



# EMI TEST REPORT

Test Report No. : 30IE0150-HO-B

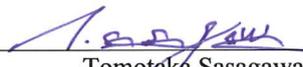
**Applicant** : Sharp Corporation, Communication Systems Group  
**Type of Equipment** : Cellular Phone  
**Model No.** : 944SH  
**FCC ID** : APYHRO00123  
**Test standard** : FCC Part 15 Subpart B 2010 Class B  
**Test Result** : Complied

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:

April 23, 2010

Tested by:

  
Tomotaka Sasagawa  
Engineer of EMC Service

Approved by:

  
Yutaka Yoshida  
Leader of EMC 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://uljapan.co.jp/emc/nvlap.html>

UL Japan, Inc.

Head Office EMC Lab.

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

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MF060b (06.08.09)

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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. : 944SH  
Serial No. : Refer to Section 4, Clause 4.2  
Rating : AC120V/60Hz, DC4.0V  
Receipt Date of Sample : April 23, 2010  
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**

Model No: 944SH (referred to as the EUT in this report) is the Cellular Phone.

Feature of EUT : 944SH is Dual-band (FDD I/FDD XI) WCDMA & Tri-band (900/1800/1900) GSM Dual mode Cellular Phone.  
The EUT has the function of Bluetooth wireless technology interface and wireless LAN technical interface for establishing contact and transmitting data with certain device.  
Clock frequency(ies) in the system : CPU: 26MHz, RTC: 32.768kHz  
Internal: 208MHz

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

#### **3.1 Test specification**

Test specification : FCC Part 15 Subpart B: 2010, final revised on January 22, 2010  
and effective March 1, 2010  
Title : FCC 47CFR Part15 Radio Frequency Device  
Subpart B Unintentional Radiators

#### **3.2 Procedures and results**

<b>Item</b>	<b>Test Procedure</b>	<b>Limits</b>	<b>Deviation</b>	<b>Worst margin</b>	<b>Result</b>
Conducted emission	FCC: ANSI C63.4: 2003 7. AC powerline conducted emission measurements	Class B	N/A	[QP] 15.0dB 0.16395MHz, L [AV] 14.5dB 0.16395MHz, L	Complied
Radiated emission	FCC: ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	8.9dB 72.401MHz Horizontal	Complied

\*Note: UL Japan, Inc's EMI Work Procedure QPM05.

#### **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	2.6dB
No.2	2.9dB
No.3	3.3dB
No.4	2.8dB

Test room (semi-anechoic chamber)	Radiated emission (10m*)(±dB)			Radiated emission					
				(3m*)(±dB)					(1m*)(±dB)
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz	1GHz -18GHz	18GHz -26.5GHz	26.5GHz -40GHz
No.1	2.7dB	4.8dB	5.0dB	2.9dB	4.8dB	5.0dB	3.9dB	4.5dB	4.4dB
No.2	-	-	-	3.5dB	4.8dB	5.1dB	4.0dB	4.3dB	4.2dB
No.3	-	-	-	3.8dB	4.6dB	4.7dB	4.0dB	4.5dB	4.4dB
No.4	-	-	-	3.5dB	4.4dB	4.9dB	4.0dB	4.6dB	4.5dB

\*10m/3m/1m = 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

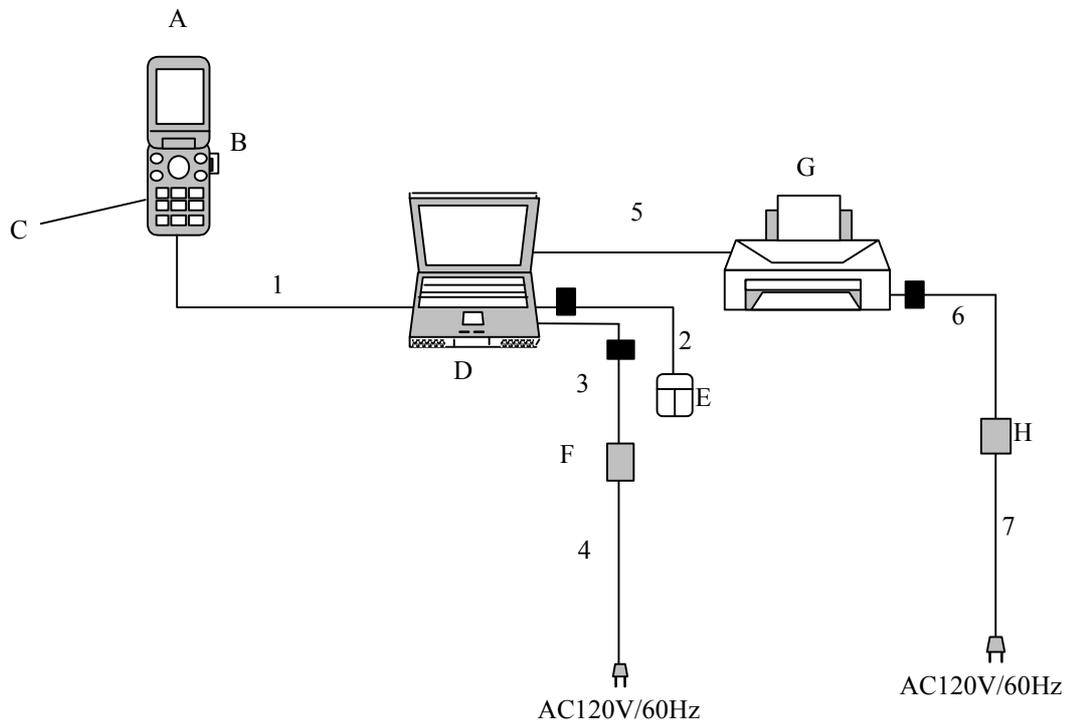
Refer to APPENDIX 1 to 3.

## 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.

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**Description of EUT and Support equipment**

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Cellular Phone	944SH	004401/11/262953/5	Sharp Corporation	EUT
B	microSD Memory Card	SD-MD008GA	None	TOSHIBA	-
C	Lithium-Ion Battery	SHBCU1	SKA	Sharp Corporation	EUT
D	Personal Computer	PP11L	CN-0D4571-48643-55V-1651	DELL	-
E	Mouse	M-BE55	LZE21450232	Logitech	-
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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## **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 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 1.

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

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

Date: April 23, 2010

Test engineer: Tomotaka Sasagawa

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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 1.

### **6.3 Test conditions**

Frequency range : 30MHz-300MHz (Biconical antenna) / 300MHz-1000MHz (Logperiodic antenna)  
1000MHz -2000MHz (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 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

\*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.

Date: April 23, 2010

Test engineer: Tomotaka Sasagawa

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**APPENDIX 1: Photographs of test setup**

**Conducted Emission**

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**Radiated Emission**

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**Worst Case Position (Horizontal: X-axis/ Vertical:X-axis)**

**This page has been submitted for a separate exhibit.**

**APPENDIX 2: Data of EMI test**

**Conducted Emission**

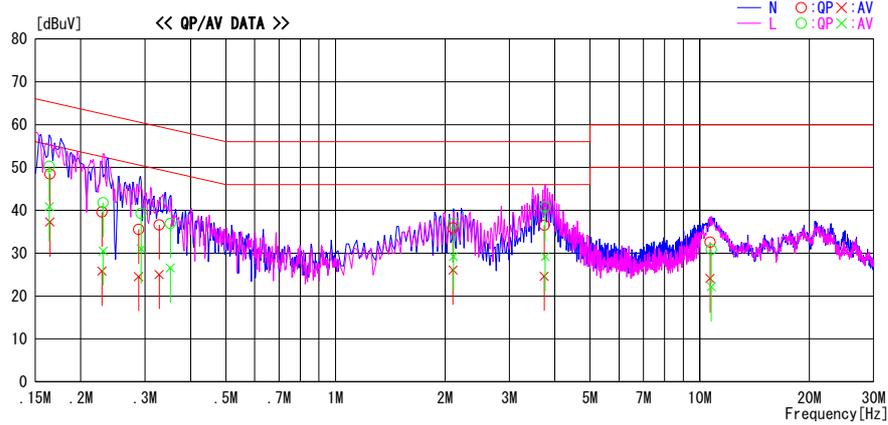
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2010/04/23

Report No. : 30IE0150-HO  
Temp./Humi. : 20deg. C. / 49%  
Engineer : Tomotaka Sasagawa

Mode / Remarks : USB Data Com mode

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



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]		
0.16447	35.3	24.1	13.2	48.5	37.3	65.2	55.2	16.7	17.9	N	
0.22846	26.4	12.6	13.2	39.6	25.8	62.5	52.5	22.9	26.7	N	
0.28813	22.3	11.3	13.3	35.6	24.6	60.6	50.6	25.0	26.0	N	
0.32806	23.3	11.8	13.3	36.6	25.1	59.5	49.5	22.9	24.5	N	
2.10032	22.5	12.7	13.4	35.9	26.1	56.0	46.0	20.1	19.9	N	
3.74283	22.8	10.9	13.7	36.5	24.6	56.0	46.0	19.5	21.4	N	
10.67540	18.1	9.7	14.5	32.6	24.2	60.0	50.0	27.4	25.9	N	
0.16395	37.1	27.6	13.2	50.3	40.8	65.3	55.3	15.0	14.5	L	
0.23020	28.5	17.2	13.3	41.8	30.5	62.4	52.4	20.6	21.9	L	
0.29297	26.0	17.7	13.3	39.3	31.0	60.4	50.4	21.1	19.4	L	
0.35225	23.6	13.3	13.3	36.9	26.6	58.9	48.9	22.0	22.4	L	
2.10693	23.5	15.8	13.4	36.9	29.2	56.0	46.0	19.1	16.8	L	
3.76098	27.1	15.5	13.7	40.8	29.2	56.0	46.0	15.2	16.8	L	
10.75360	16.4	7.7	14.5	30.9	22.2	60.0	50.0	29.1	27.8	L	

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

## Conducted Emission

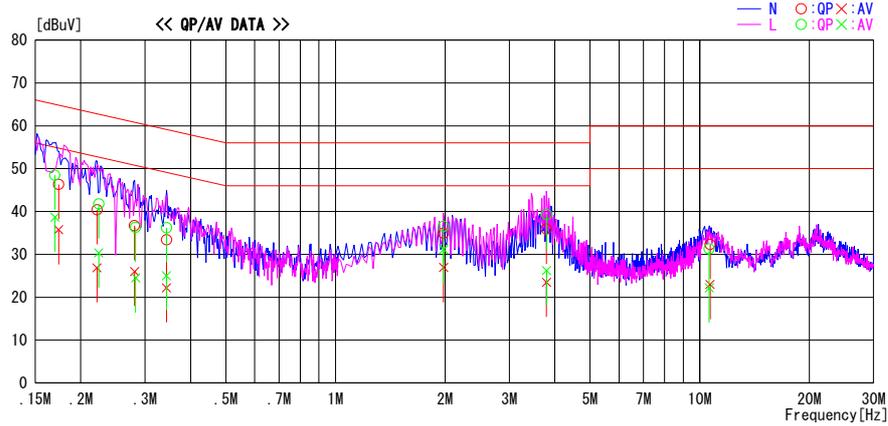
### DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
 Date : 2010/04/23

Report No. : 30IE0150-H0  
 Temp./Humi. : 20deg. C. / 49%  
 Engineer : Tomotaka Sasagawa

Mode / Remarks : Standby mode

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



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]		
0.17370	33.1	22.6	13.2	46.3	35.8	64.8	54.8	18.5	19.0	N	
0.22148	27.2	13.7	13.2	40.4	26.9	62.8	52.8	22.4	25.9	N	
0.28076	23.4	12.7	13.3	36.7	26.0	60.8	50.8	24.1	24.8	N	
0.34353	20.1	8.9	13.3	33.4	22.2	59.1	49.1	25.7	26.9	N	
1.97970	21.5	13.5	13.4	34.9	26.9	56.0	46.0	21.1	19.1	N	
3.79733	22.2	9.8	13.7	35.9	23.5	56.0	46.0	20.1	22.5	N	
10.66982	17.8	8.5	14.5	32.3	23.0	60.0	50.0	27.7	27.0	N	
0.16982	35.3	25.5	13.2	48.5	38.7	65.0	55.0	16.5	16.3	L	
0.22400	28.6	17.1	13.2	41.8	30.3	62.7	52.7	20.9	22.4	L	
0.28251	23.0	11.2	13.3	36.3	24.5	60.7	50.7	24.4	26.2	L	
0.34353	22.9	11.8	13.3	36.2	25.1	59.1	49.1	22.9	24.0	L	
1.97970	23.1	17.7	13.4	36.5	31.1	56.0	46.0	19.5	14.9	L	
3.80098	25.6	12.5	13.7	39.3	26.2	56.0	46.0	16.7	19.8	L	
10.60950	16.8	7.7	14.5	31.3	22.2	60.0	50.0	28.7	27.8	L	

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

## Radiated Emission

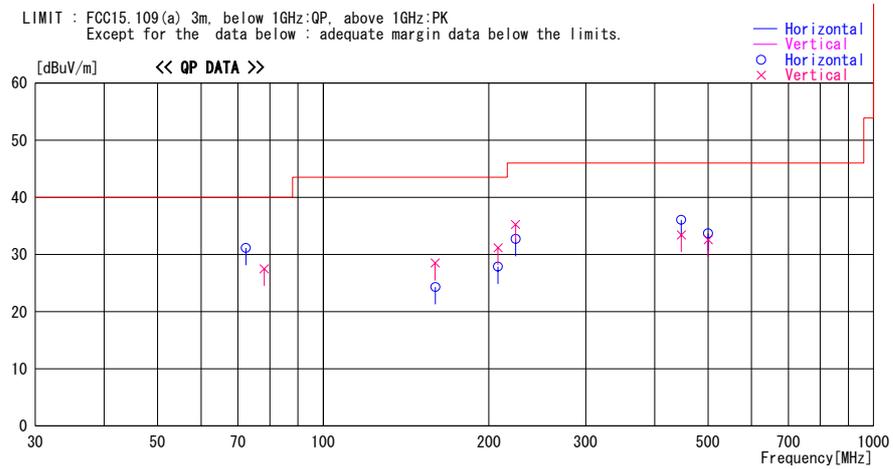
### DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2010/04/23

Report No. : 30IE0150-H0  
Temp./Humi. : 20deg. C / 49%  
Engineer : Tomotaka Sasagawa

Mode / Remarks : USB Data Com Mode

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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
72.401	57.8	QP	6.5	-33.2	31.1	301	398	Hori.	40.0	8.9	
78.156	54.2	QP	6.4	-33.1	27.5	253	100	Vert.	40.0	12.5	
159.860	40.8	QP	15.1	-31.6	24.3	5	334	Hori.	43.5	19.2	
159.776	45.0	QP	15.1	-31.6	28.5	20	100	Vert.	43.5	15.0	
207.705	42.1	QP	16.8	-31.0	27.9	153	354	Hori.	43.5	15.6	
207.708	45.4	QP	16.8	-31.0	31.2	1	100	Vert.	43.5	12.3	
223.676	46.5	QP	17.0	-30.8	32.7	169	387	Hori.	46.0	13.3	
223.707	49.0	QP	17.0	-30.8	35.2	341	100	Vert.	46.0	10.8	
447.354	47.2	QP	17.8	-29.0	36.0	299	100	Hori.	46.0	10.0	
447.294	44.7	QP	17.8	-29.0	33.5	32	156	Vert.	46.0	12.5	
500.389	44.3	QP	18.2	-28.8	33.7	43	100	Hori.	46.0	12.3	
500.601	43.2	QP	18.2	-28.8	32.6	286	100	Vert.	46.0	13.4	

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)

## Radiated Emission

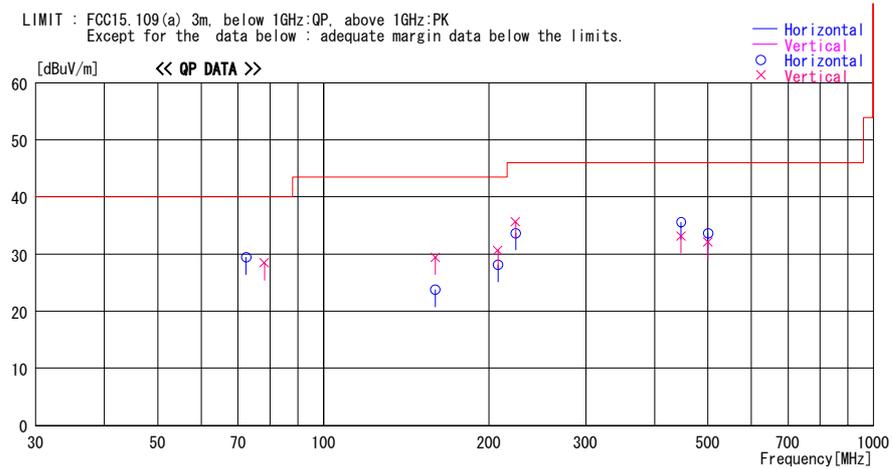
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Temp./Humi. : 20deg. C / 49%  
Engineer : Tomotaka Sasagawa

Mode / Remarks : Standby Mode

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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
72.386	56.2	QP	6.5	-33.2	29.5	313	345	Hori.	40.0	10.6	
78.156	55.2	QP	6.4	-33.1	28.5	270	100	Vert.	40.0	11.5	
159.768	40.3	QP	15.1	-31.6	23.8	51	233	Hori.	43.5	19.7	
159.771	46.0	QP	15.1	-31.6	29.5	329	100	Vert.	43.5	14.0	
207.697	42.3	QP	16.8	-31.0	28.1	0	389	Hori.	43.5	15.4	
207.694	44.8	QP	16.8	-31.0	30.6	2	100	Vert.	43.5	12.9	
223.679	47.5	QP	17.0	-30.8	33.7	162	123	Hori.	46.0	12.3	
223.676	49.5	QP	17.0	-30.8	35.7	324	100	Vert.	46.0	10.3	
447.351	46.8	QP	17.8	-29.0	35.6	310	100	Hori.	46.0	10.4	
447.357	44.3	QP	17.8	-29.0	33.1	1	166	Vert.	46.0	12.9	
500.413	44.3	QP	18.2	-28.8	33.7	44	100	Hori.	46.0	12.3	
500.601	42.8	QP	18.2	-28.8	32.2	309	100	Vert.	46.0	13.9	

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)

## Radiated Emission

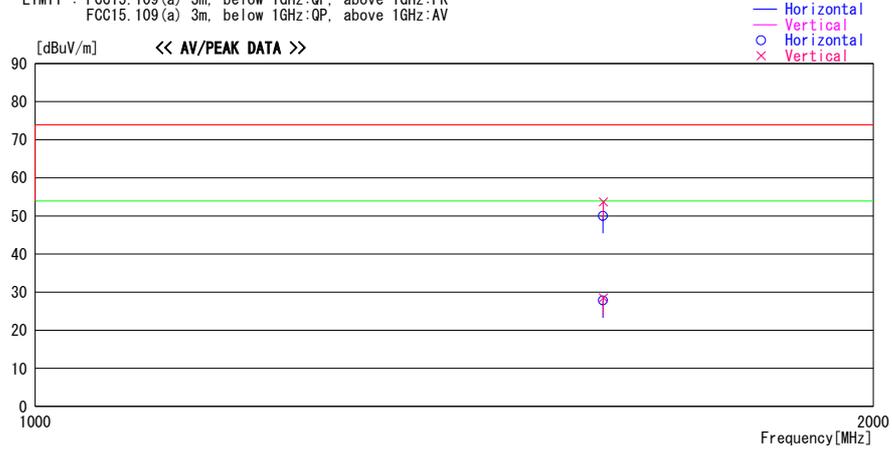
### DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2010/04/23

Report No. : 30IE0150-H0  
Temp./Humi. : 20deg. C / 49%  
Engineer : Tomotaka Sasagawa

Mode / Remarks : USB Data Com Mode

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]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
1599.204	58.3	PK	26.3	-34.6	50.0	178	145	Hori.	73.9	23.9	
1599.204	36.1	AV	26.3	-34.6	27.8	178	145	Hori.	53.9	26.1	
1599.470	36.8	AV	26.3	-34.6	28.5	182	100	Vert.	53.9	25.4	
1599.470	62.0	PK	26.3	-34.6	53.7	182	100	Vert.	73.9	20.2	

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)

## Radiated Emission

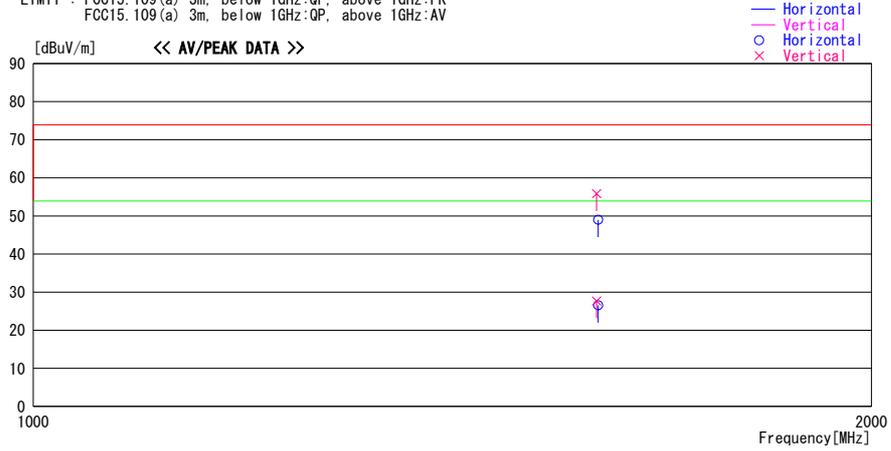
### DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2010/04/23

Report No. : 30IE0150-H0  
Temp./Humi. : 20deg. C / 49%  
Engineer : Tomotaka Sasagawa

Mode / Remarks : Standby Mode

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]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
1593.192	64.1	PK	26.3	-34.6	55.8	188	100	Vert.	73.9	18.1	
1593.192	36.0	AV	26.3	-34.6	27.7	188	100	Vert.	53.9	26.2	
1595.196	57.3	PK	26.3	-34.6	49.0	177	112	Hori.	73.9	24.9	
1595.196	34.9	AV	26.3	-34.6	26.6	177	112	Hori.	53.9	27.4	

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)

### **APPENDIX 3: Test instruments**

#### **EMI test equipment**

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/CE	2009/06/26 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	MOS01	RE/CE	2010/02/09 * 12
MJM-01	Measure	KDS	ES19-55	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MTR-01	Test Receiver	Rohde & Schwarz	ES140	100084	RE/CE	2009/12/17 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	8127383	CE(EUT)	2009/06/22 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(AE)	2010/02/04 * 12
MTA-06	Terminator	MCL	BTRM-50	1 9951	CE	2010/02/02 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/3D-2W(7.5m)/RG400u(1.5m)/RFM-E421(Switcher)	-/01068(Switcher)	CE	2010/01/05 * 12
MAT-65	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2010/02/04 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032007	RE	2009/10/03 * 12
KLA-04	Logperiodic Antenna	Schwarzbeck	USLP9143	361	RE	2009/07/12 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2009/11/13 * 12
MCC-01	Coaxial Cable 0.1-3000MHz	Suhner/storm/Agilent/TSJ	-	-	RE	2009/10/09 * 12
MPA-20	Pre Amplifier	Elena	EPA-4020YA	030801	RE	2010/03/23 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2009/06/15 * 12
MCC-18	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	233010(1m) / 292410(5m)	RE	2009/09/16 * 12
MPA-01	Pre Amplifier	Agilent	8449B	3008A01671	RE	2010/02/12 * 12

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

**All equipment is calibrated with traceable calibrations. Each calibration 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**

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