



EMI TEST REPORT

Test Report No. : 32FE0001-HO-B

Applicant : SHARP CORPORATION
Type of Equipment : Cellular Phone
Model No. : SH-06D (JN-DC52)
FCC ID : APYHRO00165
Test standard : FCC Part 15 Subpart B 2011 Class B
Test Result : Complied

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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: January 16, 2012

Representative test engineer:

Takeshi Choda
Engineer of WiSE Japan,
UL Verification Service

Approved by:

Masanori Nishiyama
Leader of WiSE Japan,
UL Verification Service



NVLAP LAB CODE: 200572-0

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

UL Japan, Inc.

Head Office EMC Lab.

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13-EM-F0429

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SECTION 1: Customer information

Company Name : SHARP CORPORATION
Address : 2-13-1 Iida, Hachihonmatsu, Higashi-Hiroshima City, Hiroshima,
739-0192 Japan
Telephone Number : +81-82-420-1826
Facsimile Number : +81-82-420-1829
Contact Person : Yoshihiko Minamiyama

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

2.1 Identification of E.U.T.

Type of Equipment : Cellular Phone
Model No. : SH-06D (JN-DC52)
Serial No. : Refer to Section 4, Clause 4.2
Receipt Date of Sample : January 11, 2012
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 : Quad-band (800/850/1700/2000)WCDMA & GSM Dual mode Cellular Phone /
Bluetooth / W-LAN, Felica & 1.5GHz Band Satellite Receiver (GPS) enable
- GSM (EU:900/1800M, 1900M)
- WCDMA (EU:2000M, US:850M, JPN: 800/1700/2000)
Clock frequency(ies) in the system : CPU: 1.2GHz
Source oscillation:48MHz

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test Specification : Test specification: FCC Part 15 Subpart B: 2011, final revised on November 21, 2011 and effective December 21, 2011

Title : FCC 47CFR Part15 Radio Frequency Device
Subpart B Unintentional Radiators

3.2 Procedures and results

Item	Test Procedure	Limits	Deviation	Worst margin	Result
Conducted emission	ANSI C63.4: 2003 7. AC powerline conducted emission measurements	Class B	N/A	[QP] 11.4dB 3.79493MHz, L [AV] 12.7dB 2.04442MHz, L	Complied
Radiated emission	ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	8.1dB 639.089MHz, Horizontal, QP	Complied

*Note: UL Japan, Inc's EMI Work Procedure 13-EM-W0420.

3.3 Addition to standard

No addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

EMI

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Test room (semi- anechoic chamber)	Conducted emission (+dB)
	150kHz-30MHz
No.1	3.5dB
No.2	3.6dB
No.3	3.6dB
No.4	3.6dB

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	4.2dB	5.0dB	5.1dB	4.7dB	5.7dB	4.4dB	4.3dB
No.2	4.1dB	5.2dB	5.1dB	4.8dB	5.6dB	4.3dB	4.2dB
No.3	4.5dB	5.0dB	5.2dB	4.8dB	5.6dB	4.5dB	4.2dB
No.4	4.7dB	5.2dB	5.2dB	4.8dB	5.6dB	5.1dB	4.2dB

*3m/1m/0.5m = Measurement distance

Conducted Emission test

The data listed in this test report has enough margin, more than the site margin.

Radiated emission test(3m)

The data listed in this test report has enough margin, more than the site margin.

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3.5 Test Location

UL Japan, Inc. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
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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

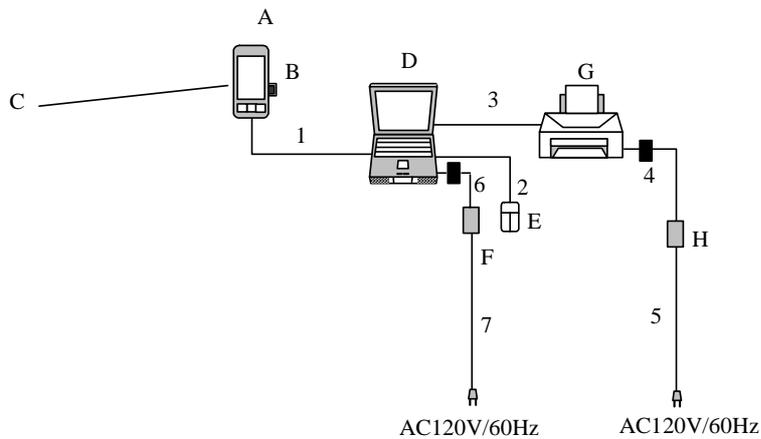
Refer to APPENDIX.

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

4.1 Operating modes

The mode(s) : 1) USB Data Com Mode
The USB data is communicated between EUT and Personal computer (Pair of EUT).
2) Standby Mode
Standby state for USB communication.

4.2 Configuration and peripherals



■ : Standard Ferrite Core

* Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Cellular Phone	SH-06D (JN-DC52)	004401113625111	Sharp Corporation	EUT
B	microSD Memory Card	SD-C16G	1137CW9461N	TOSHIBA	-
C	Lithium-Ion Battery	Battery Pack SH31	-	Sharp Corporation	EUT
D	Personal Computer	PP11L	CN-0D4571-48643-58P-1053	DELL	-
E	Mouse	M-UAG120	G83C0007F310	TOSHIBA	-
F	AC Adapter (PC)	PA-1650-05D2	CN-0F7970-71615-77H-0D63	DELL	-
G	Printer	C6410A	8G8BA1W18J	Hewlett Packard	-
H	AC Adaptor(Printer)	AT-3018A-0101	C4557-60004	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	0.71	Shielded	Shielded	-
3	Printer Cable	2.00	Shielded	Shielded	-
4	DC Power Cable(Printer)	2.00	Unshielded	Unshielded	-
5	AC Power Cable(Printer)	1.80	Unshielded	Unshielded	-
6	DC Power Cable(PC)	1.80	Unshielded	Unshielded	-
7	AC Power Cable(PC)	0.90	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 3.

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: January 16, 2012

Test engineer: Takeshi Choda

UL Japan, Inc.

Head Office EMC Lab.

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SECTION 6: Radiated Emission

6.1 Operating environment

Test place : No. 1 semi anechoic chamber
Temperature : See data
Humidity : See data

6.2 Test configuration

EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m, raised 0.8m above the conducting ground plane. The EUT was set on the edge of the tabletop.

Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

Photographs of the set up are shown in Appendix 3.

6.3 Test conditions

Frequency range : 30MHz-300MHz (Biconical antenna) / 300MHz-1000MHz (Logperiodic antenna)
1000MHz-10000MHz (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 test was made on EUT at the normal use position.

6.5 Test result

Summary of the test results: Pass

Date: January 16, 2012

Test engineer: Takeshi Choda

UL Japan, Inc.

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APPENDIX 1: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

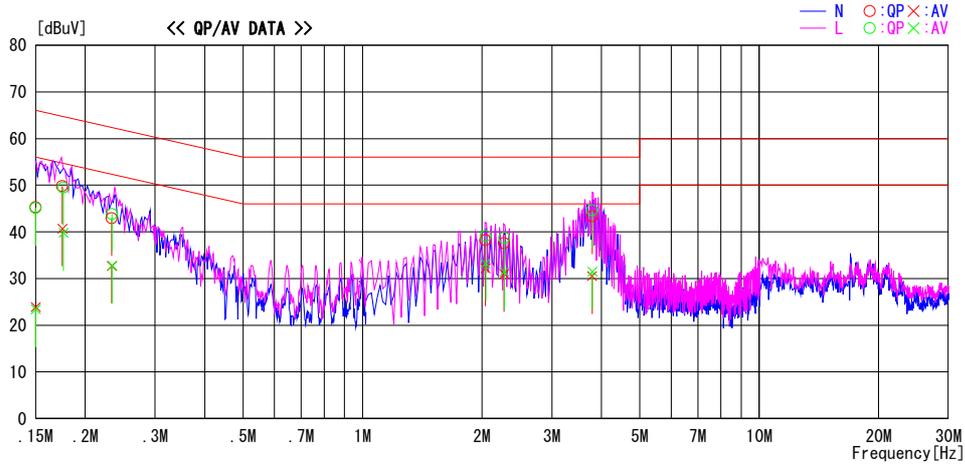
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2012/01/16

Report No. : 32FE0001-HO

Temp./Humi. : 22deg. C / 33% RH
Engineer : Takeshi Choda

Mode / Remarks : USB Data Com Mode

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



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15000	32.1	10.7	13.2	45.3	23.9	66.0	56.0	20.7	32.1	N	
0.17502	36.6	27.5	13.2	49.8	40.7	64.7	54.7	14.9	14.0	N	
0.23320	29.6	19.4	13.3	42.9	32.7	62.3	52.3	19.4	19.6	N	
2.04170	24.7	18.7	13.5	38.2	32.2	56.0	46.0	17.8	13.8	N	
2.27540	24.0	17.4	13.6	37.6	31.0	56.0	46.0	18.4	15.0	N	
3.79313	29.5	16.7	13.8	43.3	30.5	56.0	46.0	12.7	15.5	N	
0.15000	31.9	10.2	13.2	45.1	23.4	66.0	56.0	20.9	32.6	L	
0.17628	36.3	26.6	13.2	49.5	39.8	64.7	54.7	15.2	14.9	L	
0.23390	30.5	19.5	13.3	43.8	32.8	62.3	52.3	18.5	19.5	L	
2.04442	25.6	19.8	13.5	39.1	33.3	56.0	46.0	16.9	12.7	L	
2.27752	25.1	17.9	13.6	38.7	31.5	56.0	46.0	17.3	14.5	L	
3.79493	30.8	17.7	13.8	44.6	31.5	56.0	46.0	11.4	14.5	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT [dBuV] = READING [dBuV] + C. F [dB] (LISN LOSS + CABLE LOSS + ATTEN LOSS)
Except for the above table : adequate margin data below the limits.

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

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

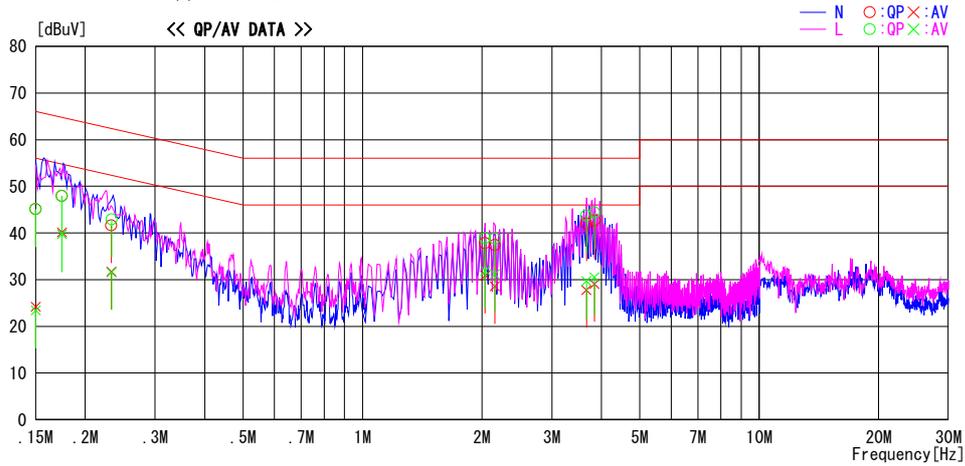
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2012/01/16

Report No. : 32FE0001-HO

Temp./Humi. : 22deg. C / 33% RH
Engineer : Takeshi Choda

Mode / Remarks : Standby Mode

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



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	31.9	11.0	13.2	45.1	24.2	66.0	56.0	20.9	31.8	N	
0.17468	34.7	26.9	13.2	47.9	40.1	64.7	54.7	16.8	14.6	N	
0.23268	28.3	18.4	13.3	41.6	31.7	62.4	52.4	20.8	20.7	N	
2.03664	24.3	17.4	13.5	37.8	30.9	56.0	46.0	18.2	15.1	N	
2.15380	23.8	15.0	13.6	37.4	28.6	56.0	46.0	18.6	17.4	N	
3.66610	28.2	14.0	13.8	42.0	27.8	56.0	46.0	14.0	18.2	N	
3.84086	28.9	15.3	13.8	42.7	29.1	56.0	46.0	13.3	16.9	N	
0.15000	31.9	10.2	13.2	45.1	23.4	66.0	56.0	20.9	32.6	L	
0.17472	34.7	26.5	13.2	47.9	39.7	64.7	54.7	16.8	15.0	L	
0.23297	29.6	18.3	13.3	42.9	31.6	62.3	52.3	19.4	20.7	L	
2.03747	25.4	18.4	13.5	38.9	31.9	56.0	46.0	17.1	14.1	L	
2.15397	25.2	17.6	13.6	38.8	31.2	56.0	46.0	17.2	14.8	L	
3.66720	29.9	15.9	13.8	43.7	29.7	56.0	46.0	12.3	16.3	L	
3.84166	30.6	16.7	13.8	44.4	30.5	56.0	46.0	11.6	15.5	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT [dBuV] = READING [dBuV] + C. F [dB] (LISN LOSS + CABLE LOSS + ATTEN LOSS)
Except for the above table : adequate margin data below the limits.

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

Radiated Emission (Below 1GHz)

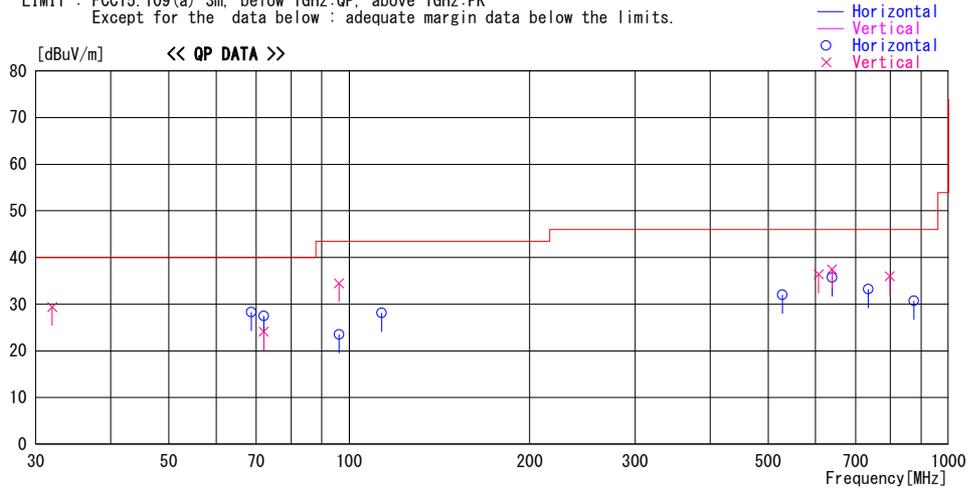
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2012/01/16

Report No. : 32FE0001-HO
Temp./Humi. : 22 deg. C / 33% RH
Engineer : Takeshi Choda

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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss&Gain [dB]							
31.954	43.3	QP	17.1	-31.0	29.4	213	100	Vert.	40.0	10.6	
68.639	52.0	QP	6.9	-30.6	28.3	160	249	Hori.	40.0	11.7	
72.020	51.5	QP	6.6	-30.6	27.5	99	249	Hori.	40.0	12.5	
72.020	48.1	QP	6.6	-30.6	24.1	226	100	Vert.	40.0	15.9	
96.134	55.5	QP	9.2	-30.2	34.5	176	100	Vert.	43.5	9.0	
96.135	44.5	QP	9.2	-30.2	23.5	212	172	Hori.	43.5	20.0	
113.300	46.1	QP	12.0	-30.0	28.1	163	155	Hori.	43.5	15.4	
527.988	39.2	QP	18.5	-25.7	32.0	359	200	Hori.	46.0	14.0	
607.135	41.8	QP	19.5	-24.9	36.4	351	100	Vert.	46.0	9.6	
639.089	42.3	QP	19.9	-24.7	37.5	344	100	Vert.	46.0	8.5	
639.090	40.5	QP	19.9	-24.7	35.7	161	120	Hori.	46.0	10.3	
734.952	36.1	QP	21.1	-24.0	33.2	159	100	Hori.	46.0	12.8	
797.941	37.6	QP	22.0	-23.6	36.0	60	165	Vert.	46.0	10.0	
875.001	31.5	QP	22.1	-22.9	30.7	195	100	Hori.	46.0	15.3	

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

*The limit is rounded down to one decimal place.

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

Radiated Emission (Below 1GHz)

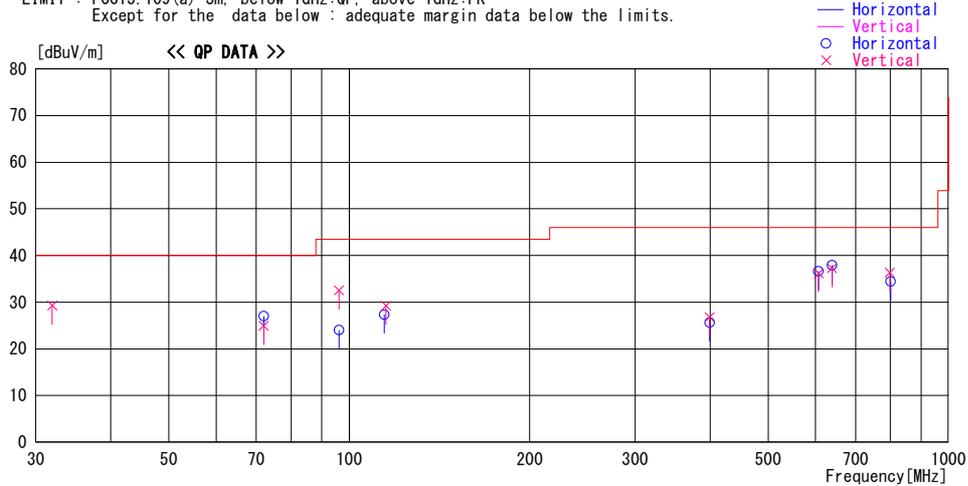
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2012/01/16

Report No. : 32FE0001-HO
Temp./Humi. : 22 deg. C / 33% RH
Engineer : Takeshi Choda

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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss&Gain [dB]							
31.954	43.2	QP	17.1	-31.0	29.3	206	100	Vert.	40.0	10.7	
72.019	48.9	QP	6.6	-30.6	24.9	221	100	Vert.	40.0	15.1	
72.020	51.0	QP	6.6	-30.6	27.0	106	249	Hori.	40.0	13.0	
96.134	53.5	QP	9.2	-30.2	32.5	185	100	Vert.	43.5	11.0	
96.134	45.0	QP	9.2	-30.2	24.0	223	308	Hori.	43.5	19.5	
114.409	45.1	QP	12.2	-30.0	27.3	215	268	Hori.	43.5	16.2	
115.198	46.9	QP	12.3	-30.0	29.2	146	100	Vert.	43.5	14.3	
399.070	36.0	QP	17.6	-26.8	26.8	192	126	Vert.	46.0	19.2	
399.844	34.8	QP	17.6	-26.8	25.6	9	100	Hori.	46.0	20.4	
607.135	41.6	QP	19.5	-24.9	36.2	348	100	Vert.	46.0	9.8	
607.134	42.0	QP	19.5	-24.9	36.6	157	126	Hori.	46.0	9.4	
639.089	42.1	QP	19.9	-24.7	37.3	346	100	Vert.	46.0	8.7	
639.089	42.7	QP	19.9	-24.7	37.9	156	122	Hori.	46.0	8.1	
797.890	37.9	QP	22.0	-23.6	36.3	39	166	Vert.	46.0	9.7	
800.806	36.0	QP	22.0	-23.6	34.4	132	100	Hori.	46.0	11.6	

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

*The limit is rounded down to one decimal place.

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

Radiated Emission
(Above 1GHz)

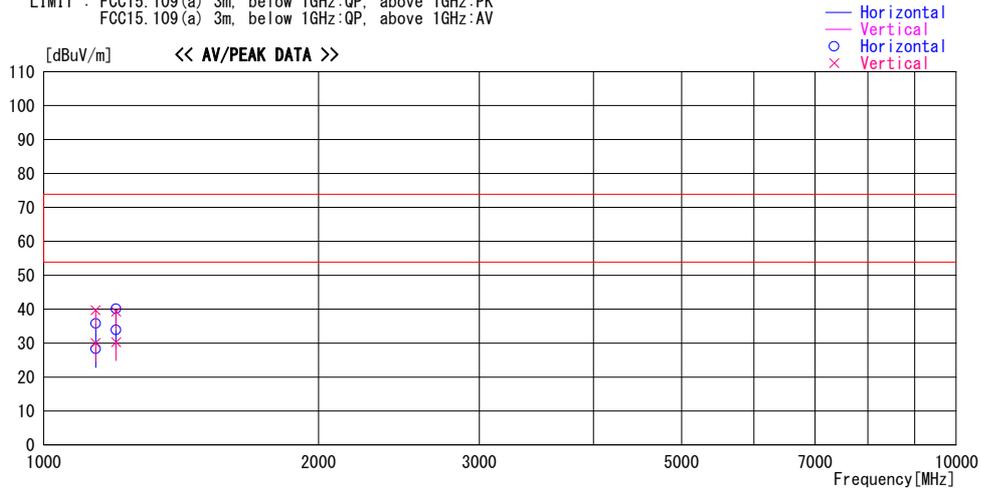
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2012/01/16

Report No. : 32FE0001-HO
Temp./Humi. : 22 deg. C / 33% RH
Engineer : Takeshi Choda

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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
1140.001	42.3	AV	24.2	-38.1	28.4	193	100	Hori.	53.9	25.5	
1140.001	44.0	AV	24.2	-38.1	30.1	359	100	Vert.	53.9	23.8	
1140.001	53.6	PK	24.2	-38.1	39.7	359	100	Vert.	73.9	34.2	
1140.001	49.7	PK	24.2	-38.1	35.8	193	100	Hori.	73.9	38.1	
1199.983	47.2	AV	24.6	-37.9	33.9	246	180	Hori.	53.9	20.0	
1199.983	52.6	PK	24.6	-37.9	39.3	198	136	Vert.	73.9	34.6	
1199.983	53.4	PK	24.6	-37.9	40.1	246	180	Hori.	73.9	33.8	
1199.983	43.6	AV	24.6	-37.9	30.3	198	136	Vert.	53.9	23.6	

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

*The limit is rounded down to one decimal place.

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

Radiated Emission
(Above 1GHz)

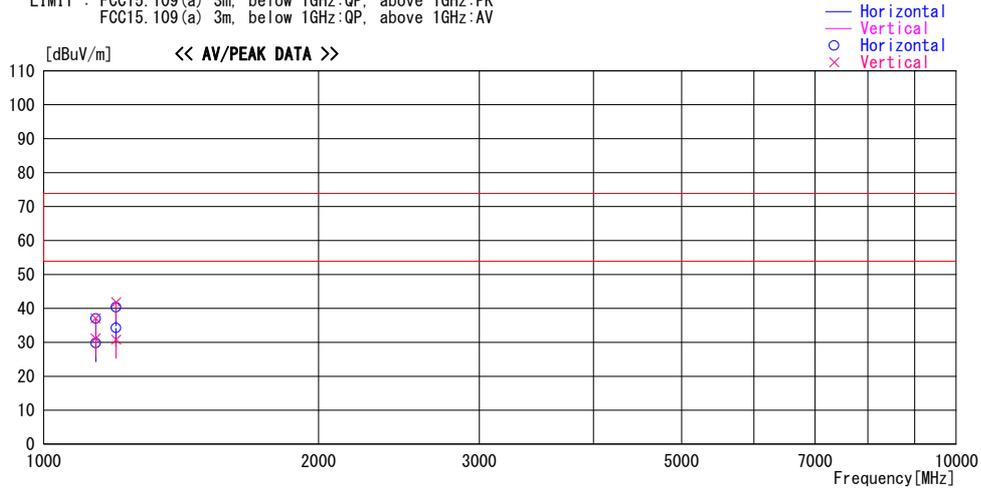
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2012/01/16

Report No. : 32FE0001-HO
Temp./Humi. : 22 deg. C / 33% RH
Engineer : Takeshi Choda

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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
1140.001	43.7	AV	24.2	-38.1	29.8	193	100	Hori.	53.9	24.1	
1140.001	45.1	AV	24.2	-38.1	31.2	182	100	Vert.	53.9	22.7	
1140.001	51.0	PK	24.2	-38.1	37.1	182	100	Vert.	73.9	36.8	
1140.001	50.9	PK	24.2	-38.1	37.0	193	100	Hori.	73.9	36.9	
1199.983	55.2	PK	24.6	-37.9	41.9	301	122	Vert.	73.9	32.0	
1199.983	47.5	AV	24.6	-37.9	34.2	196	178	Hori.	53.9	19.7	
1199.983	53.6	PK	24.6	-37.9	40.3	196	178	Hori.	73.9	33.6	
1199.983	44.1	AV	24.6	-37.9	30.8	301	122	Vert.	53.9	23.1	

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 2: 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	2011/07/10 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	MOS01	RE/CE	2011/02/23 * 12
MJM-01	Measure	KDS	ES19-55	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE/CE	2011/04/15 * 12
KBA-05	Biconical Antenna	Schwarzbeck	BBA9106	2513	RE	2011/11/23 * 12
KLA-04	Logperiodic Antenna	Schwarzbeck	USLP9143	361	RE	2011/11/23 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2011/11/02 * 12
MCC-02	Coaxial Cable	Suhner/storm/Agilent/ TSJ	-	-	RE	2011/09/17 * 12
MPA-19	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	RE	2011/02/28 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2011/02/15 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2011/06/19 * 12
MHA-01	Horn Antenna 18-26.5GHz	EMCO	3160-09	1266	RE	2011/06/20 * 12
MCC-134	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336167/4(1m) / 340641(5m)	RE	2011/09/07 * 12
AF-06	Pre Amplifier	Agilent	HP8449B	3008A01672	RE	2011/12/06 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	100084	CE	2011/12/27 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	8127383	CE(EUT)	2011/07/11 * 12
MLS-12	LISN	Kyoritsu	KNW-407	8-1851-3	CE(AE)	2011/12/12 * 12
MTA-30	Terminator	TME	CT-01	-	CE	2012/01/11 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/ 3D-2W(7.5m)/ RG400u(1.5m)/ RFM-E421(Switcher)	-/01068 (Switcher)	CE	2011/01/16 * 12
MAT-64	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2011/02/22 * 12

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with valid calibrations. Each measurement data 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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