



EMI TEST REPORT

Test Report No. : 30LE0193-HO

Applicant : Sharp Corporation, Communication Systems Group
Type of Equipment : Cellular Phone
Model No. : CDMA SH010
FCC ID : APYHRO00128
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:

July 23, 2010

Representative test engineer:

Hiroyuki Furutaka
Engineer of EMC Service

Approved by:

Mitsuru Fujimura
Manager 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.

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MF060b (10.05.10)

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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 : +81-824-20-1630
Facsimile Number : +81-824-20-1624
Contact Person : Hachiro Hidaka

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

2.1 Identification of E.U.T.

Type of Equipment : Cellular Phone
Model No. : CDMA SH010
Serial No. : Refer to Section 4, Clause 4.2
Receipt Date of Sample : July 22, 2010
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 : CDMA SH010 is 1XEV-DO Hybrid CDMA Tri-Band Cellular Phone.
CDMA SH010 is designed by Sharp Corporation exclusively for au,
a cellular phone carrier owned by KDDI corporation in Japan

Clock frequency(ies) in the system : CPU: 19.2MHz
RTC: 32.768kHz
Inner: 768MHz

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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

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] 14.9dB 0.20596MHz, N [AV] 10.6dB 0.41712MHz, N	Complied
Radiated emission	FCC: ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	5.3dB 108.640MHz 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)		
	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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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

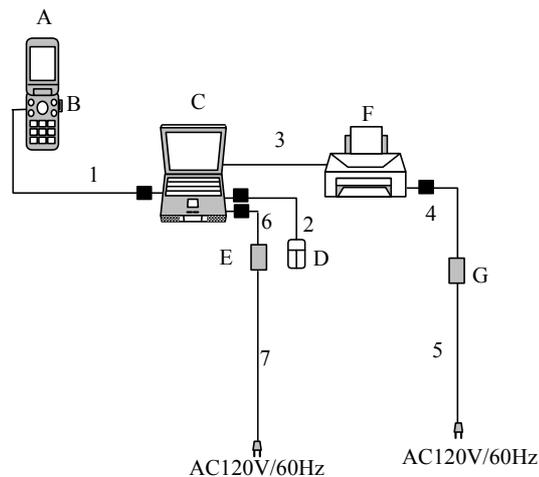
Refer to APPENDIX.

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) USB Data Stand-by 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	CDMA SH010	SSHEE000508	Sharp Corporation	EUT
B	microSD Memory Card	(64MB type)	SR7CA057962	Panasonic	-
C	Personal Computer	DELL PP10L	8LH3H1X	DELL	-
D	Mouse	X05-87477	53121-576-0600186-00000	Microsoft	-
E	AC Adapter (PC)	AA22850	-	DELL	-
F	Printer	C6414A	CNOB11C1H2	Hewlett-Packard	-
G	AC Adapter (Printer)	C6409-60014	AA21210	Hewlett-Packard	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB Data Cable	0.8	Shielded	Shielded	-
2	Mouse Cable	2.0	Unshielded	Unshielded	-
3	Pararell Cable	3.0	Shielded	Shielded	-
4	DC Power Cable (Printer)	1.9	Unshielded	Unshielded	-
5	AC Power Cable (Printer)	2.0	Unshielded	Unshielded	-
6	DC Power Cable (PC)	1.9	Unshielded	Unshielded	-
7	AC Power Cable (PC)	0.9	Unshielded	Unshielded	-

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SECTION 5: Conducted Emission

5.1 Operating environment

Test place : No.4 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.

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: July 23, 2010

Test engineer: Hiroyuki Furutaka

UL Japan, Inc.

Head Office EMC Lab.

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SECTION 6: Radiated Emission

6.1 Operating environment

Test place : No.4 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 -5000MHz (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: July 23, 2010

Test engineer: Hiroyuki Furutaka

UL Japan, Inc.

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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

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APPENDIX 2: Data of EMI test

Conducted Emission

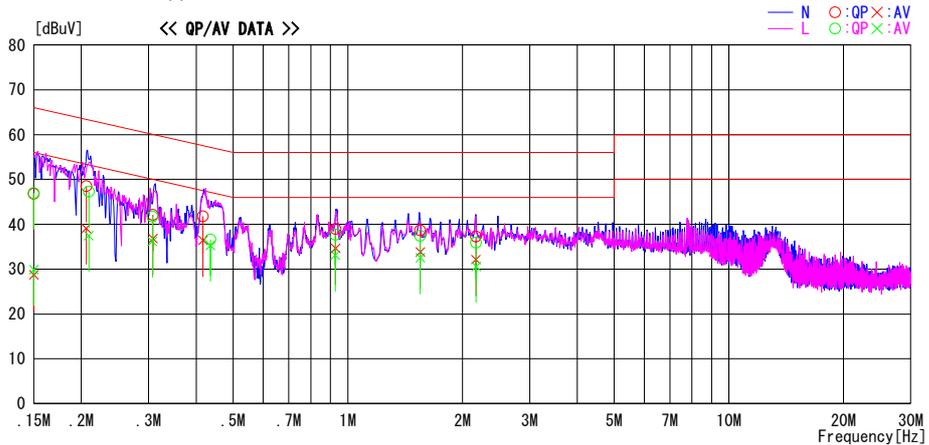
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2010/07/23

Report No. : 30LE0193-HO
Temp./Humi. : 23deg.C / 61%
Engineer : Hiroyuki Furutaka

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]		
0.15000	33.6	15.5	13.2	46.8	28.7	66.0	56.0	19.2	27.3	N	
0.20596	35.2	25.8	13.3	48.5	39.1	63.4	53.4	14.9	14.3	N	
0.30816	28.8	23.5	13.3	42.1	36.8	60.0	50.0	17.9	13.2	N	
0.41696	28.5	23.1	13.3	41.8	36.4	57.5	47.5	15.7	11.1	N	
0.92842	25.7	21.3	13.3	39.0	34.6	56.0	46.0	17.0	11.4	N	
1.54908	25.3	20.5	13.3	38.6	33.8	56.0	46.0	17.4	12.2	N	
2.17024	24.0	18.8	13.3	37.3	32.1	56.0	46.0	18.7	13.9	N	
0.15000	33.8	16.7	13.2	47.0	29.9	66.0	56.0	19.0	26.1	L	
0.20911	34.0	24.2	13.3	47.3	37.5	63.2	53.2	15.9	15.7	L	
0.30716	28.4	22.9	13.3	41.7	36.2	60.0	50.0	18.3	13.8	L	
0.43621	23.3	22.0	13.3	36.6	35.3	57.1	47.1	20.5	11.8	L	
0.92792	24.4	19.8	13.3	37.7	33.1	56.0	46.0	18.3	12.9	L	
1.54931	24.1	19.2	13.3	37.4	32.5	56.0	46.0	18.6	13.5	L	
2.17061	22.6	17.3	13.3	35.9	30.6	56.0	46.0	20.1	15.4	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 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.

Conducted Emission

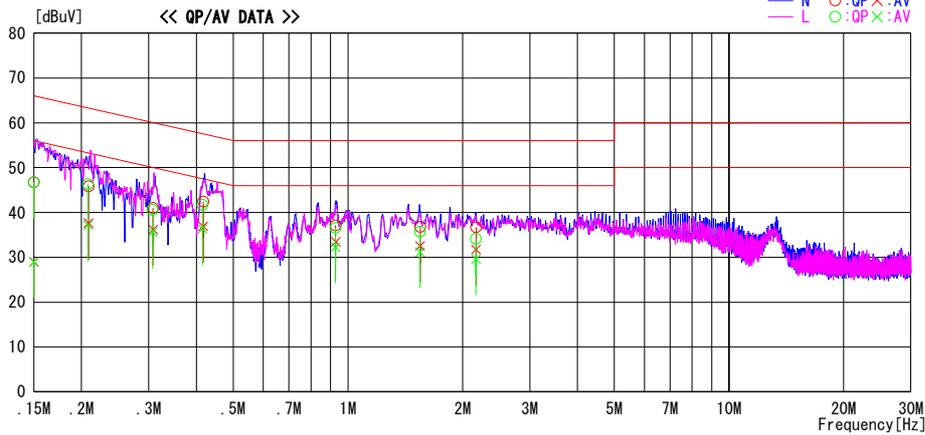
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/07/23

Report No. : 30LE0193-H0
Temp./Humi. : 23deg.C / 61%
Engineer : Hiroyuki Furutaka

Mode / Remarks : USB Data Stand-by 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]		
0.15000	33.5	15.8	13.2	46.7	29.0	66.0	56.0	19.3	27.0	N	
0.20858	32.5	24.3	13.3	45.8	37.6	63.3	53.3	17.5	15.7	N	
0.30798	27.7	22.9	13.3	41.0	36.2	60.0	50.0	19.0	13.8	N	
0.41712	29.1	23.6	13.3	42.4	36.9	57.5	47.5	15.1	10.6	N	
0.92848	23.8	20.1	13.3	37.1	33.4	56.0	46.0	18.9	12.6	N	
1.54851	23.5	19.2	13.3	36.8	32.5	56.0	46.0	19.2	13.5	N	
2.17008	23.4	18.4	13.3	36.7	31.7	56.0	46.0	19.3	14.3	N	
0.15000	33.5	15.8	13.2	46.7	29.0	66.0	56.0	19.3	27.0	L	
0.20792	33.0	23.9	13.3	46.3	37.2	63.3	53.3	17.0	16.1	L	
0.30722	27.3	22.3	13.3	40.6	35.6	60.0	50.0	19.4	14.4	L	
0.41564	28.4	23.0	13.3	41.7	36.3	57.5	47.5	15.8	11.2	L	
0.92764	23.2	19.0	13.3	36.5	32.3	56.0	46.0	19.5	13.7	L	
1.54552	22.4	17.9	13.3	35.7	31.2	56.0	46.0	20.3	14.8	L	
2.16642	20.8	16.3	13.3	34.1	29.6	56.0	46.0	21.9	16.4	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 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

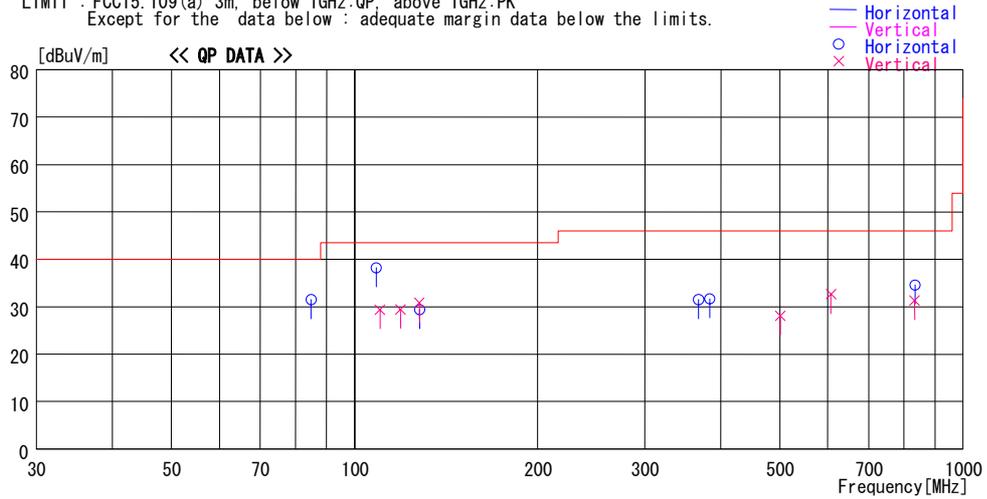
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2010/07/23

Report No. : 30LE0193-HO
Temp./Humi. : 24deg. C / 62%
Engineer : Hiroyuki Furutaka

Mode / Remarks: USB Data Com Mode Worst axis (Hori:Z, Vert:Z)

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]							
84.828	48.5	QP	7.3	-24.3	31.5	289	212	Hori.	40.0	8.5	
108.640	50.6	QP	11.6	-24.0	38.2	265	186	Hori.	43.5	5.3	
110.120	41.4	QP	11.9	-23.9	29.4	296	100	Vert.	43.5	14.1	
119.020	40.2	QP	13.1	-23.8	29.5	293	100	Vert.	43.5	14.0	
127.819	39.3	QP	13.8	-23.7	29.4	289	148	Hori.	43.5	14.1	
127.818	40.7	QP	13.8	-23.7	30.8	254	100	Vert.	43.5	12.7	
367.461	36.2	QP	17.1	-21.8	31.5	207	100	Hori.	46.0	14.5	
383.449	36.1	QP	17.3	-21.7	31.7	7	100	Hori.	46.0	14.3	
500.720	30.1	QP	19.1	-21.1	28.1	195	123	Vert.	46.0	17.9	
607.123	33.0	QP	20.2	-20.6	32.6	352	100	Vert.	46.0	13.4	
834.469	30.3	QP	23.3	-19.0	34.6	254	100	Hori.	46.0	11.4	
832.909	27.0	QP	23.3	-19.0	31.3	16	100	Vert.	46.0	14.7	

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

*The limit is rounded down to one decimal place.

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

Radiated Emission

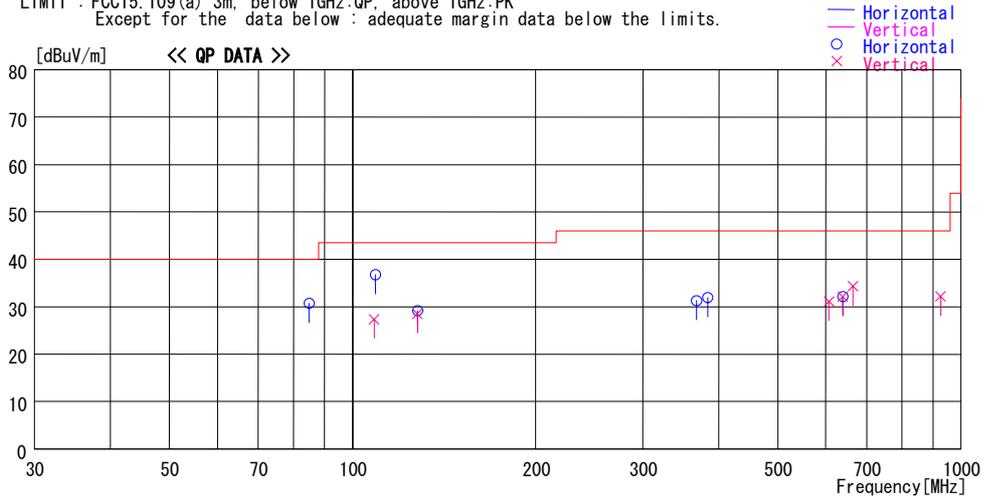
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2010/07/23

Report No. : 30LE0193-HO
Temp./Humi. : 24deg. C / 62%
Engineer : Hiroyuki Furutaka

Mode / Remarks : USB Data Stand-by Mode Worst axis (Hori:Z , Vert:Z)

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]							
84.830	47.7	QP	7.3	-24.3	30.7	267	243	Hori.	40.0	9.3	
108.547	39.8	QP	11.6	-24.0	27.4	286	100	Vert.	43.5	16.1	
109.040	49.0	QP	11.7	-23.9	36.8	261	158	Hori.	43.5	6.7	
127.818	39.1	QP	13.8	-23.7	29.2	297	150	Hori.	43.5	14.3	
127.826	38.4	QP	13.8	-23.7	28.5	246	100	Vert.	43.5	15.0	
367.471	36.0	QP	17.1	-21.8	31.3	210	100	Hori.	46.0	14.7	
383.442	36.3	QP	17.3	-21.7	31.9	6	100	Hori.	46.0	14.1	
607.125	31.5	QP	20.2	-20.6	31.1	175	155	Vert.	46.0	14.9	
639.078	31.9	QP	20.9	-20.6	32.2	79	121	Hori.	46.0	13.8	
639.082	31.8	QP	20.9	-20.6	32.1	26	162	Vert.	46.0	13.9	
664.506	33.3	QP	21.4	-20.4	34.3	348	100	Vert.	46.0	11.7	
926.660	25.9	QP	24.6	-18.3	32.2	144	100	Vert.	46.0	13.8	

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

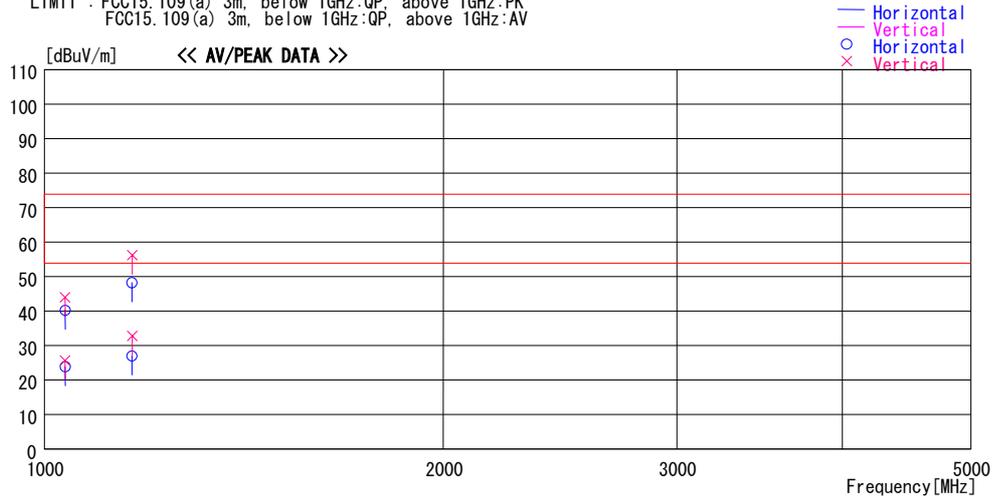
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2010/07/23

Report No. : 30LE0193-HO
Temp./Humi. : 24deg. C / 62%
Engineer : Hiroyuki Furutaka

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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss & Gain [dB]							
1036.633	52.8	PK	23.7	-32.5	44.0	354	126	Vert.	73.9	29.9	
1036.633	34.4	AV	23.7	-32.5	25.6	354	126	Vert.	53.9	28.3	
1036.667	49.0	PK	23.7	-32.5	40.2	75	100	Hori.	73.9	33.7	
1036.667	32.7	AV	23.7	-32.5	23.9	75	100	Hori.	53.9	30.0	
1164.330	34.9	AV	24.2	-32.0	27.1	43	100	Hori.	53.9	26.9	
1164.330	56.1	PK	24.2	-32.0	48.3	43	100	Hori.	73.9	25.6	
1165.250	40.5	AV	24.2	-32.0	32.7	222	100	Vert.	53.9	21.2	
1165.250	64.0	PK	24.2	-32.0	56.2	222	100	Vert.	73.9	17.7	

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

*The limit is rounded down to one decimal place.

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

Radiated Emission

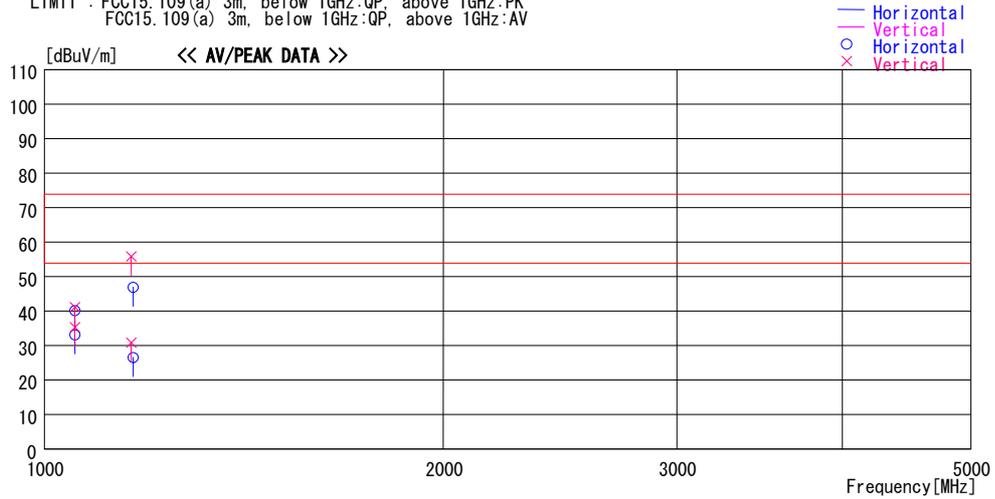
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2010/07/23

Report No. : 30LE0193-HO
Temp./Humi. : 24deg. C / 62%
Engineer : Hiroyuki Furutaka

Mode / Remarks : USB Data Stand-by 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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss & Gain [dB]							
1054.523	49.9	PK	23.7	-32.5	41.1	187	100	Vert.	73.9	32.9	
1054.523	44.1	AV	23.7	-32.5	35.3	187	100	Vert.	53.9	18.7	
1054.387	48.9	PK	23.7	-32.5	40.1	122	120	Hori.	73.9	33.8	
1054.387	41.9	AV	23.7	-32.5	33.1	122	120	Hori.	53.9	20.8	
1166.580	34.4	AV	24.2	-32.0	26.6	113	100	Hori.	53.9	27.3	
1166.580	54.7	PK	24.2	-32.0	46.9	113	100	Hori.	73.9	27.1	
1162.950	38.7	AV	24.2	-32.0	30.9	216	147	Vert.	53.9	23.0	
1162.950	63.6	PK	24.2	-32.0	55.8	216	147	Vert.	73.9	18.1	

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.

APPENDIX 3: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	CE/RE	2010/02/02 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	CE/RE	2010/02/09 * 12
MJM-07	Measure	PROMART	SEN1955	-	CE/RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	CE/RE	-
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	CE/RE	2009/12/15 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	CE/RE	2009/10/23 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(EUT)	2010/02/04 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	8127364	CE(AE)	2010/02/05 * 12
MTA-31	Terminator	TME	CT-01	-	CE	2010/01/20 * 12
MAT-67	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2010/02/04 * 12
MCC-113	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/SFM141(5m)/421-010(1m)/sucoform141-PE(1m)/RFM-E121(Switcher)	-/04178	CE	2010/07/21 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2010/03/22 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2010/01/23 * 12
MCC-50	Coaxial cable	UL Japan	-	-	RE	2010/03/18 * 12
MAT-51	Attenuator(6dB)	Weinschel	2	AS3557	RE	2010/01/20 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2010/03/05 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2009/08/10 * 12
MCC-57	Microwave Cable	Suhner	SUCOFLEX104	246769(1m) / 292411(5m)	RE	2009/11/17 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2010/03/16 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2009/08/25 * 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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