa Takayama

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**APPENDIX 1: Data of EMI test**

**Conducted Emission**  
(M/N: 107SH)

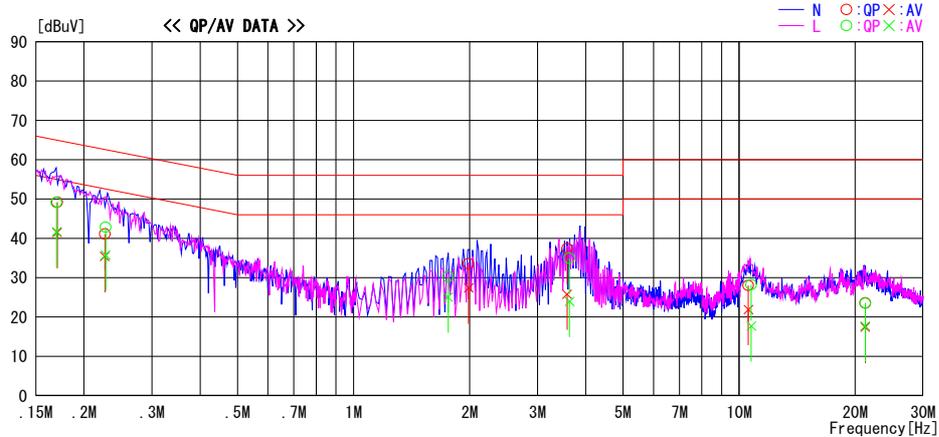
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2012/05/25

Report No. : 32JE0263-H0  
Temp./Humi. : 21deg. C / 44% RH  
Engineer : Tomohisa Nakagawa

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]		
0.17032	36.0	28.3	13.2	49.2	41.5	64.9	54.9	15.7	13.4	N	
0.22656	27.9	22.2	13.2	41.1	35.4	62.6	52.6	21.5	17.2	N	
1.98758	20.1	13.9	13.5	33.6	27.4	56.0	46.0	22.4	18.6	N	
3.57829	23.6	12.0	13.8	37.4	25.8	56.0	46.0	18.6	20.2	N	
10.56334	13.4	7.3	14.6	28.0	21.9	60.0	50.0	32.0	28.1	N	
21.24992	8.2	2.0	15.4	23.6	17.4	60.0	50.0	36.4	32.6	N	
0.16979	35.9	28.5	13.2	49.1	41.7	65.0	55.0	15.9	13.3	L	
0.22735	29.6	22.6	13.2	42.8	35.8	62.5	52.5	19.7	16.7	L	
1.75986	16.8	11.6	13.5	30.3	25.1	56.0	46.0	25.7	20.9	L	
3.63270	21.1	10.2	13.8	34.9	24.0	56.0	46.0	21.1	22.0	L	
10.75270	13.6	3.1	14.6	28.2	17.7	60.0	50.0	31.8	32.3	L	
21.24799	8.1	2.3	15.4	23.5	17.7	60.0	50.0	36.5	32.3	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 test result is rounded off to one or two decimal places, so some differences might be observed.

**Conducted Emission**  
(M/N: 107SH)

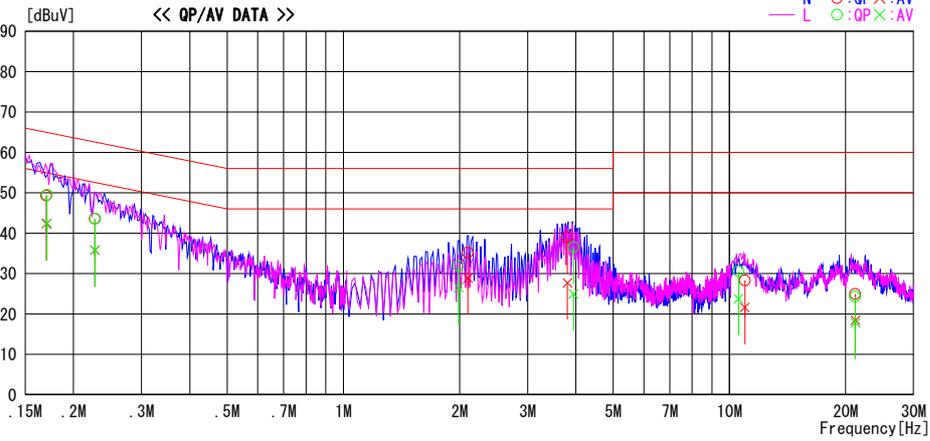
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2012/05/25

Report No. : 32JE0263-H0  
Temp./Humi. : 21deg. C / 44% RH  
Engineer : Tomohisa Nakagawa

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]		
0.17007	36.1	29.1	13.2	49.3	42.3	65.0	55.0	15.7	12.7	N	
0.22716	30.4	22.6	13.2	43.6	35.8	62.6	52.6	19.0	16.8	N	
2.10025	21.7	15.4	13.5	35.2	28.9	56.0	46.0	20.8	17.1	N	
3.80336	25.2	13.9	13.8	39.0	27.7	56.0	46.0	17.0	18.3	N	
10.95488	13.7	7.0	14.6	28.3	21.6	60.0	50.0	31.7	28.4	N	
21.17163	9.5	3.0	15.4	24.9	18.4	60.0	50.0	35.1	31.6	N	
0.17072	36.3	29.3	13.2	49.5	42.5	64.9	54.9	15.4	12.4	L	
0.22745	30.4	22.6	13.2	43.6	35.8	62.5	52.5	18.9	16.7	L	
1.98773	18.4	13.0	13.5	31.9	26.5	56.0	46.0	24.1	19.5	L	
3.94410	22.8	11.2	13.8	36.6	25.0	56.0	46.0	19.4	21.0	L	
10.56016	16.0	9.2	14.6	30.6	23.8	60.0	50.0	29.4	26.2	L	
21.17260	8.9	2.4	15.4	24.3	17.8	60.0	50.0	35.7	32.2	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 test result is rounded off to one or two decimal places, so some differences might be observed.

**Radiated Emission**  
**(Below 1GHz (M/N: 107SH))**

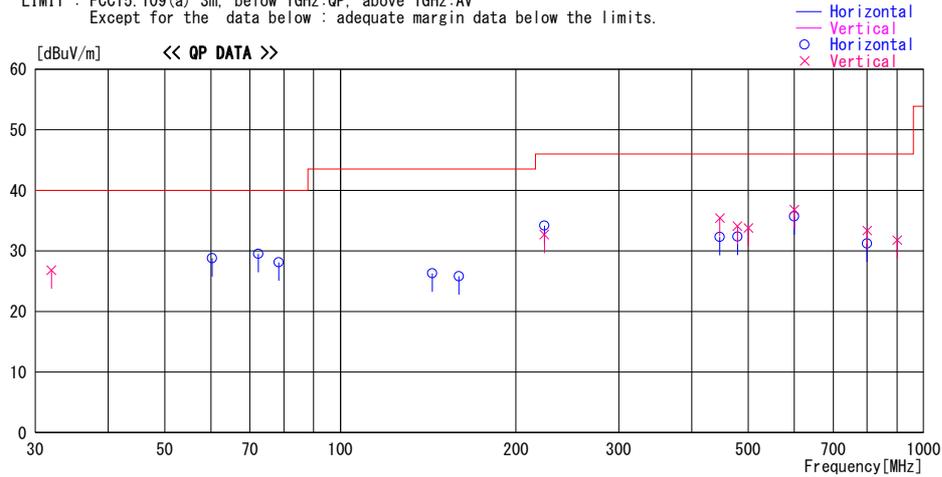
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2012/05/25

Report No. : 32JE0263-HO  
Temp./Humi. : 24deg. C / 48% RH  
Engineer : Tsubasa Takayama

Mode / Remarks : USB DATA Com Mode Z-axis

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



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss& Gain [dB]						
31.967	41.2	QP	17.1	-31.5	26.8	221	100	Vert.	40.0	13.2
60.324	52.3	QP	7.6	-31.1	28.8	203	375	Hori.	40.0	11.2
72.396	53.8	QP	6.6	-30.9	29.5	176	248	Hori.	40.0	10.5
78.432	52.0	QP	6.9	-30.8	28.1	256	222	Hori.	40.0	11.9
143.792	41.8	QP	14.6	-30.1	26.3	159	214	Hori.	43.5	17.2
159.796	40.4	QP	15.3	-29.9	25.8	152	207	Hori.	43.5	17.7
223.688	46.3	QP	17.0	-29.1	34.2	213	239	Hori.	46.0	11.8
223.668	44.8	QP	17.0	-29.1	32.7	358	100	Vert.	46.0	13.3
447.348	44.3	QP	17.9	-26.8	35.4	297	100	Vert.	46.0	10.6
447.364	41.2	QP	17.9	-26.8	32.3	231	227	Hori.	46.0	13.7
479.313	42.5	QP	18.1	-26.5	34.1	136	100	Vert.	46.0	11.9
479.319	40.8	QP	18.1	-26.5	32.4	352	193	Hori.	46.0	13.6
500.395	41.9	QP	18.2	-26.3	33.8	1	100	Vert.	46.0	12.2
599.709	41.8	QP	19.4	-25.5	35.7	228	117	Hori.	46.0	10.3
599.750	42.9	QP	19.4	-25.5	36.8	135	220	Vert.	46.0	9.2
799.624	33.6	QP	22.0	-24.4	31.2	319	100	Hori.	46.0	14.8
799.694	35.8	QP	22.0	-24.4	33.4	250	146	Vert.	46.0	12.6
900.730	33.2	QP	22.1	-23.5	31.8	255	100	Vert.	46.0	14.2

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)

\*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 (M/N: 107SH))**

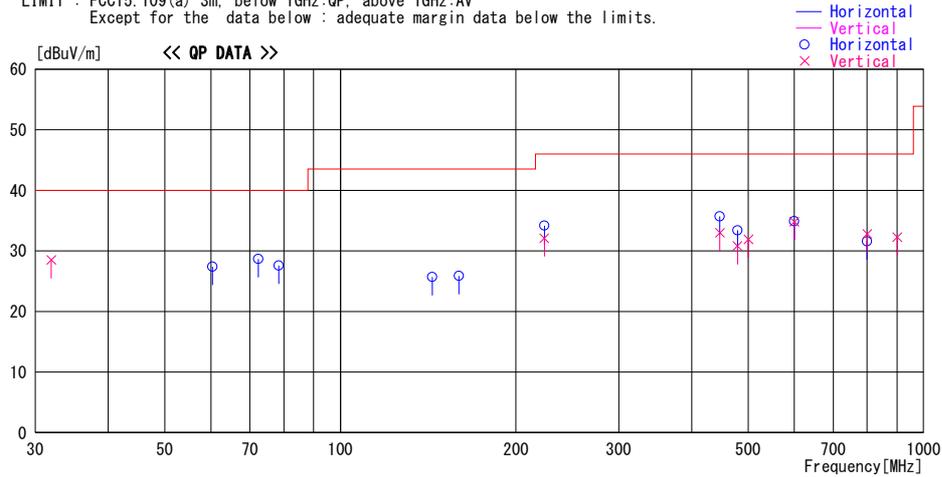
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2012/05/25

Report No. : 32JE0263-HO  
Temp./Humi. : 24deg. C / 48% RH  
Engineer : Tsubasa Takayama

Mode / Remarks : Standby Mode Z-axis

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



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss& Gain [dB]						
31.951	42.9	QP	17.1	-31.5	28.5	228	100	Vert.	40.0	11.5
60.341	50.9	QP	7.6	-31.1	27.4	198	356	Hori.	40.0	12.6
72.389	53.0	QP	6.6	-30.9	28.7	172	291	Hori.	40.0	11.3
78.432	51.5	QP	6.9	-30.8	27.6	198	222	Hori.	40.0	12.4
143.722	41.2	QP	14.6	-30.1	25.7	129	241	Hori.	43.5	17.8
159.796	40.5	QP	15.3	-29.9	25.9	152	210	Hori.	43.5	17.6
223.621	46.3	QP	17.0	-29.1	34.2	213	240	Hori.	46.0	11.8
223.651	44.2	QP	17.0	-29.1	32.1	352	100	Vert.	46.0	13.9
447.341	41.9	QP	17.9	-26.8	33.0	282	100	Vert.	46.0	13.0
447.364	44.6	QP	17.9	-26.8	35.7	223	227	Hori.	46.0	10.3
479.323	39.2	QP	18.1	-26.5	30.8	136	100	Vert.	46.0	15.2
479.319	41.8	QP	18.1	-26.5	33.4	298	190	Hori.	46.0	12.6
500.412	40.0	QP	18.2	-26.3	31.9	2	100	Vert.	46.0	14.1
599.793	41.0	QP	19.4	-25.5	34.9	231	124	Hori.	46.0	11.1
599.750	40.9	QP	19.4	-25.5	34.8	132	191	Vert.	46.0	11.2
799.624	34.0	QP	22.0	-24.4	31.6	320	100	Hori.	46.0	14.4
799.621	35.2	QP	22.0	-24.4	32.8	259	151	Vert.	46.0	13.2
900.730	33.7	QP	22.1	-23.5	32.3	251	102	Vert.	46.0	13.7

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 (M/N: 107SH))**

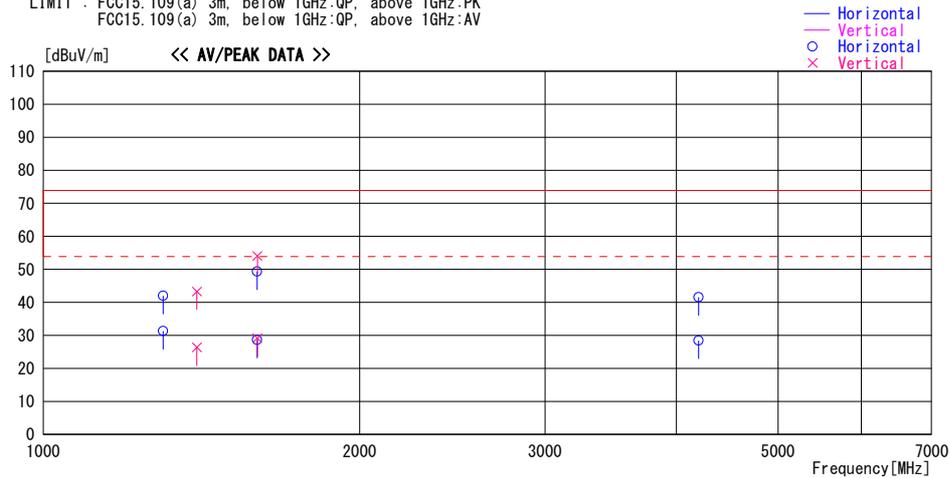
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2012/05/25

Report No. : 32JE0263-H0  
Temp./Humi. : 24deg. C / 48% RH  
Engineer : Tsubasa Takayama

Mode / Remarks : USB DATA Com Mode Z-axis

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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss & Gain [dB]						
1300.000	41.5	AV	25.1	-35.2	31.4	198	100	Hori.	53.9	22.5
1300.000	52.1	PK	25.1	-35.2	42.0	198	100	Hori.	73.9	31.9
1400.000	35.8	AV	25.6	-35.0	26.4	0	100	Vert.	53.9	27.5
1400.000	52.7	PK	25.6	-35.0	43.3	0	100	Vert.	73.9	30.6
1596.918	37.3	AV	26.2	-34.8	28.7	223	102	Hori.	53.9	25.2
1596.918	58.0	PK	26.2	-34.8	49.4	223	102	Hori.	73.9	24.5
1598.000	37.8	AV	26.2	-34.8	29.2	191	100	Vert.	53.9	24.7
1598.000	62.7	PK	26.2	-34.8	54.1	191	100	Vert.	73.9	19.8
4200.000	45.5	PK	29.3	-33.2	41.6	3	100	Hori.	73.9	32.3
4200.000	32.4	AV	29.3	-33.2	28.5	3	100	Hori.	53.9	25.4

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 (M/N: 107SH))

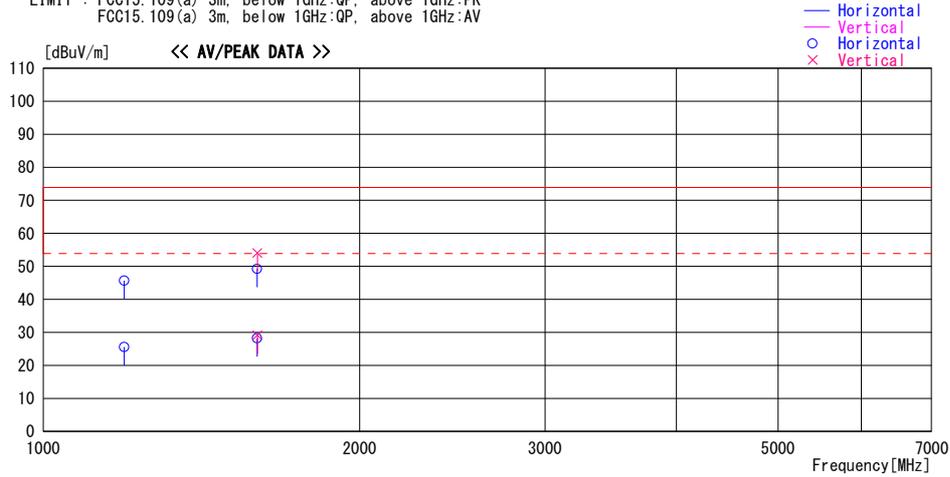
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2012/05/25

Report No. : 32JE0263-H0  
Temp./Humi. : 24deg. C / 48% RH  
Engineer : Tsubasa Takayama

Mode / Remarks : Standby Mode Z-axis

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
			Factor	Gain					[dBuV/m]	[dB]
1194.023	36.5	AV	24.5	-35.4	25.6	172	100	Hori.	53.9	28.3
1194.023	56.6	PK	24.5	-35.4	45.7	172	100	Hori.	73.9	28.2
1596.760	36.8	AV	26.2	-34.8	28.2	221	100	Hori.	53.9	25.7
1596.760	57.8	PK	26.2	-34.8	49.2	221	100	Hori.	73.9	24.7
1598.000	37.8	AV	26.2	-34.8	29.2	191	100	Vert.	53.9	24.7
1598.000	62.7	PK	26.2	-34.8	54.1	191	100	Vert.	73.9	19.8

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.

## **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	2011/07/10 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	RE/CE	2012/02/08 * 12
MJM-01	Measure	KDS	ES19-55	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE/CE	2012/04/03 * 12
KBA-05	Biconical Antenna	Schwarzbeck	BBA9106	2513	RE	2011/11/23 * 12
KLA-04	Logperiodic Antenna	Schwarzbeck	USLP9143	361	RE	2011/11/23 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2011/11/02 * 12
MCC-02	Coaxial Cable	Suhner/storm/Agilent/TSJ	-	-	RE	2011/09/17 * 12
MPA-19	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	RE	2012/02/20 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2011/06/19 * 12
MCC-134	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336167/4(1m) / 340641(5m)	RE	2011/09/07 * 12
MPA-01	Pre Amplifier	Agilent	8449B	3008A01671	RE	2012/02/28 * 12
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	RE/CE	2011/11/23 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	8127383	CE(EUT)	2011/07/11 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	8127384	CE(AE)	2012/03/01 * 12
MTA-30	Terminator	TME	CT-01	-	CE	2012/01/11 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/3D-2W(7.5m)/RG400u(1.5m)/RFM-E421(Switcher)	-/01068(Switcher)	CE	2012/01/22 * 12
MAT-64	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2012/01/28 * 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 emission**

**RE: Radiated emission**

**UL Japan, Inc.**

**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124