



EMI TEST REPORT

Test Report No. : 29KE0053-HO-A

Applicant : Sharp Corporation, Communication Systems Group.
Type of Equipment : Cellular Phone
Model No. : SH-02B
FCC ID : APYHRO00110
Test regulation : FCC Part 15 Subpart B 2009 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 18 and 19, 2009

Tested by: T. Nakagawa
Tomohisa Nakagawa
EMC Services

K. Kawamura
Keisuke Kawamura
EMC Services

Approved by : H. Shimoji
Hironobu Shimoji
Assistant Manager of EMC Services



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://uljapan.co.jp/emc/nvlap.html>

UL Japan, Inc.

Head Office EMC Lab.

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

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MF060b (06.08.09)

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SECTION 1: Customer information

Company Name : Sharp Corporation, Communication Systems Group.
Brand Name : SHARP
Address : 2-13-1 Hachihonmatsu-iida Higashihiroshima-shi Hiroshima, 739-0192
Japan
Telephone Number : +81-82-420-1898
Facsimile Number : +81-82-420-1934
Contact Person : Keiji Inoue

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

2.1 Identification of E.U.T.

Type of Equipment : Cellular Phone
Model No. : SH-02B
Serial No. : 004401112155268
Rating : AC120V/60Hz, DC4.0V
Receipt Date of Sample : September 18, 2009
Country of Mass-production : Japan / China
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No Modification by the test lab

2.2 Product Description

Model No: SH-02B (referred to as the EUT in this report) is the Cellular Phone.

Feature of EUT: WCDMA & GSM Dual mode Cellular Phone / Bluetooth, Felica & 1.5GHz Band Satellite
Receiver (GPS) enable
-GSM: 850/900/1800/1900M
-WCDMA: 800/1700/2000M

Clock frequency(ies) in the system: 48MHz (Oscillator), 500.5MHz (CPU clock)

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test Specification : FCC Part 15 Subpart B 2009, final revised on February 27, 2009
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] 10.5dB 3.78950MHz, L [AV] 7.3dB 2.13344MHz, L	Complied
Radiated emission	FCC: ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	4.9dB 72.021MHz, QP 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	3.7dB
No.2	3.7dB
No.3	3.7dB
No.4	3.7dB

Test room (semi- anechoic chamber)	Radiated emission (10m*)(+dB)			Radiated emission (3m*)(+dB)					
	9kHz- 30MHz	30MHz- 300MHz	300MHz- 1GHz	9kHz- 30MHz	30MHz- 300MHz	300MHz- 1GHz	1GHz- 18GHz	18GHz- 26.5GHz	26.5GHz- 40GHz
No.1	3.1dB	4.4dB	3.9dB	3.2dB	3.8dB	3.9dB	5.0dB	5.0dB	5.4dB
No.2	-	-	-	3.2dB	4.4dB	4.0dB	5.0dB	5.2dB	5.4dB
No.3	-	-	-	3.2dB	4.2dB	3.8dB	5.0dB	5.3dB	5.3dB
No.4	-	-	-	3.2dB	4.0dB	3.8dB	5.0dB	5.3dB	5.3dB

*10m/3m = 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

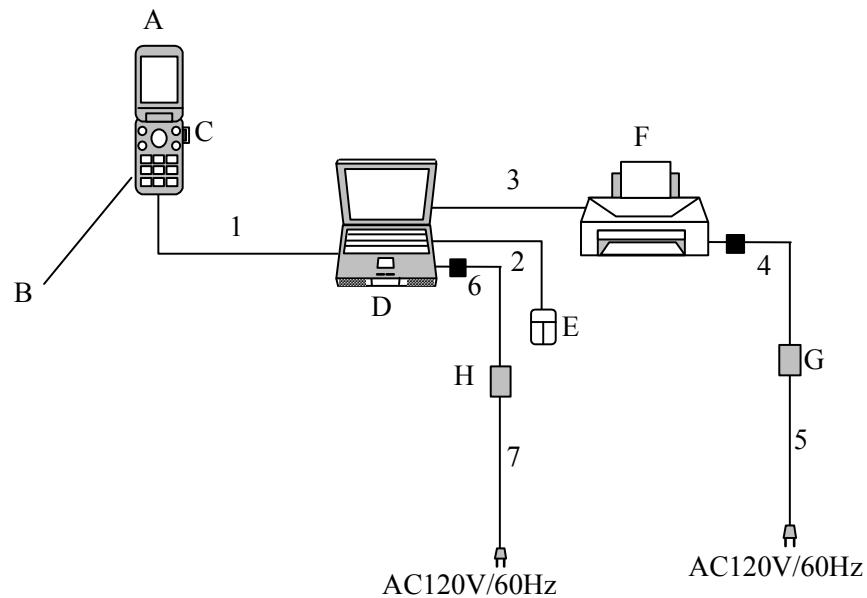
Refer to APPENDIX 1 to 3.

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	Remark
A	Cellular Phone	SH-02B	004401112155268	SHARP	EUT
B	Lithium-Ion Battery	SH21	None	SHARP	EUT
C	micro SD Memory Card	SD-08G	0831U49492Y	TOSHIBA	-
D	Personal Computer	PP11L	CN-0D4571-48643-51T-0549	Dell	-
E	Mouse	M-UAG120	G83C0007F310	TOSHIBA	-
F	Printer	C6410A	SG8BA1W18J	Hewlett-Packard	-
G	AC Adapter (Printer)	AT3018A-0101	C4557-60004	Hewlett-Packard	-
H	AC Adapter (PC)	PA-1650-05D	CN-0F7970-71615-77H-0D63	Dell	-

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	USB Data Cable	0.70	Shielded	Shielded	-
2	Mouse Cable	0.71	Shielded	Shielded	-
3	Parallel Printer Cable	2.00	Shielded	Shielded	-
4	DC Cable (Printer)	2.00	Unshielded	Unshielded	-
5	AC Cable (Printer)	1.75	Unshielded	Unshielded	-
6	DC Cable (PC)	1.80	Unshielded	Unshielded	-
7	AC 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. 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 19, 2009

Test engineer: Tomohisa Nakagawa

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: 1MHz 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 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: September 18, 2009

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.

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

This page has been submitted for a separate exhibit.

APPENDIX 2: Data of EMI test

Conducted Emission USB Data Com Mode

DATA OF CONDUCTED EMISSION TEST

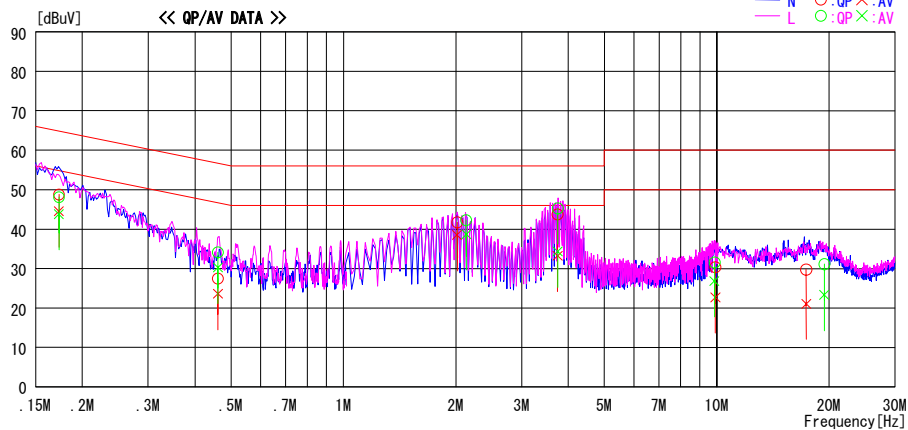
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2009/09/19

Company : Sharp Corporation
Kind of EUT : Cellular Phone
Model No. : SH-02B
Serial No. : 004401112155268

Report No. : 29KE0053-HO
Power : AC 120V / 60Hz
Temp./Humi. : 23deg. C / 54%
Engineer : Tomohisa Nakagawa

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]		
0.17294	48.6	44.3	0.2	48.8	44.5	64.8	54.8	16.0	10.3	N	
0.46116	27.2	23.3	0.3	27.5	23.6	56.7	46.7	29.2	23.1	N	
2.01716	41.2	38.0	0.5	41.7	38.5	56.0	46.0	14.3	7.5	N	
3.74670	42.9	32.4	0.8	43.7	33.2	56.0	46.0	12.3	12.8	N	
9.90830	29.0	21.3	1.4	30.4	22.7	60.0	50.0	29.6	27.3	N	
17.35420	27.6	19.0	2.1	29.7	21.1	60.0	50.0	30.3	28.9	N	
0.17304	47.9	43.6	0.2	48.1	43.8	64.8	54.8	16.7	11.0	L	
0.46147	33.8	29.9	0.3	34.1	30.2	56.7	46.7	22.6	16.5	L	
2.13344	41.7	38.1	0.6	42.3	38.7	56.0	46.0	13.7	7.3	L	
3.74806	44.5	33.5	0.8	45.3	34.3	56.0	46.0	10.7	11.7	L	
9.85620	30.2	25.4	1.4	31.6	26.8	60.0	50.0	28.4	23.2	L	
19.41480	28.8	21.0	2.3	31.1	23.3	60.0	50.0	28.9	26.7	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 Standby Mode

DATA OF CONDUCTED EMISSION TEST

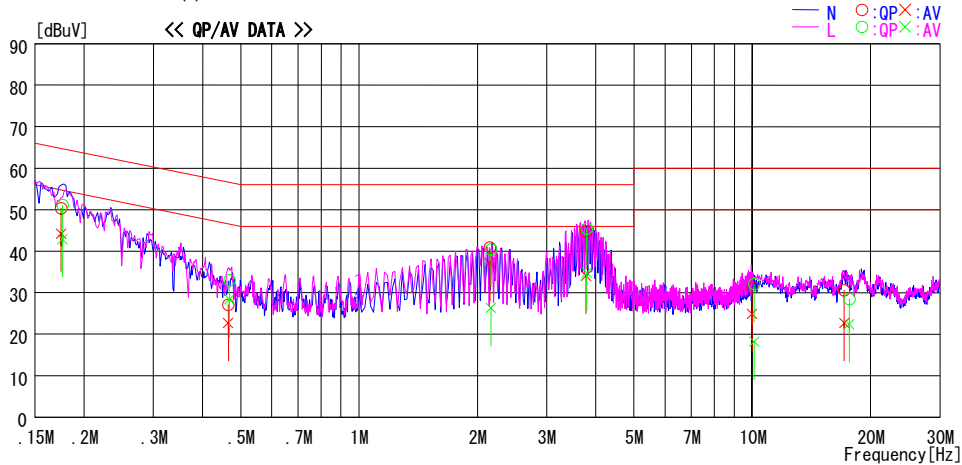
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2009/09/19

Company : Sharp Corporation
Kind of EUT : Cellular Phone
Model No. : SH-02B
Serial No. : 004401112155268

Report No. : 29KE0053-HO
Power : AC 120V / 60Hz
Temp./Humi. : 23deg. C / 54%
Engineer : Tomohisa Nakagawa

Mode / Remarks: Standby 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]		
0.17466	50.2	44.0	0.2	50.4	44.2	64.7	54.7	14.3	10.5	N	
0.46507	26.8	22.4	0.3	27.1	22.7	56.6	46.6	29.5	23.9	N	
2.15070	40.3	36.6	0.6	40.9	37.2	56.0	46.0	15.1	8.8	N	
3.77740	43.9	33.3	0.8	44.7	34.1	56.0	46.0	11.3	11.9	N	
9.99240	29.9	23.5	1.4	31.3	24.9	60.0	50.0	28.7	25.1	N	
17.13380	28.5	20.6	2.1	30.6	22.7	60.0	50.0	29.4	27.3	N	
0.17615	50.9	42.7	0.2	51.1	42.9	64.7	54.7	13.6	11.8	L	
0.46819	32.7	28.1	0.3	33.0	28.4	56.5	46.5	23.5	18.1	L	
2.16426	39.9	25.7	0.6	40.5	26.3	56.0	46.0	15.5	19.7	L	
3.78950	44.7	34.0	0.8	45.5	34.8	56.0	46.0	10.5	11.2	L	
10.10880	30.6	16.7	1.5	32.1	18.2	60.0	50.0	27.9	31.8	L	
17.65400	26.4	20.3	2.1	28.5	22.4	60.0	50.0	31.5	27.6	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 USB Data Com Mode

DATA OF RADIATED EMISSION TEST

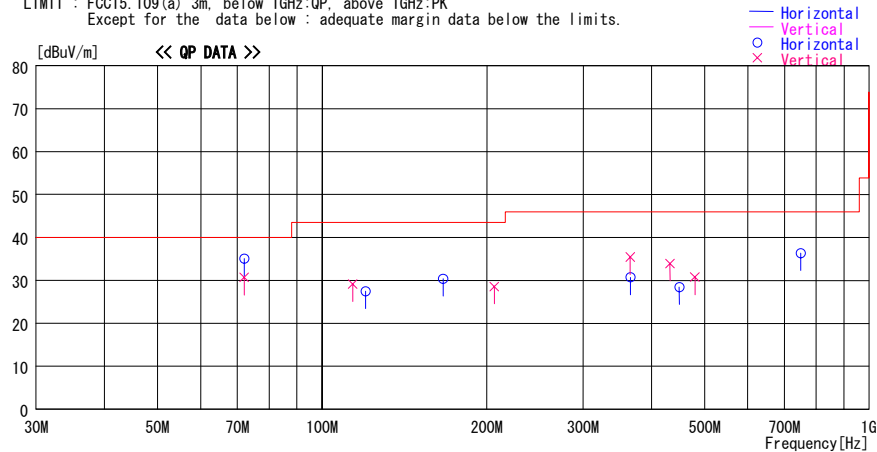
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Date : 2009/09/18

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Kind of EUT : Cellular Phone
Model No. : SH-02B
Serial No. : 004401112155268

Report No. : 29KE0053-HO
Power : AC 120V / 60Hz
Temp./Humi. : 22deg.C / 55%
Engineer : Keisuke Kawamura

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	Reading	DET	Antenna		Level	Angle	Height	Polar.	Limit		Comment
			Factor	Gain					[dBuV/m]	[dB]	
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]				
72.020	44.3	QP	6.8	-20.5	30.6	83	100	Vert.	40.0	9.4	
72.021	48.8	QP	6.8	-20.5	35.1	7	238	Hori.	40.0	4.9	
113.748	36.9	QP	12.0	-19.8	29.1	93	100	Vert.	43.5	14.4	
120.039	34.4	QP	12.8	-19.7	27.5	359	164	Hori.	43.5	16.1	
166.245	33.6	QP	15.7	-18.9	30.4	98	172	Hori.	43.5	13.1	
206.392	30.3	QP	16.6	-18.3	28.6	42	202	Vert.	43.5	14.9	
365.784	37.5	QP	15.2	-17.3	35.4	44	124	Vert.	46.0	10.6	
365.797	32.8	QP	15.2	-17.3	30.7	332	100	Hori.	46.0	15.3	
432.607	33.8	QP	17.2	-17.1	33.9	164	100	Vert.	46.0	12.1	
450.005	28.1	QP	17.5	-17.1	28.5	351	100	Hori.	46.0	17.5	
480.000	29.7	QP	18.0	-17.0	30.7	359	100	Vert.	46.0	15.3	
749.996	30.5	QP	21.2	-15.3	36.4	83	100	Hori.	46.0	9.6	

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 Standby Mode

DATA OF RADIATED EMISSION TEST

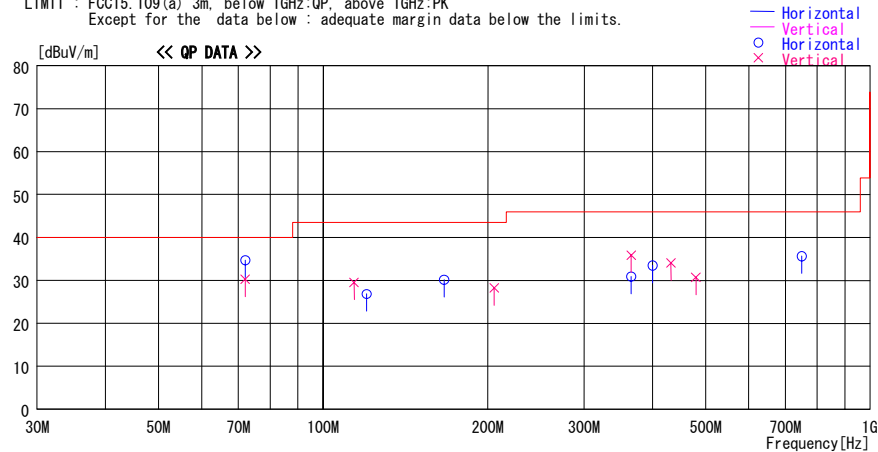
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Engineer : Keisuke Kawamura

Mode / Remarks : Standby 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	Reading	DET	Antenna		Level	Angle	Height	Polar.	Limit		Margin	Comment
			Factor	Gain								
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]		
72.027	48.3	QP	6.8	-20.5	34.6	353	248	Hori.	40.0	5.4		
72.023	44.0	QP	6.8	-20.5	30.3	75	100	Vert.	40.0	9.7		
113.928	37.3	QP	12.1	-19.8	29.6	127	100	Vert.	43.5	13.9		
120.039	33.7	QP	12.8	-19.7	26.8	346	180	Hori.	43.5	16.7		
166.259	33.3	QP	15.7	-18.9	30.1	99	192	Hori.	43.5	13.4		
205.310	29.9	QP	16.6	-18.3	28.2	22	175	Vert.	43.5	15.3		
365.784	38.0	QP	15.2	-17.3	35.9	43	127	Vert.	46.0	10.2		
365.779	33.0	QP	15.2	-17.3	30.9	339	100	Hori.	46.0	15.1		
399.996	34.2	QP	16.5	-17.2	33.5	359	100	Hori.	46.0	12.5		
432.615	34.0	QP	17.2	-17.1	34.1	165	100	Vert.	46.0	12.0		
479.999	29.7	QP	18.0	-17.0	30.7	359	100	Vert.	46.0	15.3		
749.996	29.7	QP	21.2	-15.3	35.6	68	100	Hori.	46.0	10.4		

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 USB Data Com Mode

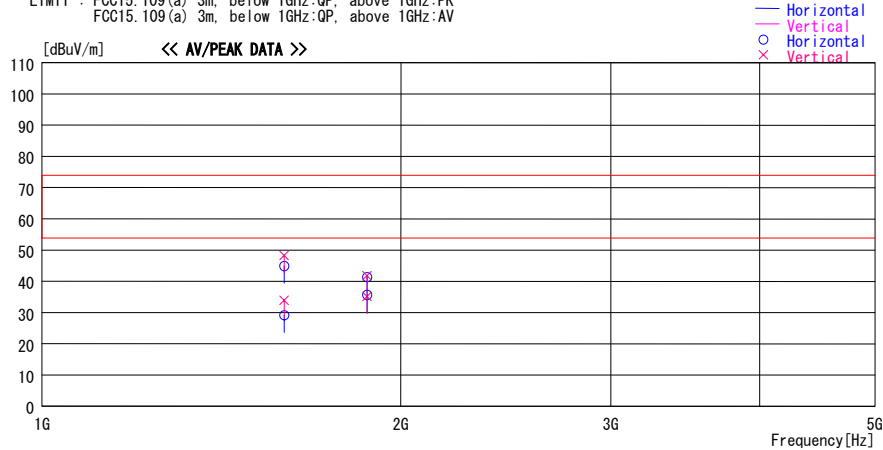
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2009/09/18

Company : Sharp Corporation
Kind of EUT : Cellular Phone
Model No. : SH-02B
Serial No. : 004401112155268
Report No. : 29KE0053-HO
Power : AC 120V / 60Hz
Temp./Humi. : 22deg. C / 55%
Engineer : Keisuke Kawamura

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

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]							
1595.997	56.7	PK	26.3	-34.7	48.3	14	100	Vert.	73.9	25.6	
1595.997	42.4	AV	26.3	-34.7	34.0	14	100	Vert.	53.9	19.9	
1595.997	53.3	PK	26.3	-34.7	44.9	352	100	Hori.	73.9	29.0	
1595.997	37.6	AV	26.3	-34.7	29.2	352	100	Hori.	53.9	24.7	
1873.328	50.5	PK	25.8	-34.4	41.9	7	100	Vert.	73.9	32.0	
1873.328	43.8	AV	25.8	-34.4	35.2	7	100	Vert.	53.9	18.7	
1873.328	50.0	PK	25.8	-34.4	41.4	246	100	Hori.	73.9	32.5	
1873.328	44.3	AV	25.8	-34.4	35.7	246	100	Hori.	53.9	18.2	

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

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

APPENDIX 3: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-01	Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE/CE	2009/06/26 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	MOS01	RE/CE	2009/02/06 * 12
MJM-01	Measure	KDS	ES19-55	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	100084	RE/CE	2008/12/01 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	8127383	CE(EUT)	2009/06/22 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	8127384	CE(AE)	2009/07/16 * 12
MTA-06	Terminator	MCL	BTRM-50	1 9951	CE	2009/02/17 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/ TSJ	5D-2W(20m)/ 3D-2W(7.5m)/ RG400u(1.5m)/ RFM-E421(Switcher)	-/01068 (Switcher)	CE	2008/12/16 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032007	RE	2008/11/12 * 12
MLA-09	Logperiodic Antenna	Schwarzbeck	USLP9143B	9143B006	RE	2008/11/12 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	BL1069	RE	2008/11/14 * 12
MCC-01	Coaxial Cable 0.1-3000MHz	Suhner/storm/ Agilent/TSJ	-	-	RE	2008/10/02 * 12
MPA-04	Pre Amplifier	Agilent	8447D	2944A09965	RE	2009/07/03 * 12
MAT-02	Attenuator(3dB)	Weinschel Corp	2	BL0968	RE	2008/11/14 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2009/06/15 * 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	2009/02/12 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2009/02/25 * 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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