



RADIO TEST REPORT

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

Applicant : SHARP CORPORATION
Type of Equipment : W-CDMA / GSM Mobile Phone
Model No. : PV300
Test regulation : FCC Part 24: 2008
FCC ID : APYNAR0065
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.

Date of test: December 8 to 16, 2008

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SECTION 1: Customer information

Company Name : SHARP CORPORATION
Brand Name : SHARP
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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. : P3-240, P3-040, P3-156
Rating : Battery DC 3.7 - DC 4.2V
(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

This page has been submitted for a separate exhibit.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 24 2005, final revised on May 2, 2008
Title : FCC 47CFR Part 24
Personal Communications Services

3.2 Procedures and results

Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
Peak Output Power	FCC Part2 Section 2.1046(a)	Section 24.232(c)	Conducted/ Radiated	N/A	[Conducted] 3.5dB 1909.8MHz (GSM and GPRS mode) [Radiated] 2.1dB 1909.80MHz Vertical (EGPRS mode)	Complied
Emission Bandwidth, 99% Occupied Bandwidth	FCC Part2 Section 2.1049(h)	Section 24.238	Conducted	N/A	-	Complied
Band-Edge	FCC Part2 Section 2.1049 FCC Part24 Section 24.238(b)	Section 24.238(a)	Conducted/ Radiated	N/A	[Conducted] 2.9dB 1910.018MHz (GSM Mode) [Radiated] 7.4dB 1910.00MHz Vertical (GSM Mode)	Complied
Spurious Emission	FCC Part2 Section 2.1051	Section 24.238(a)	Conducted	N/A	-	Complied
Spurious Radiation	FCC Part2 Section 2.1053	Section 24.238(a)	Radiated	N/A	16.5dB 17188.20MHz Vertical	Complied
Frequency Stability (Temperature Variation)	FCC Part2 Section 2.1055(a) (1) and (b)	Section 24.235	Conducted	N/A	-	Complied
Frequency Stability (Voltage Variation)	FCC Part2 Section 2.1055(d)(1) and (2)	Section 24.235	Conducted	N/A	-	Complied

Note: UL Japan, Inc.'s EMI Work Procedures No. QPM05

*These tests were also referred to ANSI/TIA 603-C-2004 "Land Mobile FM or PM Communications Equipment Measurement and Performance Standards."

*These tests were performed without any deviations from test procedure except for additions or exclusions.

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3.3 Uncertainty

EMI

Transmitter Spurious Emissions (Radiated)

The measurement uncertainty for this test is 4.62dB(30-1000MHz) and 5.06dB(Above 1GHz).
The data listed in this report meets the limits unless the uncertainty is taken into consideration.

Frequency Stability

The measurement uncertainty for this test is 1×10^{-5} .

Other test except Spurious Emission (Radiated) and Frequency Stability

The measurement uncertainty for this test is 3.0dB.

3.4 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.

3.5 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

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

4.1 Operating Modes

<PCS1900>

Test	Operating mode	Power Control	Tested frequency	Channel
Peak output Power (Conducted)	Transmitting (Tx) (GSM, GMSK) Transmitting (Tx) (GPRS, GMSK), Single slot Transmitting (Tx) (EGPRS, 8PSK), Multi slot	Max	1850.2MHz 1880.0MHz 1909.8MHz	512 661 810
Peak output Power (Radiated)	Transmitting (Tx) (GSM, GMSK) Transmitting (Tx) (EGPRS, 8PSK), Multi slot	Max	1850.2MHz 1880.0MHz 1909.8MHz	512 661 810
Emission Bandwidth, 99% Occupied bandwidth, Spurious Emission (Conducted/Radiated)	Transmitting (Tx) (GSM, GMSK) Transmitting (Tx) (EGPRS, 8PSK), Multi slot	Max	1850.2MHz 1880.0MHz 1909.8MHz	512 661 810
Band Edge (Conducted/Radiated)	Transmitting (Tx) (GSM, GMSK) Transmitting (Tx) (EGPRS, 8PSK), Multi slot	Max	1850.2MHz 1910.0MHz	512 810
Band Edge (Radiated)	Transmitting (Tx) (GSM, GMSK) + Bluetooth (BT) Communication	Max	1850.0MHz 1910.0MHz	512 810
Frequency Stability (Temperature/Voltage Variation)	Transmitting (Tx) (GSM, GMSK) Transmitting (Tx) (EGPRS, 8PSK), Multi slot	Max	1880.0MHz 1880.0MHz	661 661

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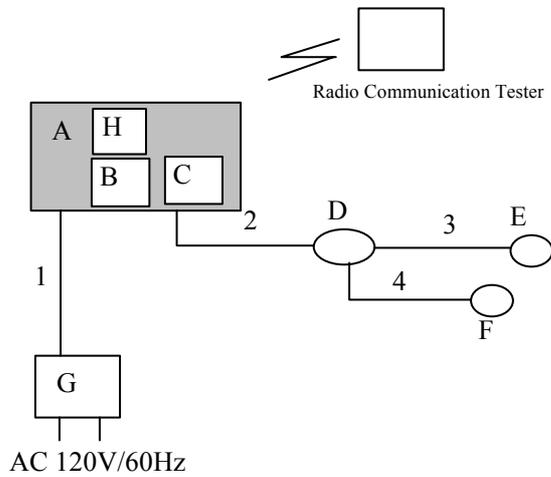
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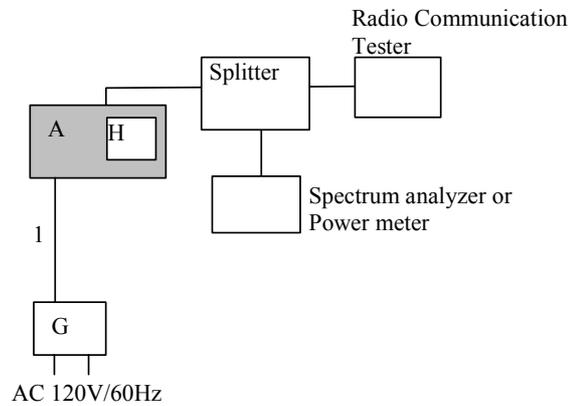
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4.2 Configuration and peripherals

<Radiated Emission test>



<Antenna terminal conducted tests>



* Cabling and setup(s) 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	W-CDMA / GSM Mobile Phone	PV300	P3-240 *1), P3-040 *2), P3-156 *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	-
H	TEST USIM Card	-	-	Rohde & Schwarz	-

*1) Used for Peak Output Power (conducted) test

*2) Used for Emission Bandwidth, Band-Edge(conducted), Spurious emission(conducted), and Frequency Stability tests

*3) Used for Peak Output Power(radiated), Band-Edge(radiated), and Spurious emission(radiated) tests

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

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SECTION 5: Peak Output Power(Conducted/Radiated)

[Conducted]

Test Procedure

The peak output power (conducted) was measured with a power meter and an attenuator at the antenna port.

Test data : **APPENDIX 2**
Test result : **Pass**

[Radiated]

Test Procedure

- 1) EUT was placed on a platform of nominal size, 1.0 by 0.5m, raised 80cm above the conducting ground plane. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The Radiated Electric Field Strength intensity has been measured in a semi anechoic chamber with a ground plane and at a distance of 3m (for the Peak Output Power for the Radiated). The measuring antenna height varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
- 2) Exchanged the EUT to the Substitution Antenna, the measurement was set for the same height 1m as the EUT. The frequency above 1GHz of the Substitution antenna was used with Horn antenna calibrated with the Half wave dipole antenna, which is harmonized with the measured frequency in 1). The Substitution Antenna was connected with the Signal Generator, and the polarized electromagnetic radiation of the Substitution Antenna was matched with the one of the measuring Antenna, which was set with the Signal Generator to the measured frequency in 1). Then, we set with the Output power (CW) of the Signal Generator where the measuring electromagnetic field is equal to the measured value in 1). The measuring antenna height varied between 1 and 4m to obtain the maximum receiving level. Its Output power of Signal Generator was recorded.
- 3) Equivalent isotropic radiated power was calculated by subtracting the cable loss and the attenuator loss connected between the Signal Generator and the Substitution Antenna from the Output power of the Signal Generator recorded in 2).

Test data : **APPENDIX 2**
Test result : **Pass**

SECTION 6: Bandwidth and Band-Edge (Conducted)

Test Procedure

The Emission Bandwidth, 99% Occupied Bandwidth and Band-Edge was measured with a spectrum analyzer and attenuator connected to the antenna port.

Test data : **APPENDIX 2**
Test result : **Pass**

SECTION 7: Spurious Emission (Conducted)

Test Procedure

The Spurious Emission was measured with a spectrum analyzer and attenuator connected to the antenna port.

Test data : **APPENDIX 2**
Test result : **Pass**

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SECTION 8: Spurious Radiation and Band-Edge (Radiated)

Test Procedure

- 1) EUT was placed on a platform of nominal size, 1.0m by 0.5m, raised 80cm above the conducting ground plane. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The Radiated Electric Field Strength intensity has been measured in a semi anechoic chamber with a ground plane and at a distance of 3m.
The measuring antenna height was varied between 1 to 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

- 2) Exchanged the EUT to the Substitution Antenna, the antenna was set for the same height as EUT on the table.
The frequency below 1GHz of the Substitution antenna was used as the Half wave dipole antenna and Shorted dipole antenna calibrated with the Half wave dipole antenna, which is harmonized with the measured frequency in 1). The frequency above 1GHz of the Substitution antenna was used with Horn antenna calibrated with the Half wave dipole antenna.
The Substitution antenna was connected with the Signal Generator, and the polarized electromagnetic radiation of the Substitution antenna was matched with the one of the measuring antenna, which was set with the Signal Generator to the measured frequency in 1). Then, we set with the Output power (CW) of the Signal Generator where the measuring electromagnetic field is equal to the measured value in 1).
The measuring antenna height varied between 1 and 4m to obtain the maximum receiving level.
Its Output power of Signal Generator was recorded.

- 3) Equivalent isotropic radiated power was calculated by subtracting the cable loss and the attenuator loss connected between the Signal Generator and the Substitution Antenna from the Output power of the Signal Generator recorded in 2).

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

Test data : **APPENDIX 2**
Test result : **Pass**

SECTION 9: Frequency Stability

Test Procedure

The Frequency Stability was measured with a spectrum analyzer and attenuator connected to the antenna port. The Frequency Drift was measured with the 10 deg. C. steps from -30 deg. C. to 50 deg. C., and it is presented as the ppm unit. The Frequency Drift was measured with the normal temperature (20 deg. C.) and Voltage tolerance (DC3.7V to DC4.2V), and it is presented as the ppm unit.

Temperature : -30deg.C to +50deg.C (10 deg. C. step)
Voltage : Vnom:DC3.9V, Vmin:DC3.7V, Vmax:DC4.2V : Operating voltage range of EUT *

*The voltage supply beyond DC 4.2V exceeds the operating voltage range of EUT.
In case of the voltage supply below DC 3.7V, the EUT stops operation by low battery detection function.
Therefore, Frequency Stability test was performed under the above condition.

Test data : **APPENDIX 2**
Test result : **Pass**

APPENDIX 1: Photographs of test setup

Spurious Radiation

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

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