



EMI TEST REPORT

Test Report No. : 31JE0019-HO-B

Applicant : SHARP CORPORATION
Type of Equipment : Cellular Phone
Model No. : SH-13C
FCC ID : APYHRO00153
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:

June 27, 2011

Representative test engineer:

Hiroshi Kukita

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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13-EM-F0429

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SECTION 1: Customer information

Company Name : SHARP CORPORATION
Address : 2-13-1 Iida, Hachihonmatsu, Higashi-Hiroshima City, Hiroshima,
739-0192 Japan
Telephone Number : +81-82-420-1825
Facsimile Number : +81-82-420-1829
Contact Person : Kazuo Sugimoto

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

2.1 Identification of E.U.T.

Type of Equipment : Cellular Phone
Model No. : SH-13C
Serial No. : Refer to Section 4, Clause 4.2
Receipt Date of Sample : June 25, 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 : Tri-band (800/850/2000)WCDMA & GSM Dual mode Cellular Phone /
Bluetooth/W-LAN , Felica & 1.5GHz Band Satellite Receiver (GPS) enable
- GSM (EU:900/1800M, 1900M)
- WCDMA (EU:2000M, US:850M, JPN: 800/2000)
Clock frequencies in the system : CPU : 1.0GHZ
Source oscillation:48MHz

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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] 11.0dB 3.77781MHz, L [AV] 13.3dB 2.03481MHz, L	Complied
Radiated emission	ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	5.7dB 749.994MHz, 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.

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

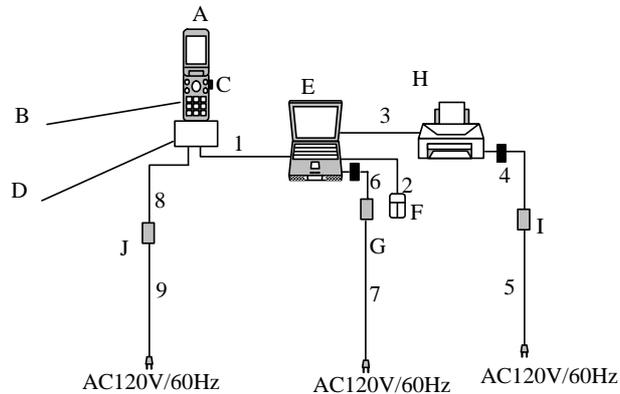
Refer to APPENDIX.

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



■ : 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-13C	004401113425157	Sharp Corporation	EUT
B	Lithium-Ion Battery	Battery Pack SH23	-	Sharp Corporation	EUT
C	MicroSD Memory Card	SD-C08G	0909L3G235Y	TOSHIBA	-
D	Desktop Holder	SH32	-	Sharp Corporation	EUT
E	Personal Computer	PP11L	CN-0D4571-48643-51T-0549	DELL	-
F	Mouse	M-UAG120	G83C0007F310	TOSHIBA	-
G	AC Adapter(PC)	PA-1650-05D	CN-0F7970-71615-77H-0D63	DELL	-
H	Printer	C6410A	SG8BA1W18J	Hewlett-Packard	-
I	AC Adapter (Printer)	AT3018A-0101	C4557-60004	Hewlett-Packard	-
J	AC Charger	MAS-BH0008-A002	-	NEC	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB Data Cable	0.70	Shielded	Shielded	-
2	Mouse Cable	0.71	Shielded	Shielded	-
3	Printer Cable	2.00	Shielded	Shielded	-
4	DC Power Cable(Printer)	2.00	Unshielded	Unshielded	-
5	AC Power Cable(Printer)	1.75	Unshielded	Unshielded	-
6	DC Power Cable(PC)	1.80	Unshielded	Unshielded	-
7	AC Power Cable(PC)	0.90	Unshielded	Unshielded	-
8	DC Power Cable(set)	1.50	Unshielded	Unshielded	-
9	AC Power Cable(set)	0.56	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: June 27, 2011

Test engineer: Hiroshi Kukita

UL Japan, Inc.

Head Office EMC Lab.

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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 - 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 *1)
IF Bandwidth	QP: BW 120kHz	PK: RBW:1MHz/VBW: 3MHz AV *2): RBW:1MHz/VBW:10Hz

*1) The Spectrum Analyzer was used in 3dB resolution bandwidth.

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

-The test was made on EUT at the normal use position.

6.5 Test result

Summary of the test results: Pass

Date: June 27, 2011

Test engineer: Hiroshi Kukita

UL Japan, Inc.

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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.

APPENDIX 2: Data of EMI test

Conducted Emission

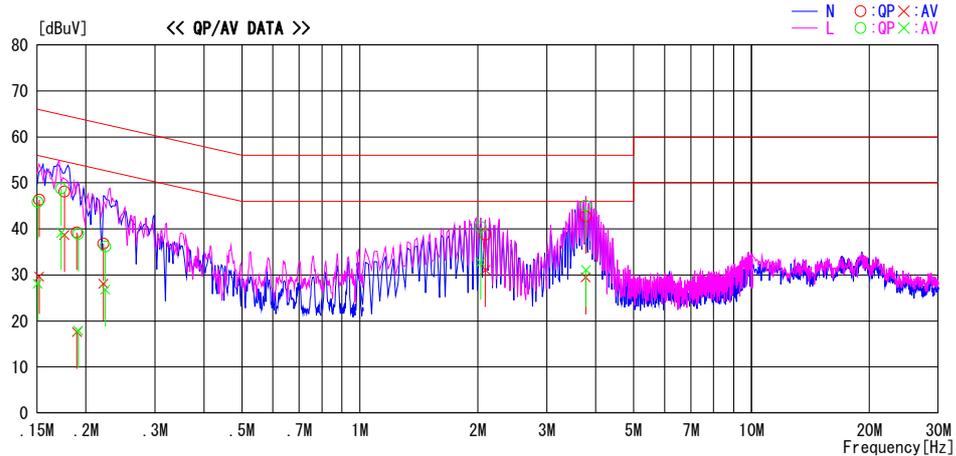
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/06/27

Report No. : 31JE0019-HO
Temp./Humi. : 21deg. C / 67% RH
Engineer : Hiroshi Kukita

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]		
0.15180	33.2	16.5	13.1	46.3	29.6	65.9	55.9	19.6	26.3	N	
0.17599	35.0	25.6	13.1	48.1	38.7	64.7	54.7	16.6	16.0	N	
0.18966	26.1	4.5	13.1	39.2	17.6	64.1	54.1	24.9	36.5	N	
0.22145	23.5	14.8	13.3	36.8	28.1	62.8	52.8	26.0	24.7	N	
2.09270	25.2	17.6	13.5	38.7	31.1	56.0	46.0	17.3	14.9	N	
3.77536	28.9	15.7	13.8	42.7	29.5	56.0	46.0	13.3	16.5	N	
0.15046	32.7	15.0	13.1	45.8	28.1	66.0	56.0	20.2	27.9	L	
0.17286	35.6	26.1	13.1	48.7	39.2	64.8	54.8	16.1	15.6	L	
0.19111	25.8	4.8	13.1	38.9	17.9	64.0	54.0	25.1	36.1	L	
0.22397	22.8	13.5	13.3	36.1	26.8	62.7	52.7	26.6	25.9	L	
2.03481	26.9	19.2	13.5	40.4	32.7	56.0	46.0	15.6	13.3	L	
3.77781	31.2	17.3	13.8	45.0	31.1	56.0	46.0	11.0	14.9	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.

Conducted Emission

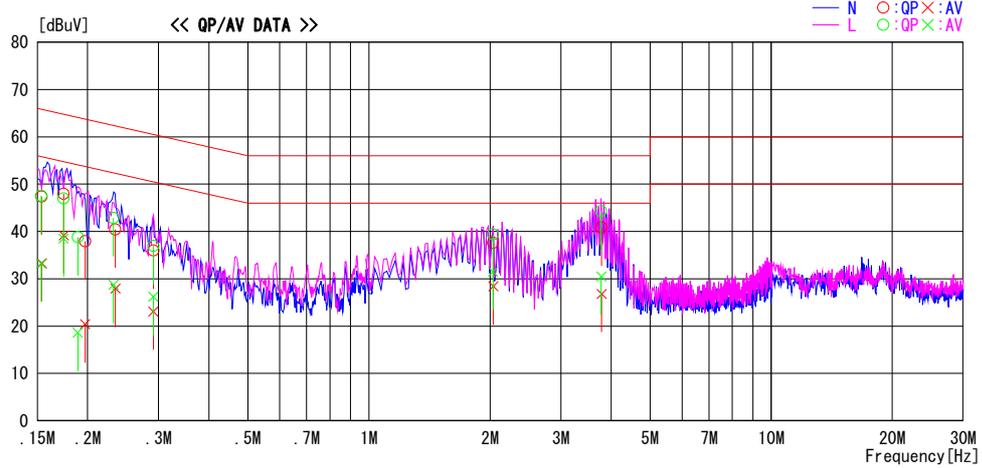
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/06/27

Report No. : 31JE0019-H0
Temp./Humi. : 21deg. C / 67% RH
Engineer : Hiroshi Kukita

Mode / Remarks : Standby mode

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



Frequency [MHz]	Reading Level		Corr. [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15367	34.3	20.2	13.1	47.4	33.3	65.8	55.8	18.4	22.5	N	
0.17434	34.8	26.1	13.1	47.9	39.2	64.8	54.8	16.9	15.6	N	
0.19699	24.8	7.3	13.1	37.9	20.4	63.7	53.7	25.8	33.3	N	
0.23419	27.1	14.6	13.3	40.4	27.9	62.3	52.3	21.9	24.4	N	
0.29135	22.7	9.8	13.3	36.0	23.1	60.5	50.5	24.5	27.4	N	
2.03655	24.1	14.9	13.5	37.6	28.4	56.0	46.0	18.4	17.6	N	
3.78597	27.0	13.0	13.8	40.8	26.8	56.0	46.0	15.2	19.2	N	
0.15317	34.4	20.2	13.1	47.5	33.3	65.8	55.8	18.3	22.5	L	
0.17419	33.9	25.4	13.1	47.0	38.5	64.8	54.8	17.8	16.3	L	
0.18901	25.7	5.5	13.1	38.8	18.6	64.1	54.1	25.3	35.5	L	
0.23165	29.5	15.4	13.3	42.8	28.7	62.4	52.4	19.6	23.7	L	
0.29120	23.6	12.9	13.3	36.9	26.2	60.5	50.5	23.6	24.3	L	
2.03462	25.9	18.0	13.5	39.4	31.5	56.0	46.0	16.6	14.5	L	
3.77997	30.5	16.7	13.8	44.3	30.5	56.0	46.0	11.7	15.5	L	

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

DATA OF RADIATED EMISSION TEST

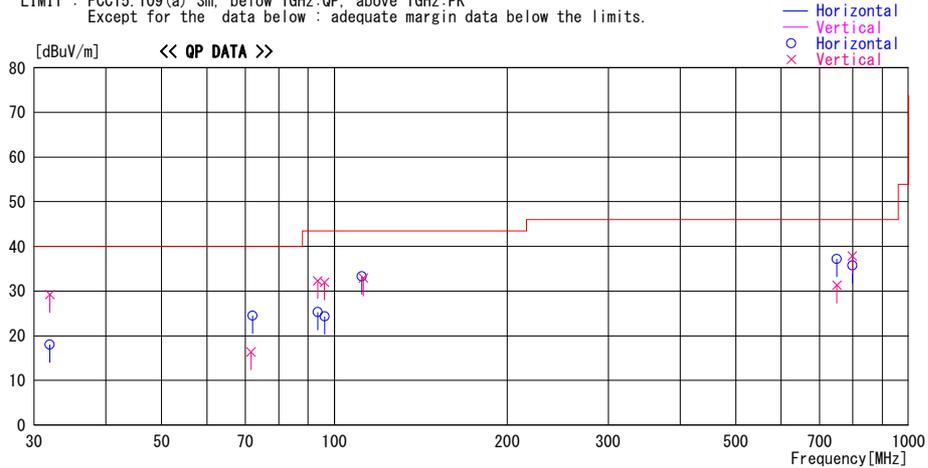
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/06/27

Report No. : 31JE0019-H0

Temp. / Humi. : 21deg. C / 67% RH
Engineer : Hiroshi Kukita

Mode / Remarks : USB Data Com Mode, X axis

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]							
31.953	31.4	QP	17.6	-31.0	18.0	165	345	Hori.	40.0	22.0	
31.958	42.6	QP	17.6	-31.0	29.2	230	100	Vert.	40.0	10.8	
72.019	48.6	QP	6.4	-30.5	24.5	74	400	Hori.	40.0	15.5	
71.597	40.5	QP	6.4	-30.5	16.4	154	100	Vert.	40.0	23.6	
93.523	46.9	QP	8.5	-30.1	25.3	253	177	Hori.	43.5	18.2	
93.526	53.9	QP	8.5	-30.1	32.3	126	100	Vert.	43.5	11.2	
96.136	45.4	QP	9.0	-30.1	24.3	41	176	Hori.	43.5	19.2	
96.127	53.1	QP	9.0	-30.1	32.0	159	100	Vert.	43.5	11.5	
111.719	51.8	QP	11.4	-29.9	33.3	335	161	Hori.	43.5	10.2	
112.375	51.3	QP	11.5	-29.9	32.9	140	100	Vert.	43.5	10.6	
749.992	39.6	QP	21.5	-23.9	37.2	98	100	Hori.	46.0	8.8	
749.991	33.7	QP	21.5	-23.9	31.3	351	100	Vert.	46.0	14.7	
797.898	39.4	QP	22.1	-23.6	37.9	65	100	Vert.	46.0	8.1	
797.963	37.2	QP	22.1	-23.6	35.7	142	100	Hori.	46.0	10.3	

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
(Below 1GHz)

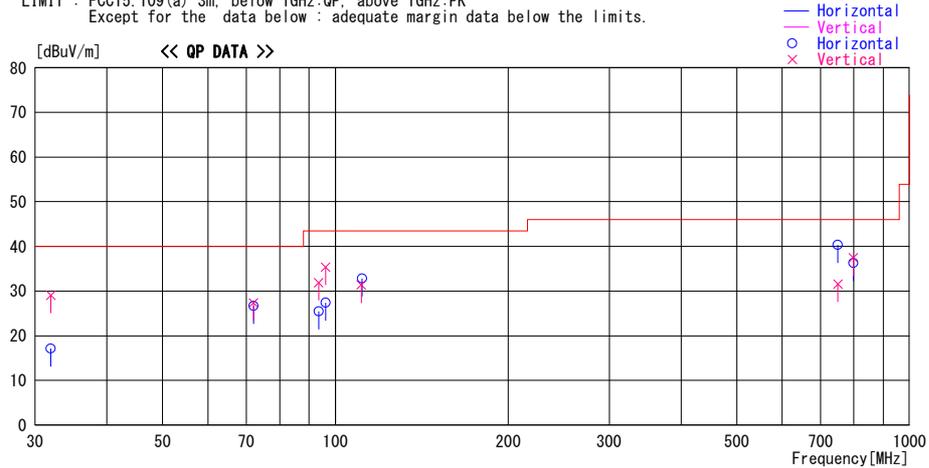
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/06/27

Report No. : 31JE0019-H0
Temp. / Humi. : 21deg. C / 67% RH
Engineer : Hiroshi Kukita

Mode / Remarks : Standby mode, Worst axis(Hori:X, Ver: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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
31.955	30.6	QP	17.6	-31.0	17.2	301	400	Hori.	40.0	22.8	
31.955	42.5	QP	17.6	-31.0	29.1	208	100	Vert.	40.0	10.9	
72.024	50.8	QP	6.4	-30.5	26.7	98	252	Hori.	40.0	13.3	
72.025	51.5	QP	6.4	-30.5	27.4	112	100	Vert.	40.0	12.6	
93.520	47.1	QP	8.5	-30.1	25.5	259	177	Hori.	43.5	18.0	
93.521	53.5	QP	8.5	-30.1	31.9	123	100	Vert.	43.5	11.6	
96.134	48.5	QP	9.0	-30.1	27.4	86	181	Hori.	43.5	16.1	
96.134	56.5	QP	9.0	-30.1	35.4	159	100	Vert.	43.5	8.1	
110.967	50.0	QP	11.3	-29.9	31.4	142	100	Vert.	43.5	12.1	
111.382	51.4	QP	11.3	-29.9	32.8	326	151	Hori.	43.5	10.7	
749.991	34.0	QP	21.5	-23.9	31.6	330	100	Vert.	46.0	14.4	
749.994	42.7	QP	21.5	-23.9	40.3	86	106	Hori.	46.0	5.7	
798.056	37.8	QP	22.1	-23.6	36.3	147	100	Hori.	46.0	9.7	
798.288	39.0	QP	22.1	-23.6	37.5	67	100	Vert.	46.0	8.5	

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
(Above 1GHz)

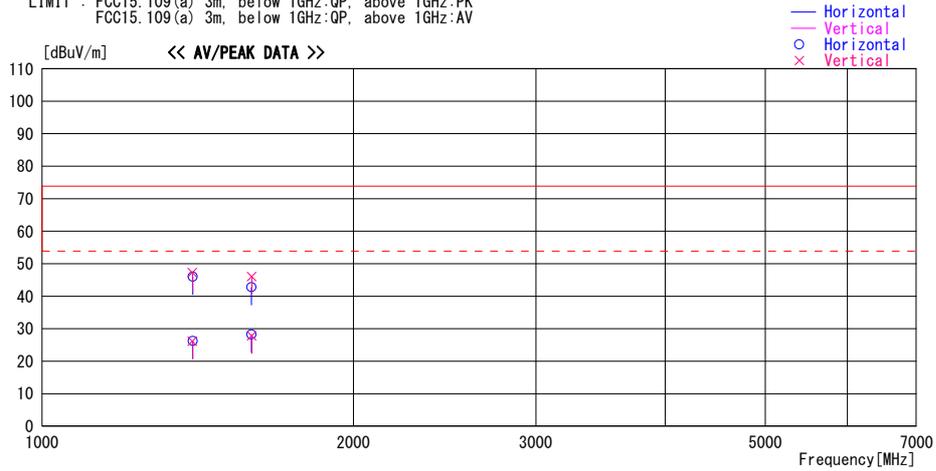
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/06/27

Report No. : 31JE0019-HO
Temp. / Humi. : 21deg. C / 67% RH
Engineer : Hiroshi Kukita

Mode / Remarks : USB Data Com Mode, Worst axis(Hori:X, Ver: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					[dBuV/m]	[dB]	
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
1397.020	56.6	PK	25.5	-34.8	47.3	202	100	Vert.	73.9	26.6	
1397.020	35.5	AV	25.5	-34.8	26.2	202	100	Vert.	53.9	27.7	
1398.710	55.3	PK	25.5	-34.8	46.0	231	100	Hori.	73.9	27.9	
1398.710	35.5	AV	25.5	-34.8	26.2	231	100	Hori.	53.9	27.7	
1593.320	51.1	PK	26.2	-34.5	42.8	156	100	Hori.	73.9	31.1	
1593.320	36.5	AV	26.2	-34.5	28.2	156	100	Hori.	53.9	25.7	
1594.740	36.2	AV	26.2	-34.5	27.9	133	100	Vert.	53.9	26.0	
1594.740	54.4	PK	26.2	-34.5	46.1	133	100	Vert.	73.9	27.8	

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

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

Radiated Emission
(Above 1GHz)

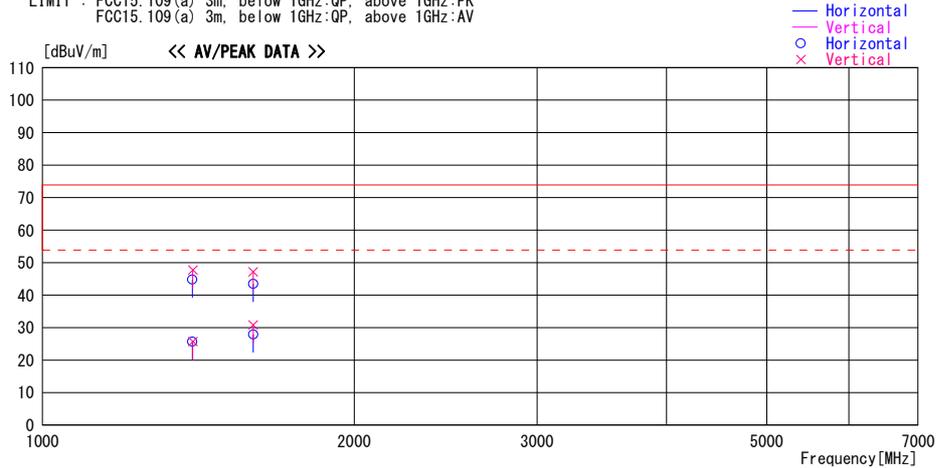
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2011/06/27

Report No. : 31JE0019-HO
Temp. / Humi. : 21deg. C / 67% RH
Engineer : Hiroshi Kukita

Mode / Remarks : Standby mode, Worst axis(Hori:X, Ver: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	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
1395.160	54.1	PK	25.5	-34.8	44.8	167	100	Hori.	73.9	29.1	
1395.160	35.0	AV	25.5	-34.8	25.7	167	100	Hori.	53.9	28.2	
1396.520	35.0	AV	25.5	-34.8	25.7	167	100	Vert.	53.9	28.2	
1396.520	57.0	PK	25.5	-34.8	47.7	167	100	Vert.	73.9	26.2	
1596.920	39.2	AV	26.2	-34.5	30.9	123	100	Vert.	53.9	23.0	
1596.920	55.5	PK	26.2	-34.5	47.2	123	100	Vert.	73.9	26.7	
1597.860	36.2	AV	26.2	-34.5	27.9	123	100	Hori.	53.9	26.0	
1597.860	51.8	PK	26.2	-34.5	43.5	123	100	Hori.	73.9	30.4	

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.

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	RE/CE	2010/07/02 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	MOS01	RE/CE	2011/02/23 * 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	ESI40	100084	RE/CE	2010/12/07 * 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-19	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	RE	2011/02/28 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2011/06/19 * 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
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
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	RE	2010/11/18 * 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

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