



EMI TEST REPORT

Test Report No. : 31DE0030-HO-A

Applicant : Sharp Corporation, Communication Systems Group.
Type of Equipment : Cellular Phone
Model No. : 004SH
FCC ID : APYHRO00137
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:

November 12, 2010

Representative test
engineer:

T. Sasagawa

Tomotaka Sasagawa
Engineer of EMC Service

Approved by:

Y. Yoshida

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://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

MF058b (15.09.10)

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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. : 004SH
Serial No. : Refer to Section 4, Clause 4.2
Receipt Date of Sample : November 12, 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: 004SH (referred to as the EUT in this report) is the Cellular Phone.

Feature of EUT : 004SH 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 October 13, 2010

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: 2003 7. AC powerline conducted emission measurements	Class B	N/A	[QP] 13.3dB 3.76205MHz, N [AV] 11.7dB 0.17078MHz, N	Complied
Radiated emission	FCC: ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	7.1dB 72.375MHz, Horizontal, QP	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)		
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz
No.1	2.7dB	4.8dB	5.0dB
No.2	-	-	-
No.3	-	-	-
No.4	-	-	-

*10m = Measurement distance

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	2.9dB	4.8dB	5.0dB	3.9dB	4.3dB	4.5dB	4.3dB
No.2	3.5dB	4.8dB	5.1dB	4.0dB	4.2dB	4.4dB	4.2dB
No.3	3.8dB	4.6dB	4.7dB	4.0dB	4.2dB	4.5dB	4.2dB
No.4	3.5dB	4.4dB	4.9dB	4.0dB	4.2dB	4.6dB	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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Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

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

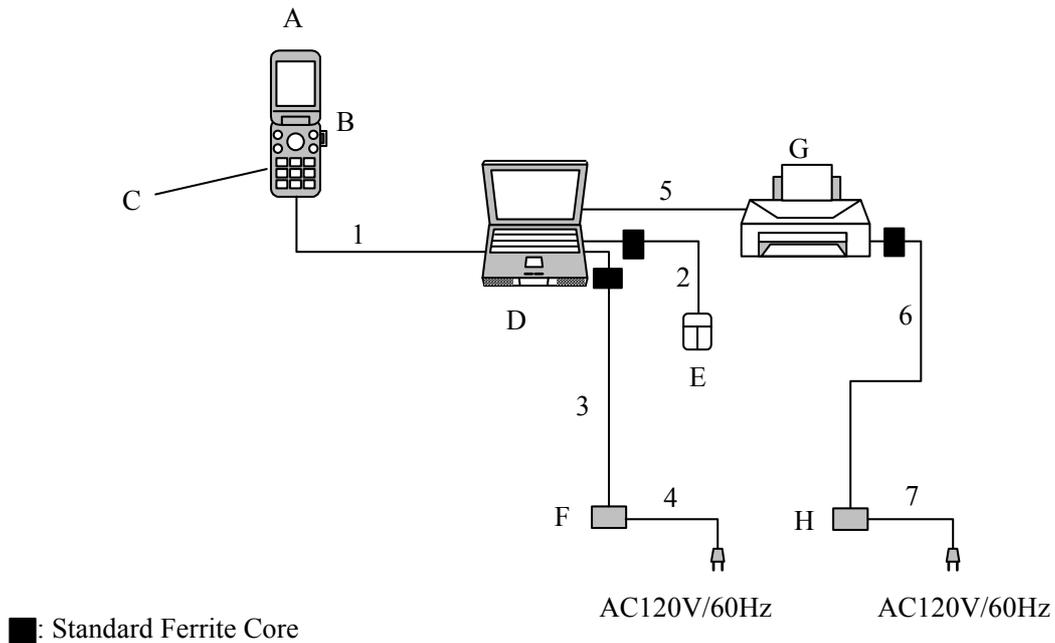
Refer to APPENDIX.

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	004SH	004401/11/303528/7	Sharp Corporation	EUT
B	microSD Memory Card	SD-MD008GA	-	TOSHIBA	-
C	Lithium-Ion Battery	SHBDK1	TIA	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 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: November 12, 2010

Test engineer: Tomotaka Sasagawa

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

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 noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

6.5 Test result

Summary of the test results: Pass

Date: November 12, 2010

Test engineer: Tomotaka Sasagawa

UL Japan, Inc.

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

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APPENDIX 1: Photographs of test setup

Conducted Emission

This page has been submitted for a separate exhibit.

Photo 2

Radiated Emission

This page has been submitted for a separate exhibit.

Photo 2

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

This page has been submitted for a separate exhibit.

Photo 2

APPENDIX 2: Data of EMI test

Conducted Emission

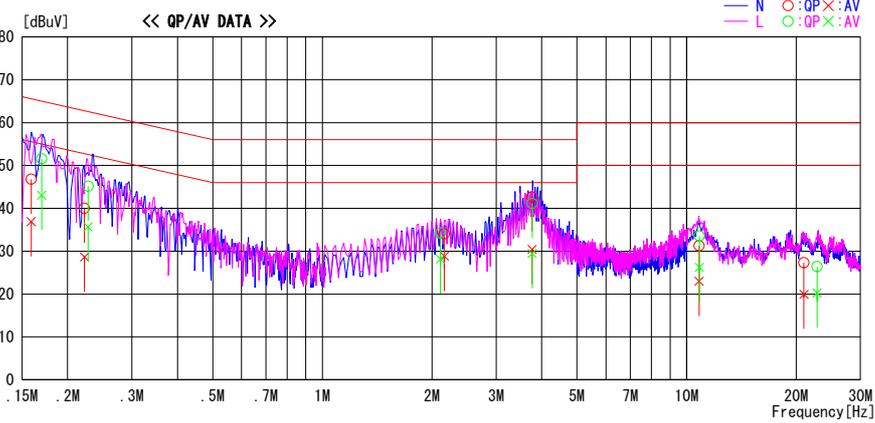
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Anechoic Chamber
Date : 2010/11/12

Report No. : 31DE0030-HO
Temp./Humi. : 23deg. C / 42%
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]		
0.15872	33.7	23.8	13.1	46.8	36.9	65.5	55.5	18.7	18.6	N	
0.22222	26.8	15.5	13.2	40.0	28.7	62.7	52.7	22.7	24.0	N	
2.16293	20.5	15.3	13.5	34.0	28.8	56.0	46.0	22.0	17.2	N	
3.76205	28.9	16.6	13.8	42.7	30.4	56.0	46.0	13.3	15.6	N	
10.82025	16.6	8.3	14.7	31.3	23.0	60.0	50.0	28.7	27.0	N	
20.97965	11.9	4.6	15.4	27.3	20.0	60.0	50.0	32.7	30.0	N	
0.16952	38.5	30.0	13.1	51.6	43.1	65.0	55.0	13.4	11.9	L	
0.22740	32.0	22.5	13.2	45.2	35.7	62.5	52.5	17.3	16.8	L	
2.10991	20.8	14.7	13.5	34.3	28.2	56.0	46.0	21.8	17.8	L	
3.76582	27.3	15.7	13.8	41.1	29.5	56.0	46.0	14.9	16.5	L	
10.84221	18.8	11.6	14.7	33.5	26.3	60.0	50.0	26.5	23.7	L	
22.80552	11.0	4.8	15.5	26.5	20.3	60.0	50.0	33.5	29.8	L	

CHART: WITH FACTOR, Peak hold data. CALCURATION: 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

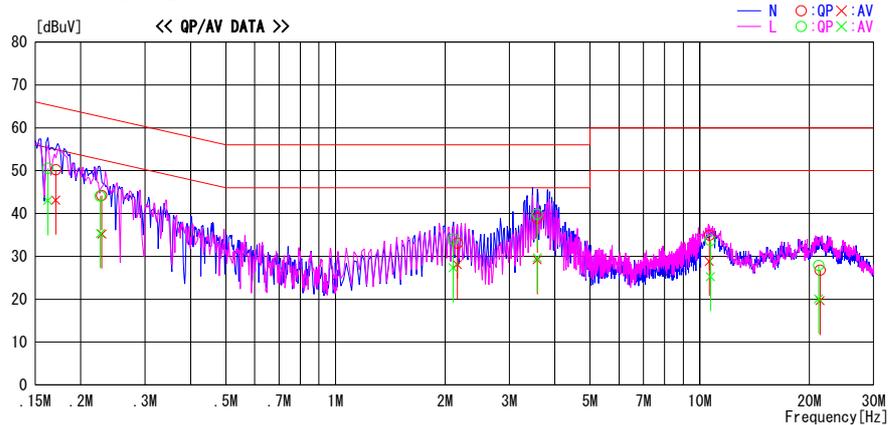
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Anechoic Chamber
Date : 2010/11/12

Report No. : 31DE0030-H0
Temp./Humi. : 23deg. C / 42%
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]		
0.17078	37.1	30.1	13.1	50.2	43.2	64.9	54.9	14.7	11.7	N	
0.22818	31.1	22.0	13.2	44.3	35.2	62.5	52.5	18.3	17.3	N	
2.15974	19.5	14.6	13.5	33.0	28.1	56.0	46.0	23.0	17.9	N	
3.57921	25.0	15.5	13.8	38.8	29.3	56.0	46.0	17.2	16.7	N	
10.62577	20.2	14.1	14.7	34.9	28.8	60.0	50.0	25.1	21.2	N	
21.39756	11.3	4.3	15.4	26.7	19.7	60.0	50.0	33.3	30.3	N	
0.16220	37.4	29.9	13.1	50.5	43.0	65.4	55.4	14.9	12.4	L	
0.22624	30.9	22.2	13.2	44.1	35.4	62.6	52.6	18.5	17.2	L	
2.10356	20.5	13.9	13.5	34.0	27.4	56.0	46.0	22.0	18.6	L	
3.58096	26.0	15.9	13.8	39.8	29.7	56.0	46.0	16.2	16.3	L	
10.69103	19.0	10.6	14.7	33.7	25.3	60.0	50.0	26.3	24.7	L	
21.18669	12.5	4.7	15.4	27.9	20.1	60.0	50.0	32.1	29.9	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.

Radiated Emission

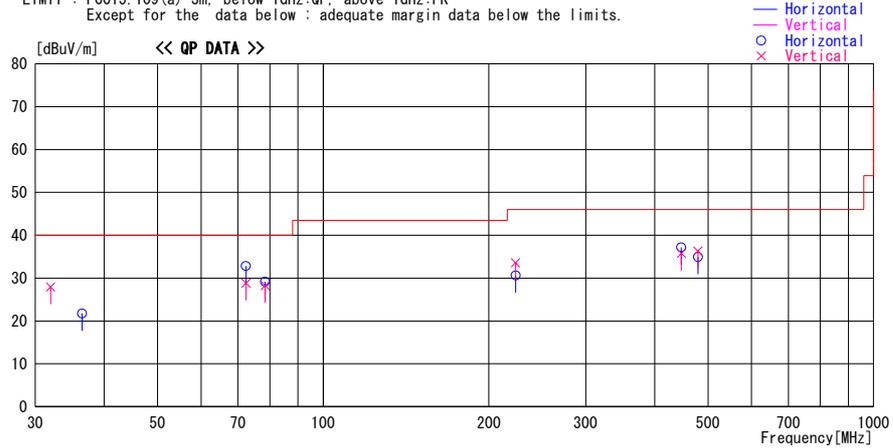
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 31DE0030-HO
Temp./Humi. : 23deg. C / 42%
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	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
31.971	44.4	QP	17.6	-34.0	28.0	0	100	Vert.	40.0	12.0	
36.493	39.5	QP	16.1	-33.9	21.7	36	100	Hori.	40.0	18.3	
72.371	55.4	QP	6.6	-33.2	28.8	111	100	Vert.	40.0	11.2	
72.402	59.4	QP	6.6	-33.2	32.8	316	271	Hori.	40.0	7.2	
78.430	55.8	QP	6.5	-33.1	29.2	299	221	Hori.	40.0	10.8	
78.424	54.9	QP	6.5	-33.1	28.3	237	100	Vert.	40.0	11.7	
223.681	44.5	QP	16.9	-30.8	30.6	305	160	Hori.	46.0	15.4	
223.686	47.5	QP	16.9	-30.8	33.6	337	100	Vert.	46.0	12.4	
447.368	48.0	QP	18.3	-29.1	37.2	227	100	Hori.	46.0	8.8	
447.368	46.5	QP	18.3	-29.1	35.7	17	100	Vert.	46.0	10.3	
479.316	46.8	QP	18.5	-29.0	36.3	30	100	Vert.	46.0	9.7	
479.329	45.4	QP	18.5	-29.0	34.9	219	100	Hori.	46.0	11.1	

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

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

Radiated Emission

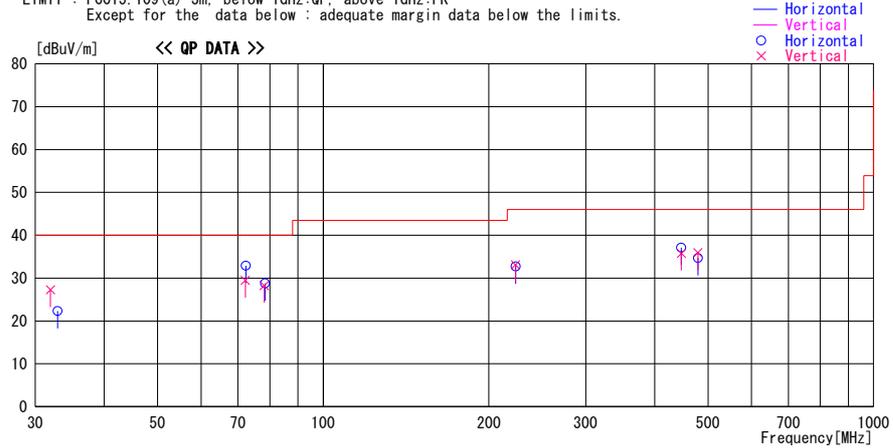
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 31DE0030-HO
Temp./Humi. : 23deg. C / 42%
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	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
32.934	39.0	QP	17.3	-34.0	22.3	188	100	Hori.	40.0	17.7	
31.955	43.7	QP	17.6	-34.0	27.3	351	100	Vert.	40.0	12.7	
72.375	59.5	QP	6.6	-33.2	32.9	336	216	Hori.	40.0	7.1	
72.204	56.1	QP	6.6	-33.2	29.5	14	100	Vert.	40.0	10.5	
78.424	55.4	QP	6.5	-33.1	28.8	336	229	Hori.	40.0	11.2	
78.156	54.9	QP	6.5	-33.1	28.3	235	100	Vert.	40.0	11.7	
223.686	46.7	QP	16.9	-30.8	32.8	358	206	Hori.	46.0	13.3	
223.707	47.0	QP	16.9	-30.8	33.1	13	100	Vert.	46.0	12.9	
447.356	47.9	QP	18.3	-29.1	37.1	223	100	Hori.	46.0	8.9	
447.295	46.6	QP	18.3	-29.1	35.8	12	100	Vert.	46.0	10.2	
479.315	46.5	QP	18.5	-29.0	36.0	15	100	Vert.	46.0	10.0	
479.330	45.2	QP	18.5	-29.0	34.7	224	100	Hori.	46.0	11.3	

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

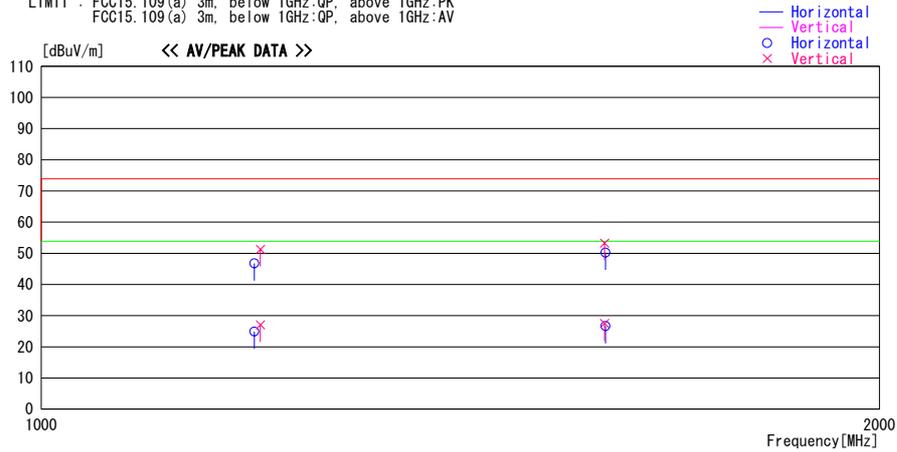
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 31DE0030-H0
Temp./Humi. : 23deg. C / 42%
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	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]							
1192.384	57.4	PK	24.5	-35.1	46.8	0	100	Hori.	73.9	27.1	
1192.384	35.5	AV	24.5	-35.1	24.9	0	100	Hori.	53.9	29.0	
1198.432	37.6	AV	24.6	-35.1	27.1	11	100	Vert.	53.9	26.8	
1198.432	61.8	PK	24.6	-35.1	51.3	11	100	Vert.	73.9	22.6	
1594.433	59.1	PK	25.6	-34.5	50.2	0	100	Hori.	73.9	23.7	
1593.183	36.5	AV	25.6	-34.5	27.6	23	100	Vert.	53.9	26.3	
1593.183	62.2	PK	25.6	-34.5	53.3	23	100	Vert.	73.9	20.6	
1594.433	35.6	AV	25.6	-34.5	26.7	0	100	Hori.	53.9	27.2	

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

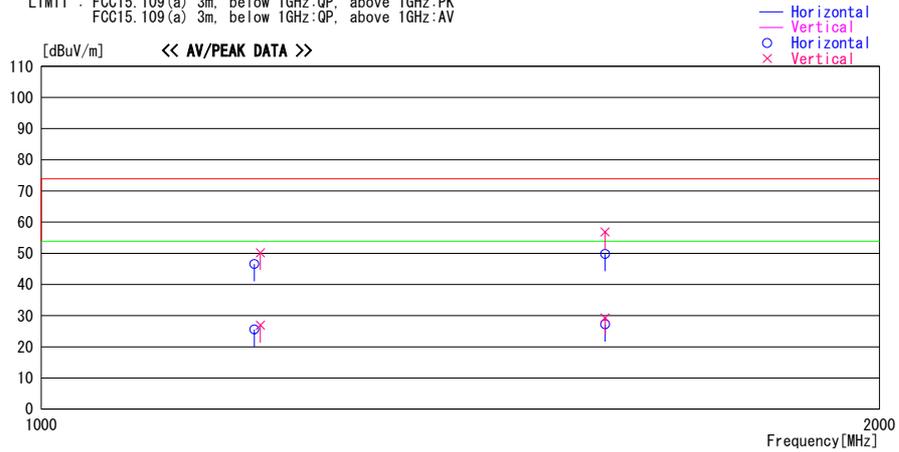
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 31DE0030-H0
Temp./Humi. : 23deg. C / 42%
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	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
1192.441	57.2	PK	24.5	-35.1	46.6	12	100	Hori.	73.9	27.3	
1192.441	36.2	AV	24.5	-35.1	25.6	12	100	Hori.	53.9	28.3	
1198.457	37.4	AV	24.6	-35.1	26.9	22	100	Vert.	53.9	27.0	
1198.457	60.7	PK	24.6	-35.1	50.2	22	100	Vert.	73.9	23.7	
1593.848	58.7	PK	25.6	-34.5	49.8	22	100	Hori.	73.9	24.1	
1593.820	38.2	AV	25.6	-34.5	29.3	17	100	Vert.	53.9	24.6	
1593.820	65.8	PK	25.6	-34.5	56.9	17	100	Vert.	73.9	17.0	
1593.848	36.1	AV	25.6	-34.5	27.2	22	100	Hori.	53.9	26.7	

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.

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	2010/07/02 * 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
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032007	RE	2010/10/16 * 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	2010/03/23 * 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	2010/02/12 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	8127384	CE(AE)	2010/07/28 * 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-64	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2010/02/04 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	8127383	CE(EUT)	2010/07/04 * 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

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