



EMI TEST REPORT

Test Report No. : 29CE0264-HO-01-C

Applicant : SHARP CORPORATION
Type of Equipment : W-CDMA / GSM Mobile Phone
Model No. : PV300
FCC ID : APYNAR0065
Test regulation : FCC Part 15 Subpart B 2008 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.

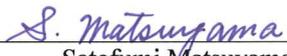
Date of test:

December 7 to 10, 2008

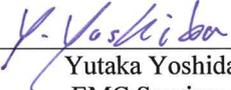
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NVLAP LAB CODE: 200572-0

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

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SECTION 1: Customer information

Company Name : SHARP CORPORATION
Brand name : SHARP
Address : 492 Minosho-cho, Yamatokoriyama-city, NARA-ken, 639-1186 JAPAN
Telephone Number : +81-743-55-4022
Facsimile Number : +81-743-55-2553
Contact Person : Juri Sugiyama

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

2.1 Identification of E.U.T.

Type of Equipment : W-CDMA / GSM Mobile Phone
Model No. : PV300
Serial No. : P3-156: used for Conducted emission test
P3-164: used for Radiated emission test (Video play, PC Link mode)
P3-040: used for Radiated emission test (GPS Receiving mode)
Rating : Battery DC 3.7 - DC4.2V
(AC Adapter: Input 100 - 240V, 50/60Hz, Output DC 5V)
Receipt Date of Sample : December 5, 2008
Country of Mass-production : Japan
Condition of EUT : Engineering prototype
Modification of EUT : No Modification by the test lab

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2.2 Product Description

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test Specification : FCC Part 15 Subpart B 2008, final revised on May 19, 2008
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 ----- IC: ICES-003 4.1 RSS-Gen 7.2.2	Class B	N/A	[QP] 13.8dB 3.08647MHz, L, GPS Receiving mode [AV] 15.4dB 0.70675MHz, N, Video play mode	Complied
Radiated emission	FCC: ANSI C63.4: 2003 8. Radiated emission measurements ----- IC: ICES-003 4.1 RSS-Gen 4.10 ----- IC: RSS-Gen 4.10	Class B	N/A	6.0dB 57.111MHz, Horizontal, PC Link mode	Complied
*Note: UL Japan, Inc's EMI Work Procedure QPM05.					

*These tests were performed without any deviations from test procedure except for addition or exclusion.

3.3 Additions or deviations to standards

No addition nor deviation has been made from standards.

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	Conducted emission	Radiated emission (10m*)			Radiated emission (3m*)			Radiated emission (3m*)	
	150kHz-30MHz	9kHz-30MHz	30MHz-300MHz	300MHz-1GHz	9kHz-30MHz	30MHz-300MHz	300MHz-1GHz	1GHz-18GHz	18GHz-40GHz
No.1 semi-anechoic chamber (±)	3.7dB	3.1dB	4.4dB	4.2dB	3.2dB	3.8dB	3.9dB	5.9dB	6.1dB
No.2 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.4dB	4.0dB	5.9dB	6.1dB
No.3 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.6dB	4.0dB	5.9dB	6.1dB
No.4 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	3.9dB	3.9dB	5.9dB	6.1dB

*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

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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 1 to 3.

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

4.1 Operating modes

The mode is used : (1) Video play mode :

Video was played repeatedly with reading Video file from Micro SD card inside of EUT.

(2) PC Link mode :

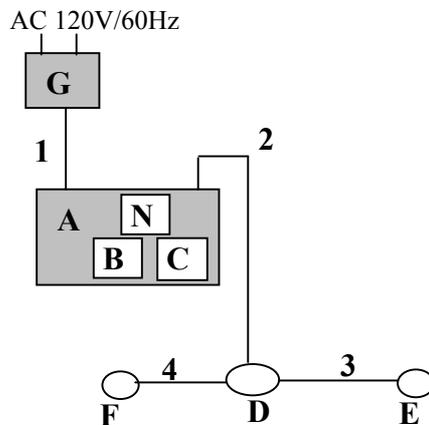
The data of SD card inside of EUT was displayed on screen of the Personal Computer.

(3) GPS Receiving mode

Justification: The system was configured in typical fashion (as a customer would normally use it) for testing.

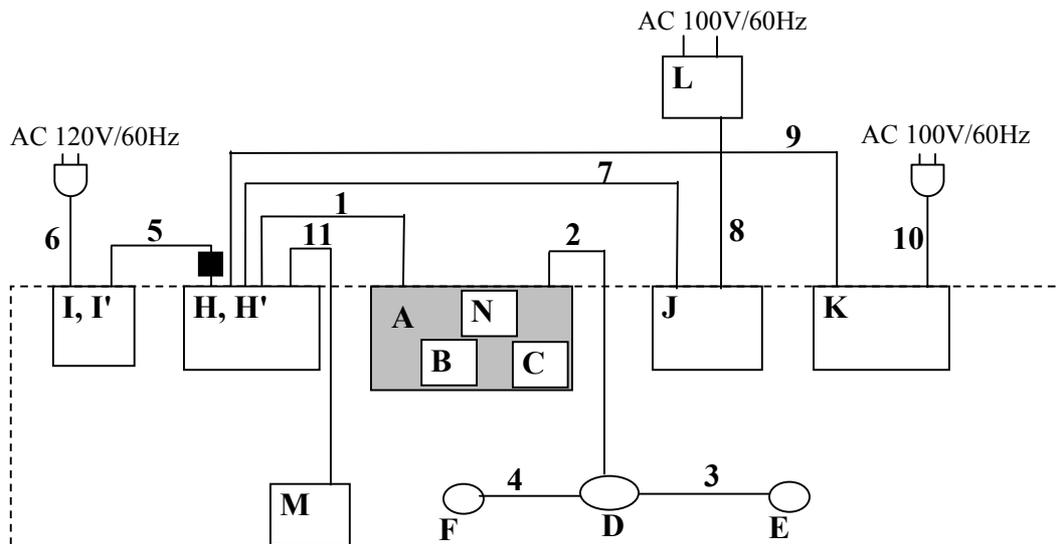
4.2 Configuration and peripherals

4.2.1 Video play mode, GPS Receiving mode



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

4.2.2 PC Link mode



■: Ferrite Core (Standard Attachment)

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

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Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	W-CDMA / GSM Mobile Phone	PV300	P3-156 *1) P3-164 *2) P3-040 *3)	SHARP	EUT
B	Battery	PV-BL51	-	SHARP	-
C	Micro SD card (1GB)	-	-	SanDisk	-
D	Microphone & Switch	-	-	SHARP	-
E	Earphone(R)				
F	Earphone(L)				
G	AC Adapter	PV-AC41	RADPA1046YCPZ	SHARP	EUT
H	Personal Computer	PP01L	TW-04E641-12800-1AP-3747	DELL	*4)
H'	Personal Computer	TYPE 2647-LJ3	97-ALT8N	IBM	*5)
I	AC Adapter	ADP-70EB	TH-09364U-17971-1AK-E2W1	DELL	*4)
I'	AC Adapter	02K6750	11S02K6750Z1Z2U P29909J	IBM	*5)
J	Modem	LFM-288BS	56L10220306	Logitec	-
K	Printer	K10201	FAHF06283	CANON	-
L	AC Adapter	AM-128100AT	-	AMIGO	-
M	Mouse	M-S34	LNA13815760	Logitec	-
N	TEST USIM Card	-	-	Anritsu	-

- *1) Used for Conducted emission test
*2) Used for Radiated emission test (Video play, PC Link mode)
*3) Used for Radiated emission test (GPS Receiving mode)
*4) Used for Conducted emission test (PC Link mode)
*5) Used for Radiated emission test (PC Link mode)

List of cables used

No.	Name	Length (m)	Shield	
			Cable	Connector
1	DC cable	1.5	Shielded	Shielded
2	Microphone & Earphone cable	1.0	Unshielded	Unshielded
3	Earphone cable	0.5	Unshielded	Unshielded
4	Earphone cable	0.2	Unshielded	Unshielded
5	DC cable	1.8	Unshielded	Unshielded
6	AC cable	1.7	Unshielded	Unshielded
7	Serial cable	1.5	Shielded	Shielded
8	DC cable	1.9	Unshielded	Unshielded
9	Printer cable	2.0	Shielded	Shielded
10	AC cable	1.8	Unshielded	Unshielded
11	Mouse cable	1.8	Shielded	Shielded

SECTION 5: Conducted Emission

5.1 Operating environment

Test date	December 7, 2008	December 10, 2008
Test mode	Video play mode and PC Link mode	GPS Receiving mode
Test place	No.4 semi anechoic chamber	No.2 semi anechoic chamber
Temperature	See data	See data
Humidity	See data	See data

5.2 Test configuration

EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m(for Video play mode and PC Link mode)/0.5m by 1.0m(for GPS Receiving mode), 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: December 7, 2008
December 10, 2008

Test engineer: Kenichi Adachi
Katsunori Okai

SECTION 6: Radiated Emission

6.1 Operating environment

Test date	December 9, 2008	December 10, 2008
Test mode	Video play mode and PC Link mode	GPS Receiving mode
Test place	No.1 semi anechoic chamber	No.4 semi anechoic chamber
Temperature	See data	See data
Humidity	See data	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 : (Video Play mode, PC Link mode)
30MHz-300MHz (Biconical antenna) / 300MHz-1000MHz (Logperiodic antenna)
1GHz -2GHz (Horn antenna)
(GPS Receiving mode)
30MHz-300MHz (Biconical antenna) / 300MHz-1000MHz (Logperiodic antenna)
1GHz -10GHz (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 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 *2): RBW:1MHz/VBW:10Hz

*2) When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

- The noise levels was 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: December 9, 2008
December 10, 2008

Test engineer: Kenichi Adachi
Satofumi Matsuyama

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APPENDIX 1: Photographs of test setup
Conducted Emission

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Conducted Emission

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Conducted Emission

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Radiated Emission

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Radiated Emission

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Radiated Emission

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Worst Case Position
(Video play mode: Horizontal: Y-axis/ Vertical:Z-axis)
(PC Link mode: Horizontal: X-axis/ Vertical:X-axis)
(GPS Receiving mode: Horizontal: Z-axis/ Vertical:Y-axis)

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