EMI TEST REPORT

Test Report No. : 31AE0119-HO-B

Applicant	:	**Sharp Corporation, Communication Systems Group.**
Type of Equipment	:	**Cellular Phone**
Model No.	:	**SH-02C**
FCC ID	:	**APYHRO00130**
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: September 27, 2010

Representative test engineer:

K. Kawamura

Keisuke Kawamura
Engineer of EMC Service

Approved by:

M. Fujimura

Mitsuru Fujimura
Manager of EMC Service

NVLAP®

NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address,
http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

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SECTION 1: Customer information

Company Name	:	Sharp Corporation, Communication Systems Group.
Address	:	2-13-1 Iida Hachihonmatsu HigashiHiroshima-City, Hiroshima, 739-0192 Japan
Telephone Number	:	+81-82-420-1825
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-02C
Serial No.	:	Refer to Section 4, Clause 4.2
Receipt Date of Sample	:	September 27, 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	:	Tetra-band (800/850/1700/2000)WCDMA & GSM Dual mode Cellular Phone / Felica & 1.5GHz Band Satellite Receiver (GPS) enable - GSM (EU:900/1800M, 1900M) - WCDMA (EU:2000M, USA:850, JPN: 800/2000)
Clock frequency(ies) in the system	:	48MHz (Oscilator), 500.5MHz (CPU Clock)

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	ANSI C63.4: 2003 7. AC powerline conducted emission measurements	Class B	N/A	**[QP]** 11.6dB 3.80662MHz, N **[AV]** 14.7dB 2.16519MHz, N	Complied
Radiated emission	ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	5.4dB 798.001MHz, Vertical, 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**						
	(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.

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

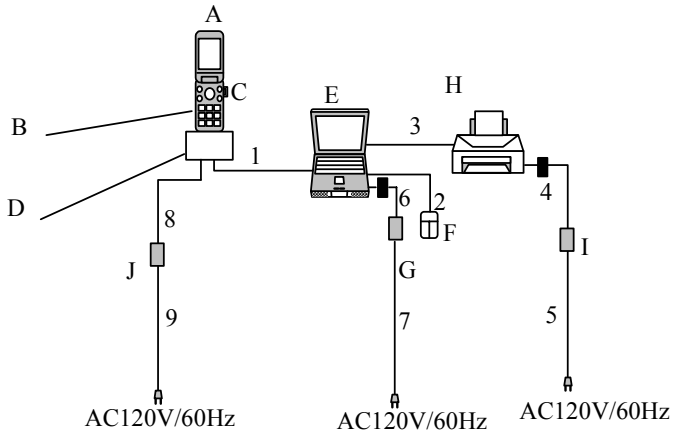
Refer to APPENDIX.

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

4.1 Operating mode(s)

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-02C	004401112865171	Sharp Corporation	EUT
B	Lithium-Ion Battery	Battery Pack SH23	-	Sharp Corporation	EUT
C	microSD Memory Card	SD-C08G	0831U49492Y	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	-

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: September 27, 2010 Test engineer: Keisuke Kawamura

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 -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 and Y axes of EUT to see the position of maximum noise, and the test was made at representative X-axis since no difference was found among each position.

6.5 Test result

Summary of the test results: Pass

Date: September 27, 2010 Test engineer: Keisuke Kawamura

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.

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

This page has been submitted for a separate exhibit.

APPENDIX 2: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

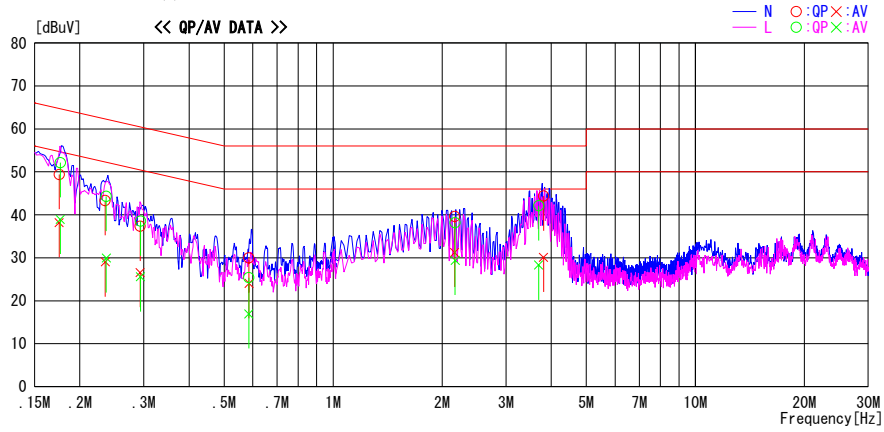
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2010/09/27

Report No. : 31AE0119-HO

Temp./Humi. : 21deg.C /56%
Engineer : Keisuke Kawamura

Mode / Remarks : USB Data Com Mode

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



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.17535	36.2	25.0	13.2	49.4	38.2	64.7	54.7	15.3	16.5	N	
0.23496	30.0	15.7	13.3	43.3	29.0	62.3	52.3	19.0	23.3	N	
0.29324	24.1	13.3	13.3	37.4	26.6	60.4	50.4	23.0	23.8	N	
0.58547	16.7	10.7	13.3	30.0	24.0	56.0	46.0	26.0	22.0	N	
2.16519	26.1	17.8	13.5	39.6	31.3	56.0	46.0	16.4	14.7	N	
3.80662	30.6	16.3	13.8	44.4	30.1	56.0	46.0	11.6	15.9	N	
0.17655	39.0	25.8	13.2	52.2	39.0	64.6	54.6	12.4	15.6	L	
0.23630	31.0	16.7	13.3	44.3	30.0	62.2	52.2	17.9	22.2	L	
0.29389	25.3	12.3	13.3	38.6	25.6	60.4	50.4	21.8	24.9	L	
0.58497	12.1	3.7	13.3	25.4	17.0	56.0	46.0	30.7	29.0	L	
2.17070	24.6	15.9	13.5	38.1	29.4	56.0	46.0	17.9	16.6	L	
3.69415	28.3	14.5	13.8	42.1	28.3	56.0	46.0	13.9	17.7	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

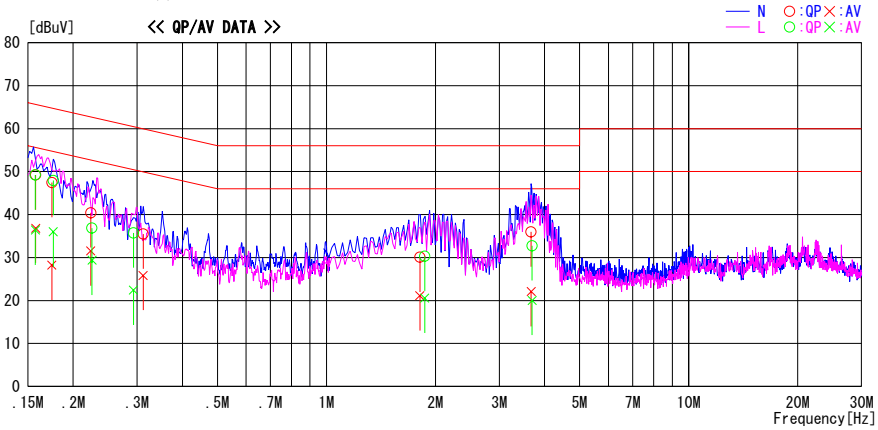
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2010/09/27

Report No. : 31AE0119-HO

Temp./Humi. : 21deg.C /56%
Engineer : Keisuke Kawamura

Mode / Remarks : Standby Mode

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



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15752	36.0	23.7	13.2	49.2	36.9	65.6	55.6	16.4	18.8	N	
0.17445	34.3	15.0	13.2	47.5	28.2	64.7	54.7	17.2	26.5	N	
0.22352	27.2	18.3	13.2	40.4	31.5	62.7	52.7	22.3	21.2	N	
0.31172	22.2	12.6	13.3	35.5	25.9	59.9	49.9	24.5	24.0	N	
1.80943	16.6	7.6	13.5	30.1	21.1	56.0	46.0	25.9	24.9	N	
3.67010	22.2	8.3	13.8	36.0	22.1	56.0	46.0	20.0	23.9	N	
0.15711	36.0	23.2	13.2	49.2	36.4	65.6	55.6	16.4	19.2	L	
0.17605	34.7	22.8	13.2	47.9	36.0	64.7	54.7	16.8	18.7	L	
0.22525	23.7	16.2	13.2	36.9	29.4	62.6	52.6	25.8	23.2	L	
0.29314	22.4	9.1	13.3	35.7	22.4	60.4	50.4	24.7	28.0	L	
1.86634	16.8	7.1	13.5	30.3	20.6	56.0	46.0	25.7	25.4	L	
3.69807	18.9	6.3	13.8	32.7	20.1	56.0	46.0	23.3	25.9	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 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

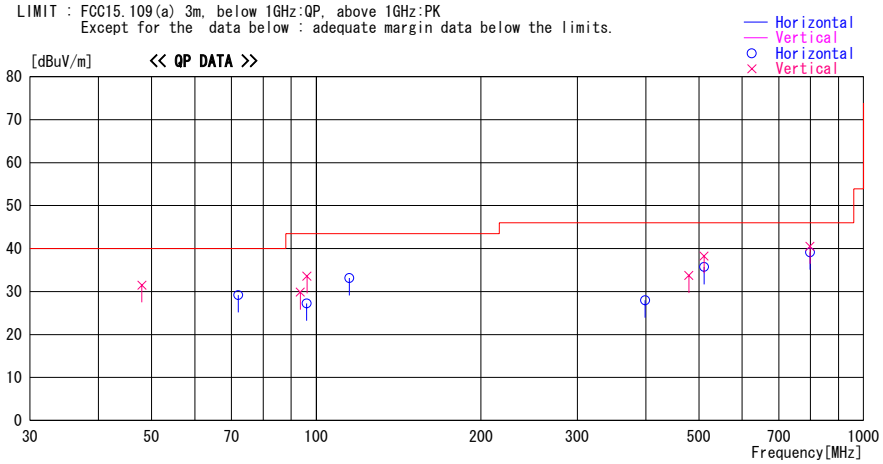
UL Japan, Inc. Head Office EMC Lab. No.1 Anechoic Chamber
Date : 2010/09/27

Report No. : 31AE0119-HO

Temp./Humi. : 21deg. C / 56%
Engineer : Keisuke Kawamura

Mode / Remarks : USB Data Com Mode Worst-Axis(Hori:X / Vert:X)

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



Frequency	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]	
48.019	53.6	QP	11.5	-33.6	31.5	66	100	Vert.	40.0	8.5	
72.028	55.9	QP	6.5	-33.2	29.2	100	258	Hori.	40.0	10.8	
93.517	53.9	QP	8.8	-32.8	29.9	49	100	Vert.	43.5	13.6	
96.143	56.9	QP	9.3	-32.6	33.6	157	108	Vert.	43.5	9.9	
96.012	50.6	QP	9.3	-32.6	27.3	67	192	Hori.	43.5	16.3	
114.950	53.2	QP	12.2	-32.3	33.1	350	159	Hori.	43.5	10.4	
399.078	39.9	QP	17.5	-29.4	28.0	204	100	Hori.	46.0	18.0	
479.323	44.6	QP	18.1	-29.0	33.7	359	116	Vert.	46.0	12.3	
511.275	46.1	QP	18.4	-28.8	35.7	348	100	Hori.	46.0	10.3	
511.275	48.7	QP	18.4	-28.8	38.3	17	113	Vert.	46.0	7.7	
798.066	44.0	QP	22.0	-26.9	39.1	351	117	Hori.	46.0	6.9	
798.021	45.4	QP	22.0	-26.9	40.5	93	151	Vert.	46.0	5.5	

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

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

Radiated Emission

DATA OF RADIATED EMISSION TEST

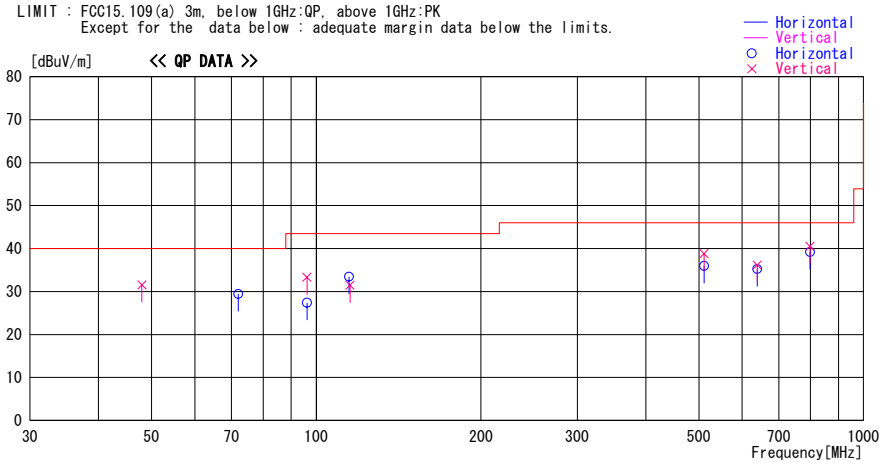
UL Japan, Inc. Head Office EMC Lab. No.1 Anechoic Chamber
Date : 2010/09/27

Report No. : 31AE0119-HO

Temp./Humi. : 21deg. C / 56%
Engineer : Keisuke Kawamura

Mode / Remarks : Standby Mode Worst-Axis(Hori:X / Vert:X)

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



Frequency	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]	
48.017	53.7	QP	11.5	-33.6	31.6	85	100	Vert.	40.0	8.4	
72.023	56.1	QP	6.5	-33.2	29.4	93	253	Hori.	40.0	10.6	
96.142	56.6	QP	9.3	-32.6	33.3	151	112	Vert.	43.5	10.2	
96.145	50.7	QP	9.3	-32.6	27.4	64	186	Hori.	43.5	16.1	
115.251	51.6	QP	12.2	-32.3	31.5	117	100	Vert.	43.5	12.0	
114.740	53.6	QP	12.2	-32.3	33.5	346	163	Hori.	43.5	10.0	
511.277	49.3	QP	18.4	-28.8	38.9	12	115	Vert.	46.0	7.1	
511.277	46.4	QP	18.4	-28.8	36.0	349	100	Hori.	46.0	10.0	
639.099	43.2	QP	20.0	-28.0	35.2	151	124	Hori.	46.0	10.8	
639.099	44.2	QP	20.0	-28.0	36.2	21	100	Vert.	46.0	9.8	
798.001	44.1	QP	22.0	-26.9	39.2	350	114	Hori.	46.0	6.8	
798.001	45.5	QP	22.0	-26.9	40.6	91	161	Vert.	46.0	5.4	

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.

Radiated Emission

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UL Japan, Inc. Head Office EMC Lab. No.1 Anechoic Chamber
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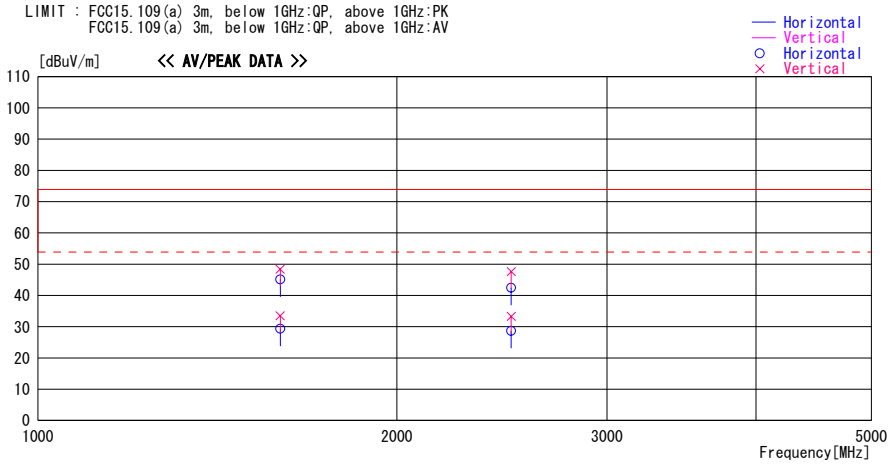
Temp./Humi. : 21deg. C / 56%
Engineer : Keisuke Kawamura

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	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]	
1595.952	42.6	AV	25.6	-34.6	33.6	7	100	Vert.	53.9	20.4	
1595.952	57.4	PK	25.6	-34.6	48.4	7	100	Vert.	73.9	25.5	
1595.952	54.2	PK	25.6	-34.6	45.2	235	100	Hori.	73.9	28.8	
1595.952	38.4	AV	25.6	-34.6	29.4	235	100	Hori.	53.9	24.5	
2493.550	54.7	PK	27.0	-34.0	47.7	351	100	Vert.	73.9	26.2	
2493.550	40.3	AV	27.0	-34.0	33.3	351	100	Vert.	53.9	20.6	
2493.550	35.7	AV	27.0	-34.0	28.7	101	100	Hori.	53.9	25.2	
2493.550	49.4	PK	27.0	-34.0	42.4	101	100	Hori.	73.9	31.5	

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

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

Radiated Emission

DATA OF RADIATED EMISSION TEST

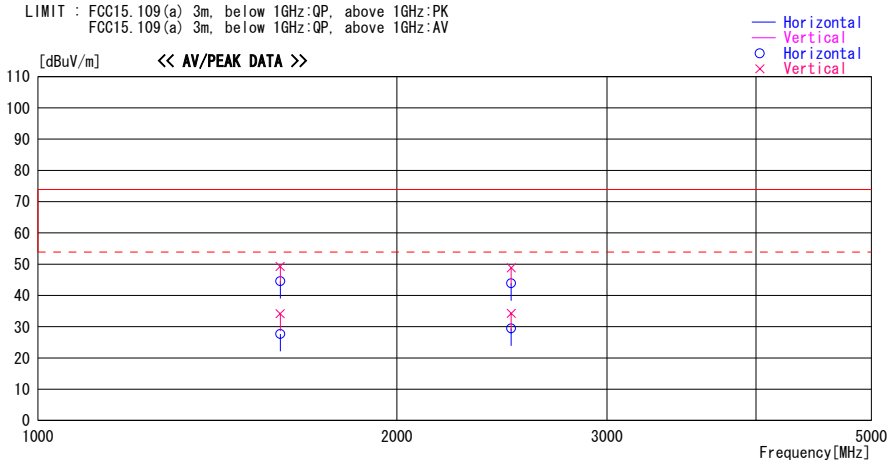
UL Japan, Inc. Head Office EMC Lab. No.1 Anechoic Chamber
Date : 2010/09/27

Report No. : 31AE0119-HO

Temp./Humi. : 21deg. C / 56%
Engineer : Keisuke Kawamura

Mode / Remarks : Standby Mode Worst-Axis(Hori:X / Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	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]	
1595.952	43.2	AV	25.6	-34.6	34.2	7	100	Vert.	53.9	19.7	
1595.952	58.3	PK	25.6	-34.6	49.3	7	100	Vert.	73.9	24.6	
1595.952	53.6	PK	25.6	-34.6	44.6	238	100	Hori.	73.9	29.3	
1595.952	36.7	AV	25.6	-34.6	27.7	238	100	Hori.	53.9	26.2	
2493.550	55.8	PK	27.0	-34.0	48.8	349	100	Vert.	73.9	25.1	
2493.550	41.3	AV	27.0	-34.0	34.3	349	100	Vert.	53.9	19.6	
2493.550	36.5	AV	27.0	-34.0	29.5	99	100	Hori.	53.9	24.5	
2493.550	50.9	PK	27.0	-34.0	43.9	99	100	Hori.	73.9	30.0	

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.

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	2010/02/09 * 12
MJM-04	Measure	PROMART	SEN1635	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	100084	RE/CE	2009/12/17 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032007	RE	2009/10/03 * 12
KLA-04	Logperiodic Antenna	Schwarzbeck	USLP9143	361	RE	2010/07/24 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2009/11/13 * 12
MCC-01	Coaxial Cable 0.1-3000MHz	Suhner/storm/Agilent/TSJ	-	-	RE	2009/10/09 * 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	233010(1m) / 292410(5m)	RE	2009/09/16 * 12
MPA-01	Pre Amplifier	Agilent	8449B	3008A01671	RE	2010/02/12 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	8127383	CE(AE)	2010/07/04 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	8127384	CE(EUT)	2010/07/28 * 12
MTA-31	Terminator	TME	CT-01	-	CE	2010/01/20 * 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

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