



EMI TEST REPORT

Test Report No. : 31HE0038-HO-B

Applicant : Sharp Corporation, Communication Systems Group.
Type of Equipment : Cellular Phone
Model No. : 006SH
FCC ID : APYHRO00143
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 8, 2011

Representative test engineer:

Hironobu Ohnishi
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>

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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. : 006SH
Serial No. : Refer to Section 4, Clause 4.2
Receipt Date of Sample : March 19, 2011
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 : 006SH is Dual-band (FDD I/FDD XI) WCDMA & Tri-band
(900/1800/1900) GSM Dual mode 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 frequencies in the system : CPU: 1.4GHz
RTC: 32.768kHz
Source oscillation: 19.2MHz

UL Japan, Inc.

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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 December 6, 2010 and effective January 5, 2011

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: 2003 7. AC powerline conducted emission measurements	Class B	N/A	[QP] 12.6dB 0.17011MHz, L [AV] 9.3dB 0.17011MHz, L	Complied
Radiated emission	ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	10.0dB 223.679MHz, Horizontal, 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.

Test room (semi-anechoic chamber)	Conducted emission (+dB)
	150kHz-30MHz
No.1	3.1dB
No.2	3.3dB
No.3	3.7dB
No.4	3.2dB

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	3.5dB	5.1dB	5.2dB	4.8dB	5.1dB	4.4dB	4.3dB
No.2	4.0dB	5.1dB	5.2dB	4.8dB	5.0dB	4.3dB	4.2dB
No.3	4.2dB	4.7dB	5.2dB	4.8dB	5.0dB	4.5dB	4.2dB
No.4	4.0dB	5.0dB	5.1dB	4.8dB	5.0dB	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

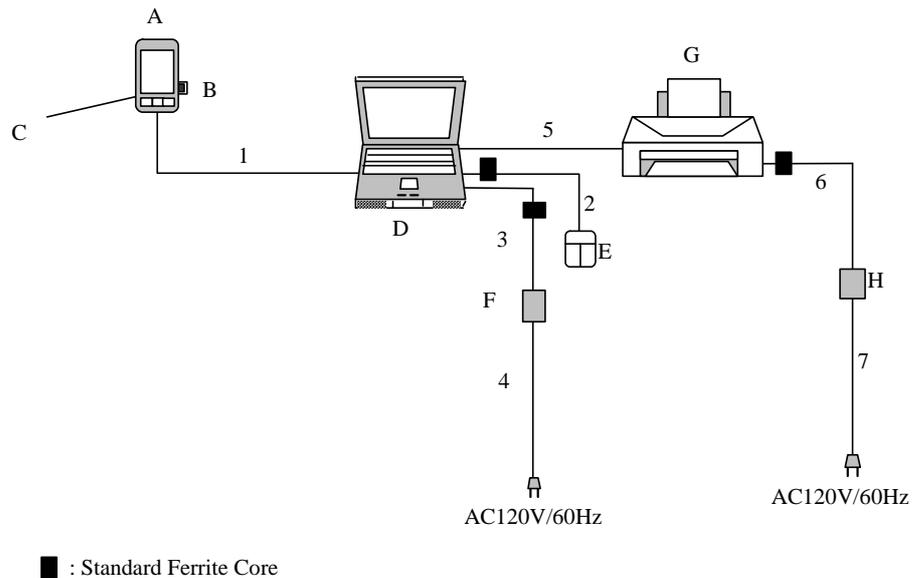
Refer to APPENDIX.

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	006SH	004401/11/322134/1	Sharp Corporation	EUT
B	microSD Memory Card	SD-C04GDC5S11GNC KP	None	TOSHIBA	-
C	Lithium-Ion Battery	SHBDT1	UAA	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	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 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 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

Date: April 8, 2011

Test engineer: Hironobu Ohnishi

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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)
1 - 10GHz (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 X-axis since no difference was found among each position.

6.5 Test result

Summary of the test results: Pass

Date: April 8, 2011

Test engineer: Hironobu Ohnishi

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APPENDIX 1: Photographs of test setup

Conducted Emission

This page has been submitted for a separate exhibit.

Radiated Emission

This page has been submitted for a separate exhibit.

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

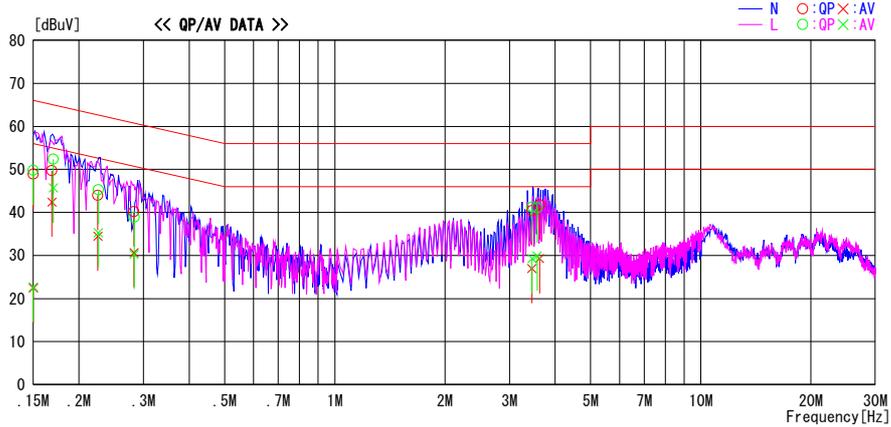
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/04/08

Report No. : 31HE0038-HO

Temp./Humi. : 22deg. C / 40% RH
Engineer : Hironobu Ohnishi

Mode / Remarks : USB Data Com 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]		
0.15000	35.9	9.4	13.0	48.9	22.4	66.0	56.0	17.1	33.6	N	
0.16870	36.7	29.4	13.0	49.7	42.4	65.0	55.0	15.3	12.6	N	
0.22507	30.8	21.3	13.2	44.0	34.5	62.6	52.6	18.6	18.1	N	
0.28258	27.0	17.5	13.2	40.2	30.7	60.7	50.7	20.5	20.0	N	
3.45475	26.7	13.3	13.7	40.4	27.0	56.0	46.0	15.6	19.0	N	
3.62675	28.1	15.6	13.7	41.8	29.3	56.0	46.0	14.2	16.7	N	
0.15000	36.8	9.7	13.0	49.8	22.7	66.0	56.0	16.2	33.3	L	
0.17011	39.4	32.7	13.0	52.4	45.7	65.0	55.0	12.6	9.3	L	
0.22593	32.1	22.1	13.2	45.3	35.3	62.6	52.6	17.3	17.3	L	
0.28292	25.7	17.1	13.2	38.9	30.3	60.7	50.7	21.8	20.4	L	
3.45988	27.5	15.6	13.7	41.2	29.3	56.0	46.0	14.8	16.7	L	
3.57016	27.4	16.2	13.7	41.1	29.9	56.0	46.0	14.9	16.1	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.

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

Conducted Emission

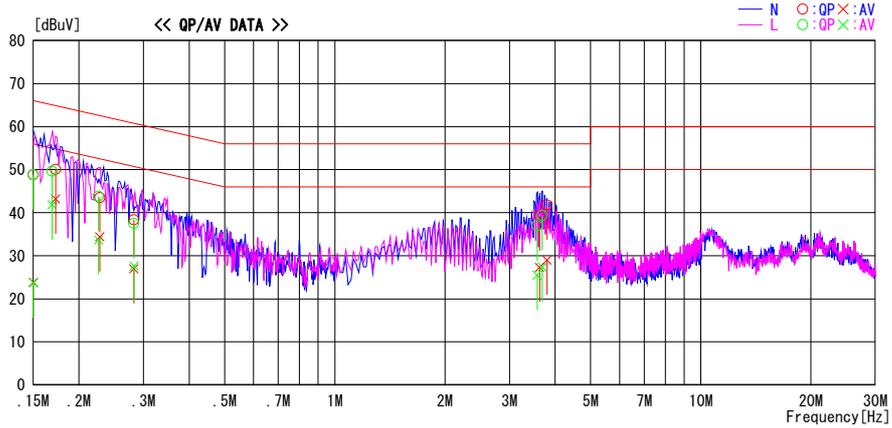
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/04/08

Report No. : 31HE0038-HO
Temp./Humi. : 22deg. C / 40% RH
Engineer : Hironobu Ohnishi

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]		
0.15000	35.8	10.8	13.0	48.8	23.8	66.0	56.0	17.2	32.2	N	
0.17267	37.0	30.2	13.0	50.0	43.2	64.8	54.8	14.8	11.6	N	
0.22790	30.3	21.2	13.2	43.5	34.4	62.5	52.5	19.0	18.1	N	
0.28250	25.1	13.8	13.2	38.3	27.0	60.7	50.7	22.4	23.7	N	
3.62792	25.5	13.6	13.7	39.2	27.3	56.0	46.0	16.8	18.7	N	
3.80147	28.1	15.3	13.7	41.8	29.0	56.0	46.0	14.2	17.0	N	
0.15000	35.8	10.7	13.0	48.8	23.7	66.0	56.0	17.2	32.3	L	
0.16883	36.6	28.8	13.0	49.6	41.8	65.0	55.0	15.4	13.2	L	
0.22616	30.6	20.5	13.2	43.8	33.7	62.6	52.6	18.8	18.9	L	
0.28267	24.3	14.4	13.2	37.5	27.6	60.7	50.7	23.2	23.1	L	
3.57020	23.2	11.8	13.7	36.9	25.5	56.0	46.0	19.1	20.5	L	
3.68640	25.7	13.7	13.7	39.4	27.4	56.0	46.0	16.6	18.6	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (L1SN 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

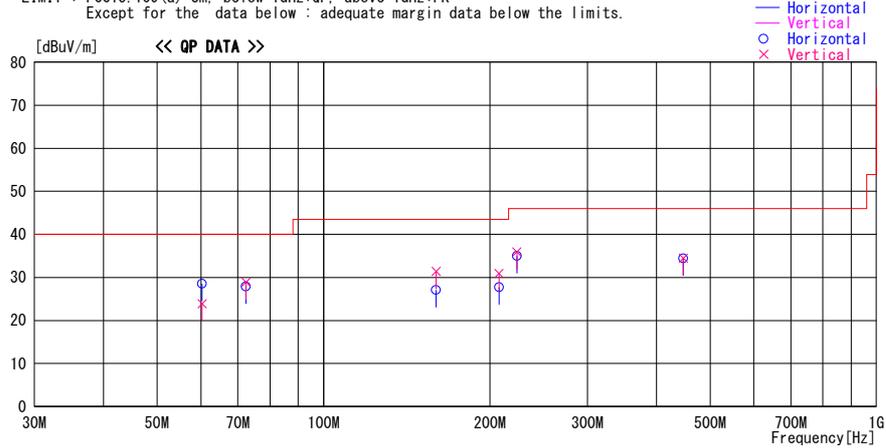
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/04/08

Report No. : 31HE0038-HO
Temp./Humi. : 22deg. C / 40% RH
Engineer : Hironobu Ohnishi

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	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain							
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
60.328	53.5	QP	8.0	-33.0	28.5	253	374	Hori.	40.0	11.5	
60.328	48.9	QP	8.0	-33.0	23.9	184	100	Vert.	40.0	16.1	
72.398	54.4	QP	6.4	-32.9	27.9	144	254	Hori.	40.0	12.1	
72.398	55.4	QP	6.4	-32.9	28.9	236	100	Vert.	40.0	11.1	
159.772	43.3	QP	15.3	-31.5	27.1	84	209	Hori.	43.5	16.4	
159.772	47.6	QP	15.3	-31.5	31.4	113	100	Vert.	43.5	12.1	
207.698	41.9	QP	16.7	-30.9	27.7	28	235	Hori.	43.5	15.8	
207.698	45.1	QP	16.7	-30.9	30.9	359	100	Vert.	43.5	12.6	
223.681	48.9	QP	16.8	-30.7	35.0	294	206	Hori.	46.0	11.0	
223.681	49.8	QP	16.8	-30.7	35.9	0	100	Vert.	46.0	10.1	
447.356	45.1	QP	18.3	-29.0	34.4	294	100	Hori.	46.0	11.6	
447.356	45.2	QP	18.3	-29.0	34.5	332	198	Vert.	46.0	11.5	

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

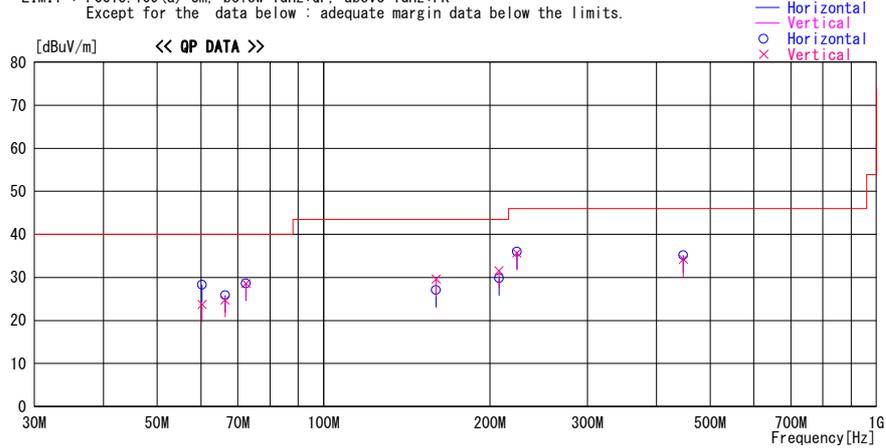
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/04/08

Report No. : 31HE0038-HO
Temp./Humi. : 22deg. C / 40% RH
Engineer : Hironobu Ohnishi

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	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain							
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
60.323	53.3	QP	8.0	-33.0	28.3	256	382	Hori.	40.0	11.7	
60.323	48.7	QP	8.0	-33.0	23.7	185	100	Vert.	40.0	16.3	
66.355	51.8	QP	7.0	-32.9	25.9	199	279	Hori.	40.0	14.1	
66.355	50.7	QP	7.0	-32.9	24.8	74	100	Vert.	40.0	15.2	
72.386	55.1	QP	6.4	-32.9	28.6	146	250	Hori.	40.0	11.4	
72.386	55.1	QP	6.4	-32.9	28.6	231	100	Vert.	40.0	11.4	
159.771	43.3	QP	15.3	-31.5	27.1	84	194	Hori.	43.5	16.4	
159.771	45.8	QP	15.3	-31.5	29.6	110	100	Vert.	43.5	13.9	
207.702	44.0	QP	16.7	-30.9	29.8	288	176	Hori.	43.5	13.7	
207.702	45.8	QP	16.7	-30.9	31.6	0	100	Vert.	43.5	11.9	
223.679	49.9	QP	16.8	-30.7	36.0	297	160	Hori.	46.0	10.0	
223.679	49.6	QP	16.8	-30.7	35.7	0	100	Vert.	46.0	10.3	
447.356	45.9	QP	18.3	-29.0	35.2	299	100	Hori.	46.0	10.8	
447.356	44.9	QP	18.3	-29.0	34.2	325	187	Vert.	46.0	11.8	

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

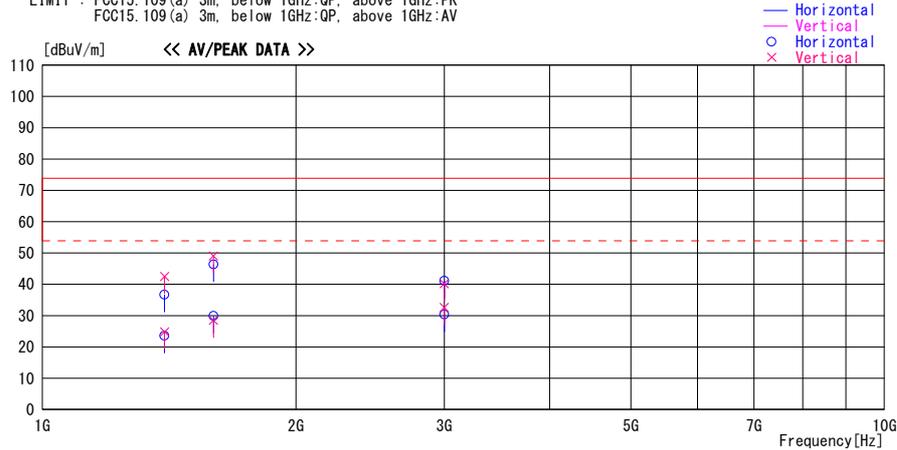
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/04/08

Report No. : 31HE0038-HO
Temp./Humi. : 22deg. C / 40% RH
Engineer : Hironobu Ohnishi

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 [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
1396.500	46.5	PK	25.0	-34.8	36.7	330	100	Hori.	73.9	37.2	
1396.500	33.4	AV	25.0	-34.8	23.6	330	100	Hori.	53.9	30.3	
1396.500	52.3	PK	25.0	-34.8	42.5	301	100	Vert.	73.9	31.4	
1396.500	34.7	AV	25.0	-34.8	24.9	301	100	Vert.	53.9	29.0	
1596.000	55.2	PK	25.6	-34.5	46.3	250	100	Hori.	73.9	27.6	
1596.000	38.8	AV	25.6	-34.5	29.9	250	105	Hori.	53.9	24.0	
1596.000	58.0	PK	25.6	-34.5	49.1	55	100	Vert.	73.9	24.8	
1596.000	37.4	AV	25.6	-34.5	28.5	55	100	Vert.	53.9	25.4	
2999.963	47.4	PK	27.3	-33.6	41.1	350	123	Hori.	73.9	32.8	
2999.963	36.7	AV	27.3	-33.6	30.4	350	123	Hori.	53.9	23.5	
2999.963	46.5	PK	27.3	-33.6	40.2	357	101	Vert.	73.9	33.7	
2999.963	38.9	AV	27.3	-33.6	32.6	357	101	Vert.	53.9	21.3	

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

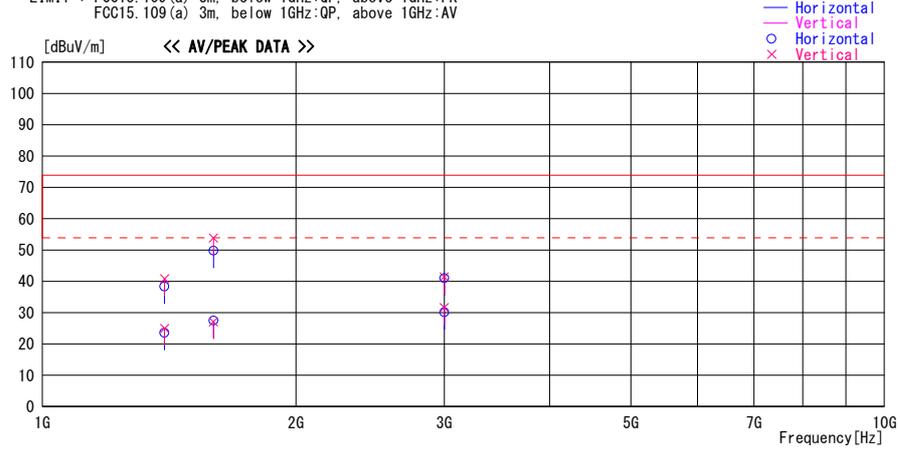
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/04/08

Report No. : 31HE0038-HO
Temp./Humi. : 22deg. C / 40% RH
Engineer : Hironobu Ohnishi

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]	
1396.500	48.2	PK	25.0	-34.8	38.4	330	100	Hori.	73.9	35.5	
1396.500	33.4	AV	25.0	-34.8	23.6	330	100	Hori.	53.9	30.3	
1396.500	50.7	PK	25.0	-34.8	40.9	301	100	Vert.	73.9	33.0	
1396.500	34.8	AV	25.0	-34.8	25.0	301	100	Vert.	53.9	28.9	
1596.000	58.7	PK	25.6	-34.5	49.8	250	100	Hori.	73.9	24.1	
1596.000	36.4	AV	25.6	-34.5	27.5	250	105	Hori.	53.9	26.4	
1596.000	62.7	PK	25.6	-34.5	53.8	55	100	Vert.	73.9	20.1	
1596.000	36.0	AV	25.6	-34.5	27.1	55	100	Vert.	53.9	26.8	
2999.963	47.3	PK	27.3	-33.6	41.0	350	123	Hori.	73.9	32.9	
2999.963	36.4	AV	27.3	-33.6	30.1	350	123	Hori.	53.9	23.8	
2999.963	47.7	PK	27.3	-33.6	41.4	357	101	Vert.	73.9	32.5	
2999.963	37.9	AV	27.3	-33.6	31.6	357	101	Vert.	53.9	22.3	

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 3: 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	CE/RE	2010/07/02 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	MOS01	CE/RE	2011/02/23 * 12
MJM-01	Measure	KDS	ES19-55	-	CE/RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	CE/RE	-
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	100084	CE/RE	2010/12/07 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	8127383	CE(EUT)	2010/07/04 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	8127384	CE(AE)	2010/07/28 * 12
MTA-30	Terminator	TME	CT-01	-	CE	2011/01/05 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/3D-2W(7.5m)/RG400u(1.5m)/RFM-E421(Switcher)	- /01068(Switcher)	CE	2011/01/16 * 12
MAT-64	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2011/02/22 * 12
KBA-05	Biconical Antenna	Schwarzbeck	BBA9106	2513	RE	2010/10/15 * 12
KLA-04	Logperiodic Antenna	Schwarzbeck	USLP9143	361	RE	2010/10/16 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2010/11/05 * 12
MCC-01	Coaxial Cable 0.1-3000MHz	Suhner/storm/Agilent/TSJ	-	-	RE	2010/10/14 * 12
MPA-20	Pre Amplifier	Elena	EPA-4020YA	030801	RE	2011/03/27 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2010/06/29 * 12
MCC-18	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	148048- 143(1m) / 292410(5m)	RE	2010/09/30 * 12
MPA-01	Pre Amplifier	Agilent	8449B	3008A01671	RE	2011/02/24 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2011/02/15 * 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 Emissions

RE: Radiated Emissions

UL Japan, Inc.

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