

EMI TEST REPORT

Test Report No. : 30LE0192-HO

Applicant : Sharp Corporation, Communication Systems Group
Type of Equipment : Cellular Phone
Model No. : CDMA SH009
FCC ID : APYHRO00127
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 22 and 23, 2010

**Representative test
engineer:**



Hisayoshi Sato
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/mar1/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

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 SH009
Serial No. : Refer to Section 4, Clause 4.2
Receipt Date of Sample : July 22, 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

Feature of EUT : CDMA SH009 is 1XEV-DO Hybrid CDMA Tri-Band Cellular Phone.
CDMA SH009 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] 14.6dB 0.20672MHz, L [AV] 9.0dB 0.41511MHz, L	Complied
Radiated emission	FCC: ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	4.6dB 109.750MHz 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.

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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	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
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	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

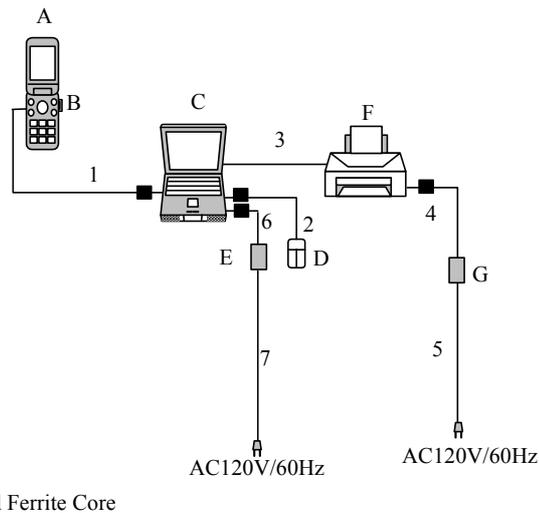
Refer to APPENDIX.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating mode

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



*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 SH009	SSHEB000593	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.

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: July 23, 2010

Test engineer: Hisayoshi Sato

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

6.5 Test result

Summary of the test results: Pass

Date: July 22 and 23, 2010

Test engineer: Hisayoshi Sato

UL Japan, Inc.

Head Office EMC Lab.

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

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APPENDIX 1: Photographs of test setup

Conducted Emission

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Radiated Emission

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

This page has been submitted for a separate exhibit.

APPENDIX 2: Data of EMI test

Conducted Emission

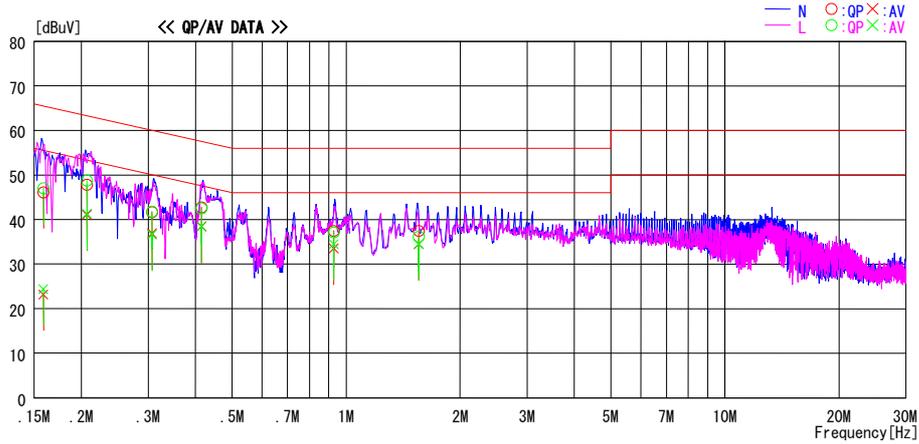
DATA OF CONDUCTED EMISSION TEST

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

Report No. : 30LE0192-HO
Temp./Humi. : 24deg. C. / 59%
Engineer : Hisayoshi Sato

Mode / Remarks : USB Data Com 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]		
0.15870	32.9	10.0	13.2	46.1	23.2	65.5	55.5	19.4	-32.3	N	
0.20672	34.5	27.8	13.3	47.8	41.1	63.3	53.3	15.5	12.2	N	
0.30719	28.3	23.6	13.3	41.6	36.9	60.0	50.0	18.4	13.2	N	
0.41511	29.5	25.1	13.3	42.8	38.4	57.5	47.5	14.7	9.1	N	
0.92782	24.2	20.2	13.3	37.5	33.5	56.0	46.0	18.5	12.5	N	
1.55470	24.2	21.2	13.3	37.5	34.5	56.0	46.0	18.5	11.5	N	
0.15870	33.8	11.2	13.2	47.0	24.4	65.5	55.5	18.5	31.1	L	
0.20672	35.4	28.0	13.3	48.7	41.3	63.3	53.3	14.6	12.0	L	
0.30719	28.5	23.3	13.3	41.8	36.6	60.0	50.0	18.2	13.4	L	
0.41511	29.2	25.2	13.3	42.5	38.5	57.5	47.5	15.0	9.0	L	
0.92780	23.8	21.2	13.3	37.1	34.5	56.0	46.0	18.9	11.5	L	
1.55470	22.8	21.2	13.3	36.1	34.5	56.0	46.0	19.9	11.5	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

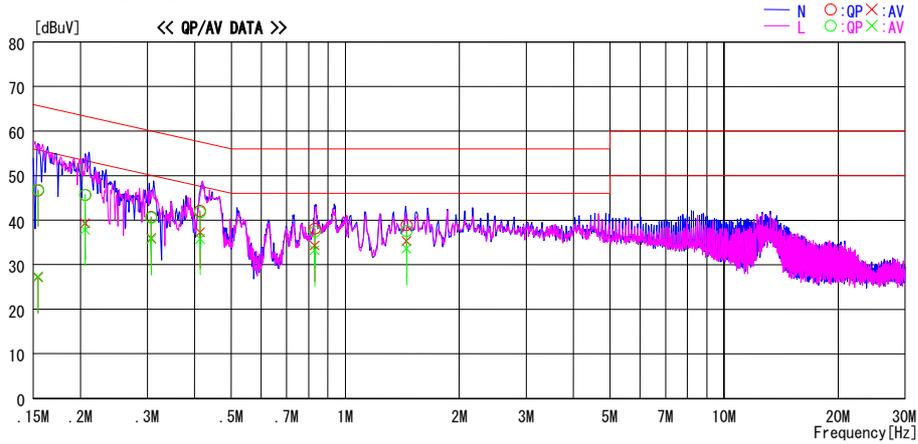
DATA OF CONDUCTED EMISSION TEST

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

Report No. : 30LE0192-HO
 Temp./Humi. : 24deg.C / 59%
 Engineer : Hisayoshi Sato

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]		
0.15435	33.5	14.0	13.2	46.7	27.2	65.8	55.8	19.1	28.6	N	
0.20568	32.4	26.0	13.3	45.7	39.3	63.4	53.4	17.7	14.1	N	
0.30725	27.4	22.6	13.3	40.7	35.9	60.0	50.0	19.3	14.1	N	
0.41395	28.8	24.0	13.3	42.1	37.3	57.6	47.6	15.5	10.3	N	
0.82979	24.8	21.0	13.3	38.1	34.3	56.0	46.0	17.9	11.7	N	
1.45112	25.6	22.0	13.3	38.9	35.3	56.0	46.0	17.1	10.7	N	
0.15435	33.6	14.2	13.2	46.8	27.4	65.8	55.8	19.0	28.4	L	
0.20565	32.4	24.5	13.3	45.7	37.8	63.4	53.4	17.7	15.6	L	
0.30725	27.3	22.5	13.3	40.6	35.8	60.0	50.0	19.4	14.2	L	
0.41395	28.5	22.5	13.3	41.8	35.8	57.6	47.6	15.8	11.8	L	
0.82979	24.2	20.0	13.3	37.5	33.3	56.0	46.0	18.5	12.7	L	
1.45112	24.3	20.3	13.3	37.6	33.6	56.0	46.0	18.4	12.4	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

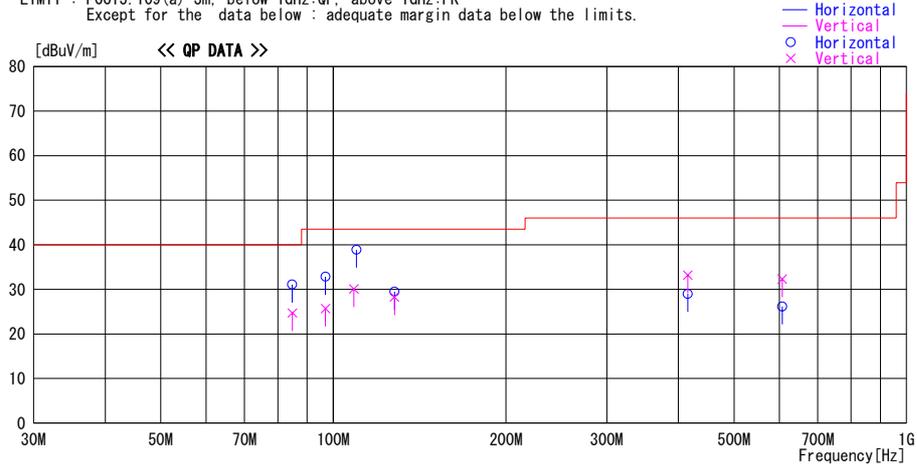
UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2010/07/22

Report No. : 30LE0192-HO

Temp./Humi. : 24deg.C / 59%
Engineer : Hisayoshi Sato

Mode / Remarks : USB Data Com Mode Worst axis (Hor: Y-axis, Ver: Y-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	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
84.809	48.1	QP	7.3	-24.3	31.1	244	199	Hori.	40.0	8.9	
84.820	41.7	QP	7.3	-24.3	24.7	185	298	Vert.	40.0	15.3	
96.933	47.3	QP	9.6	-24.1	32.8	243	198	Hori.	43.5	10.7	
96.941	40.2	QP	9.6	-24.1	25.7	185	298	Vert.	43.5	17.8	
108.603	42.5	QP	11.6	-24.0	30.1	290	100	Vert.	43.5	13.4	
109.750	51.0	QP	11.8	-23.9	38.9	260	179	Hori.	43.5	4.6	
127.817	38.2	QP	13.8	-23.7	28.3	89	111	Vert.	43.5	15.2	
127.822	39.4	QP	13.8	-23.7	29.5	297	246	Hori.	43.5	14.0	
415.390	36.9	QP	17.8	-21.5	33.2	160	100	Vert.	46.0	12.8	
415.410	32.7	QP	17.8	-21.5	29.0	119	100	Hori.	46.0	17.0	
607.115	32.7	QP	20.2	-20.6	32.3	349	100	Vert.	46.0	13.7	
607.120	26.6	QP	20.2	-20.6	26.2	100	100	Hori.	46.0	19.8	

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

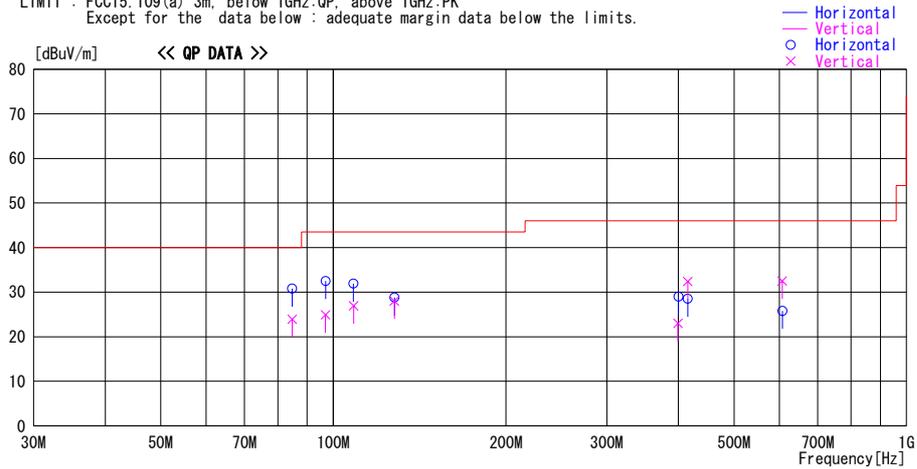
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Temp./Humi. : 24deg.C / 59%
Engineer : Hisayoshi Sato

Mode / Remarks : USB Data Stand-by Mode Worst axis (Hor: Y-axis, Ver: Y-axis)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
84.811	47.8	QP	7.3	-24.3	30.8	244	199	Hori.	40.0	9.2	
84.815	40.9	QP	7.3	-24.3	23.9	185	298	Vert.	40.0	16.1	
96.936	39.4	QP	9.6	-24.1	24.9	185	298	Vert.	43.5	18.6	
96.965	47.0	QP	9.6	-24.1	32.5	243	198	Hori.	43.5	11.0	
108.485	39.3	QP	11.6	-24.0	26.9	290	100	Vert.	43.5	16.6	
108.423	44.3	QP	11.6	-24.0	31.9	260	179	Hori.	43.5	11.6	
127.789	37.9	QP	13.8	-23.7	28.0	89	111	Vert.	43.5	15.5	
127.824	38.7	QP	13.8	-23.7	28.8	297	246	Hori.	43.5	14.7	
415.389	32.2	QP	17.8	-21.5	28.5	119	100	Hori.	46.0	17.5	
415.322	36.1	QP	17.8	-21.5	32.4	160	100	Vert.	46.0	13.6	
607.193	26.2	QP	20.2	-20.6	25.8	100	100	Hori.	46.0	20.2	
607.121	32.9	QP	20.2	-20.6	32.5	349	100	Vert.	46.0	13.5	
400.102	33.1	QP	17.5	-21.6	29.0	70	100	Hori.	46.0	17.0	
399.448	27.1	QP	17.5	-21.6	23.0	290	100	Vert.	46.0	23.0	

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

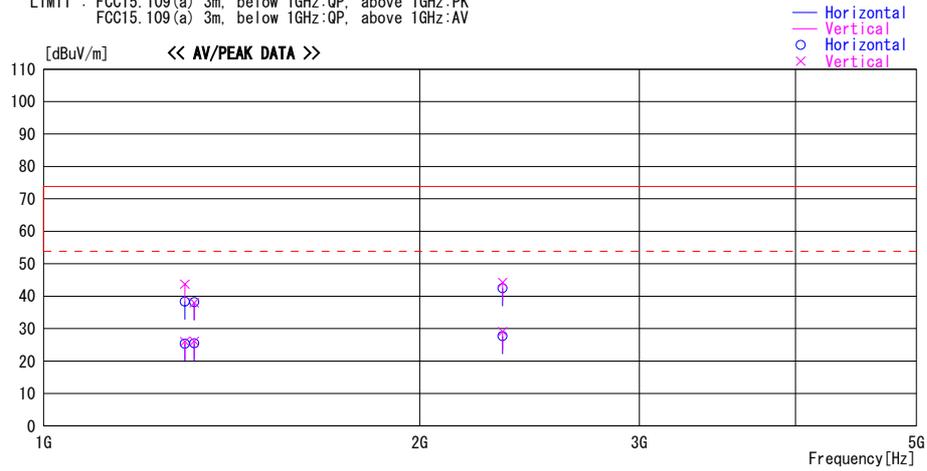
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/07/23

Report No. : 30LE0192-HO

Temp./Humi. : 24deg.C / 59%
Engineer : Hisayoshi Sato

Mode / Remarks : USB Data Com Mode Worst axis (Hor: Y-axis, Ver: Y-axis)

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]	
1297.321	32.2	AV	24.6	-31.5	25.3	67	100	Hori.	53.9	28.6	
1297.321	45.2	PK	24.6	-31.5	38.3	67	100	Hori.	73.9	35.6	
1297.432	50.6	PK	24.6	-31.5	43.7	67	100	Vert.	73.9	30.2	
1297.432	32.9	AV	24.6	-31.5	26.0	67	100	Vert.	53.9	27.9	
1320.000	45.0	PK	24.7	-31.5	38.2	67	100	Hori.	73.9	35.7	
1320.000	32.9	AV	24.7	-31.5	26.1	67	100	Vert.	53.9	27.8	
1320.000	32.3	AV	24.7	-31.5	25.5	67	100	Hori.	53.9	28.4	
1320.000	44.8	PK	24.7	-31.5	38.0	67	100	Vert.	73.9	35.9	
2329.933	45.2	PK	26.6	-29.3	42.5	171	100	Hori.	73.9	31.4	
2329.933	30.4	AV	26.6	-29.3	27.7	171	100	Hori.	53.9	26.2	
2330.563	46.9	PK	26.6	-29.3	44.2	271	100	Vert.	73.9	29.7	
2330.563	31.8	AV	26.6	-29.3	29.1	271	100	Vert.	53.9	24.8	

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

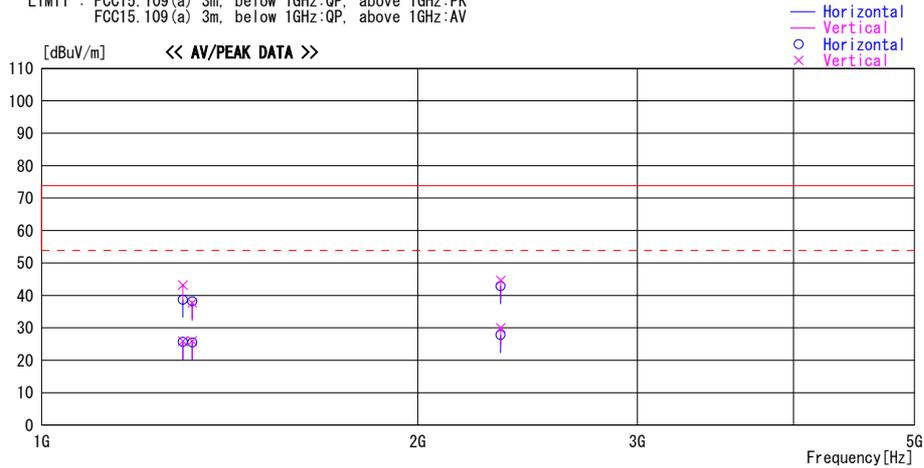
UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2010/07/23

Report No. : 30LE0192-H0

Temp./Humi. : 24deg. C / 59%
Engineer : Hisayoshi Sato

Mode / Remarks : USB Data Stand-by Mode Worst axis (Hor: Y-axis, Ver: Y-axis)

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]	
1297.378	32.6	AV	24.6	-31.5	25.7	67	100	Hori.	53.9	28.2	
1297.378	45.6	PK	24.6	-31.5	38.7	67	100	Hori.	73.9	35.2	
1297.441	50.1	PK	24.6	-31.5	43.2	67	100	Vert.	73.9	30.7	
1297.441	32.8	AV	24.6	-31.5	25.9	67	100	Vert.	53.9	28.0	
1320.000	45.0	PK	24.7	-31.5	38.2	67	100	Hori.	73.9	35.7	
1320.000	32.8	AV	24.7	-31.5	26.0	67	100	Vert.	53.9	27.9	
1320.000	32.3	AV	24.7	-31.5	25.5	67	100	Hori.	53.9	28.4	
1320.000	44.5	PK	24.7	-31.5	37.7	67	100	Vert.	73.9	36.2	
2329.945	45.6	PK	26.6	-29.3	42.9	171	100	Hori.	73.9	31.0	
2329.945	30.5	AV	26.6	-29.3	27.8	171	100	Hori.	53.9	26.1	
2331.002	47.3	PK	26.6	-29.3	44.6	271	100	Vert.	73.9	29.3	
2331.002	32.7	AV	26.6	-29.3	30.0	271	100	Vert.	53.9	23.9	

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

*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	RE/CE	2010/02/02 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE/CE	2010/02/09 * 12
MJM-07	Measure	PROMART	SEN1955	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	RE/CE	2009/12/15 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	RE/CE	2009/10/23 * 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
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
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

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