RADIO TEST REPORT

Test Report No. : 28BE0121-HO-02-A-R1

Applicant : **Sony Corporation**

Type of Equipment : **Personal Communicator**

Model No. : **COM-2**

FCC ID : **AK8COM2**

Test standard : **FCC Part 15 Subpart C 2007**
Section 15.207, Section 15.247

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. Original test report number of this report is 28BE0121-HO-02-A.

Date of test: November 15 to 20, 2007

Tested by: H. Sato
Hisayoshi Sato
EMC Services

Approved by :
Hironobu Shimoji
Assistant Manager of EMC Services

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://uljapan.co.jp/emc/nvlap.htm

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SECTION 1: Client information

Company Name	:	Sony EMCS Corporation Nagano TEC *
Address	:	5432 Toyoshina, Azumino-shi, Nagano 399-8282 Japan
Telephone Number	:	+81-263-72-5696
Facsimile Number	:	+81-263-72-9755
Contact Person	:	Masami Ogawa

* Sony EMCS Corporation Nagano TEC is on behalf of the applicant: Sony Corporation.

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

2.1 Identification of E.U.T.

Type of Equipment	:	Personal Communicator
Model No.	:	COM-2
Serial No.	:	30610230 3000044
Country of Manufacture	:	Japan
Receipt Date of Sample	:	November 15, 2007
Condition of EUT	:	Engineering 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: COM-2 is the Personal Communicator.

Equipment Type	:	Transceiver
Frequency of Operation	:	2412 – 2462MHz
Other Clock Frequency	:	133MHz, 39MHz, 12MHz
Type of Modulation	:	DSSS, OFDM
Antenna Type	:	Inverted F type
Antenna Gain	:	-0.21dBi
Antenna Connector Type	:	I-PEX MHF2
Power Supply	:	DC3.0V and DC1.8V

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part15 Subpart C: 2007
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

FCC 15.31 (e)
This EUT provides stable voltage (DC3.0V and DC1.8V) constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement
It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted emission	**FCC:** ANSI C63.4:2003 7. AC powerline conducted emission measurements **IC:** RSS-Gen 7.2.2	**FCC:** Section 15.207 **IC:** RSS-Gen 7.2.2	-	N/A	11.3dB 0.90833MHz N, AV	Complied
2	6dB Bandwidth	**FCC:** ANSI C63.4:2003 13. Measurement of intentional radiators **IC:** RSS-Gen 4.6.2	**FCC:** Section 15.247(a)(2) **IC:** RSS-210 A8.2(a)	Conducted	N/A	See data.	Complied
3	Maximum Peak Output Power	**FCC:** ANSI C63.4:2003 13. Measurement of intentional radiators **IC:** RSS-Gen 4.8	**FCC:** Section 15.247(b)(3) **IC:** RSS-210 A8.4(4)	Conducted	N/A		Complied
4	Restricted Band Edges	**FCC:** ANSI C63.4:2003 13. Measurement of intentional radiators **IC:** -	**FCC:** Section 15.247 (d) **IC:** RSS-210 A8.5	Conducted/ Radiated	N/A		Complied
5	Power Density	**FCC:** ANSI C63.4:2003 13. Measurement of intentional radiators **IC:** -	**FCC:** Section 15.247 (e) **IC:** RSS-210 A8.2(b)	Conducted	N/A		Complied
6	Spurious Emission	**FCC:** ANSI C63.4:2003 13. Measurement of intentional radiators **IC:** RSS-Gen 4.9 RSS-Gen 4.10	**FCC:** Section15.247(d) **IC:** RSS-210 A8.5 RSS-Gen 7.2.1 and 7.2.3	Conducted/ Radiated	N/A	[Tx] 3.5dB 288.166MHz Hori., QP [Rx] 6.3dB 288.170MHz Hori., QP	Complied

Note: UL Japan, Inc.'s EMI Work Procedures No.QPM05 and QPM15.

*These tests were also referred to "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247".
*These tests were performed without any deviations from test procedure except for additions or exclusions.

3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	**IC:** RSS-Gen 4.6.1	**IC:** RSS-Gen 4.6.1	Conducted	N/A	N/A	N/A

3.4 Uncertainty

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 <
No.1 semi-anechoic chamber	±3.7dB	±3.1dB	±4.7dB	±4.4dB	±3.2dB	±3.7dB	±4.4dB	±5.9dB
No.2 semi-anechoic chamber	±3.7dB	-	-	-	±3.2dB	±4.3dB	±3.9dB	±5.9dB
No.3 semi-anechoic chamber	±3.7dB	-	-	-	±3.2dB	±4.2dB	±4.4dB	±5.9dB
No.4 semi-anechoic chamber	±3.7dB	-	-	-	±3.2dB	±4.2dB	±4.4dB	±5.9dB

*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 and/or 10m)
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	IC4247	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	655103	IC4247-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	IC4247-3	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	IC4247-4	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	N/A	-
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, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

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

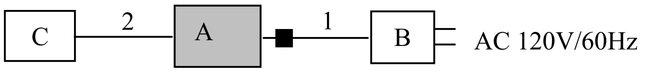
4.1 Operating Mode(s)

The mode was used as shown on the following table:

Test Item	Test mode	Test frequency
Conducted Emission Spurious Emission	Transmitting(Tx) 11b 11Mbps Transmitting(Tx) 11g 48Mbps	2412MHz 2437MHz 2462MHz
	Receiving(Rx) 11b Receiving(Rx) 11g	2437MHz
6dB Bandwidth Maximum Peak Output Power Power Density 99% Occupied Bandwidth	Transmitting(Tx) 11b 11Mbps Transmitting(Tx) 11g 48Mbps	2412MHz 2437MHz 2462MHz

As a result of preliminary test, the formal test was performed with the above modes, which had the maximum power.

4.2 Configuration and peripherals



■ : Ferrite Core (Standard Attachment)

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

Description of EUT

No.	Item	Model number	Serial number	Manufacturer	Remark
A	Personal Communicator	COM-2	30610230 3000044	Sony	EUT
B	AC adaptor	COMP-AC1	148039011 7900351	Sony	-
C	Headphone	1	1	Sony	-

List of cables used

No.	Name	Length (m)	Shield	
			Cable	Connector
1	DC cable	1.5	Shielded	Shielded
2	Extension cable	0.9	Unshielded	Unshielded

SECTION 5: Conducted Emission

Test Procedure and conditions

EUT was placed on a urethane platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals 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 a Line Impedance Stabilization Network (LISN)/ Artificial mains Network (AMN) and excess AC cable was bundled in center.

For the tests on EUT with other peripherals (as a whole system)
I/O cable and AC cables that were connected to the 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.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber or a Measurement Room.
The EUT was connected to a LISN (AMN).
An overview sweep with peak detection has been performed.

Detector	**: quasi-peak and average detector (IF BW 9 kHz)**
Measurement range	**: 0.15-30MHz**
Test data	**: APPENDIX 2**
Test result	**: Pass**

SECTION 6: Spurious Emission

[Conducted]
Test Procedure
The Out of Band Emission was measured with a spectrum analyzer connected to the antenna port.
The following spectrum analyzer setting was used:

- RBW: 100kHz
- VBW: 300kHz
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

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

[Radiated]
Test Procedure
EUT was placed on a urethane platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
The Radiated Electric Field Strength intensity has been measured in a Semi Anechoic Chamber with a ground plane and at a distance of 3m(Below 10GHz) and 1m(Upper 10GHz).
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 (in linear mode).
The test was made with the detector (RBW/VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20dBc was applied to the frequency over the limit of FCC 15.209 / Table 2 of RSS-210 2.7 (IC) and outside the restricted band of FCC15.205 / Table 1 of RSS-210 2.7 (IC).

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver / Spectrum Analyzer	Spectrum Analyzer
Detector IF Bandwidth	QP: BW 120kHz(T/R) 20dBc : RBW: 100kHz VBW: 300kHz (S/A)	PK: RBW:1MHz/VBW: 1MHz AV: RBW:1MHz/VBW:10Hz 20dBc : RBW:100kHz/VBW:300kHz

- 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.

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

SECTION 7: Bandwidth

Test Procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.
The following spectrum analyzer setting was used:

- Span: 20MHz
- RBW: 100kHz
- VBW: 300kHz
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

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

SECTION 8: Maximum Peak Output Power

Test Procedure

The Maximum Peak Output Power was measured with a power meter (tested bandwidth: 50MHz) connected to the antenna port.
It was measured based on "Power Output Option 1" of "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247 ".

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

SECTION 9: Peak Power Density

[Conducted]
Test Procedure
The Peak Power Density was measured with a spectrum analyzer connected to the antenna port.
It was measured based on "PSD Option 1" of "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247 ".
The following spectrum analyzer setting was used:

- Span: 1.5MHz
- RBW: 3kHz
- VBW: 100kHz
- Sweep: 500s
- Detector: Peak
- Trace: Clear Write (Single Sweep)

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