



RADIO TEST REPORT

Test Report No. : 28FE0117-HO-01-A

Applicant : Sony Computer Entertainment Inc.
Type of Equipment : PSP
Model No. : PSP-2001
FCC ID : AK8PSP2001
Test regulation : FCC Part 15 Subpart C 2008
Section 15.207, Section 15.247
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 equipment 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: January 23 to 26, 2008

Tested by:

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NVLAP LAB CODE: 200572-0

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CONTENTS	PAGE
SECTION 1: Customer information.....	3
SECTION 2: Equipment under test (E.U.T.).....	3
SECTION 3: Test specification, procedures & results.....	4
SECTION 4: Operation of E.U.T. during testing.....	8
SECTION 5: Conducted Emission.....	10
SECTION 6: Spurious Emission.....	11
SECTION 7: Bandwidth.....	12
SECTION 8: Maximum Peak Output Power.....	12
SECTION 9: Peak Power Density.....	12
APPENDIX 1: Photographs of test setup.....	13
Conducted Emission.....	13
Spurious Emission (Radiated).....	14
Worst Case Position (Horizontal: X-axis/ Vertical:Z-axis).....	15
APPENDIX 2: Data of EMI test.....	16
Conducted Emission.....	16
6dB Bandwidth.....	20
Maximum Peak Output Power.....	22
Radiated Spurious Emission (below 1GHz).....	23
Radiated Spurious Emission (above 1GHz).....	27
Conducted Spurious Emission.....	31
Conducted emission Band Edge compliance.....	35
Power Density.....	36
99% Occupied Bandwidth.....	38
APPENDIX 3: Test instruments.....	39

SECTION 1: Customer information

Company Name	Sony Computer Entertainment Inc.
Brand name	Sony
Address	2-6-21 Minami-Aoyama, Minato-ku, Tokyo, 107-0062, Japan
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SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	PSP
Model No.	PSP-2001
Serial No.	03-TSP1220H-0000650-PSPXXXX for Conducted / Radiated Emissions 03-TSP1220H-0000661-PSPXXXX for Antenna Terminal Conducted Test
Country of Manufacture	Japan
Condition of EUT	Production prototype (Not for sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample	January 18, 2008

2.2 Product Description

Radio Specification

Wireless LAN Module (IEEE802.11b)

Equipment Type	Transceiver
Frequency of Operation	2412-2462 MHz
Clock Frequency	40MHz
ITU Code	G1D
Type of Modulation	DSSS
Method of frequency generation	Crystal
Antenna model	HFS36-SO01
Antenna type	Inverted F antenna
Antenna Gain	+3.5 dBi (Max.)

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C: 2008
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits : 2007
Section 15.247 Operation within the bands 902-928MHz,
2400-2483.5MHz, and 5725-5850MHz : 2007

FCC 15.31 (e)

This EUT provides stable voltage (DC3.1V/1.9V) constantly to RF Module regardless of input voltage. (For details, refer to Block Diagram for the product.) 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.

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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	[AV] 21.9dB 29.23700MHz, N [QP] 19.8dB 0.19830MHz, L	Complied
2	6dB Bandwidth	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- 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: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- 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: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- IC: -	FCC: Section 15.247 (d) ----- IC: RSS-210 A8.5	Conducted/ Radiated	N/A		Complied
5	Power Density	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- IC: -	FCC: Section 15.247 (e) ----- IC: RSS-210 A8.2(b)	Conducted	N/A	Complied	
6	Spurious Emission	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- 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) 7.7dB 9848.0MHz Vertical (Rx) 8.9dB 9748.0MHz Vertical	Complied

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

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

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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

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	4.7dB	4.4dB	3.2dB	3.7dB	4.4dB	5.9dB	6.1dB
No.2 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.3dB	3.9dB	5.9dB	6.1dB
No.3 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.2dB	4.4dB	5.9dB	6.1dB
No.4 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.2dB	4.4dB	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.

Other test except Conducted Emission and Spurious Emission (Radiated)

The measurement uncertainty for this test is 3.0dB.

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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	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	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, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

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

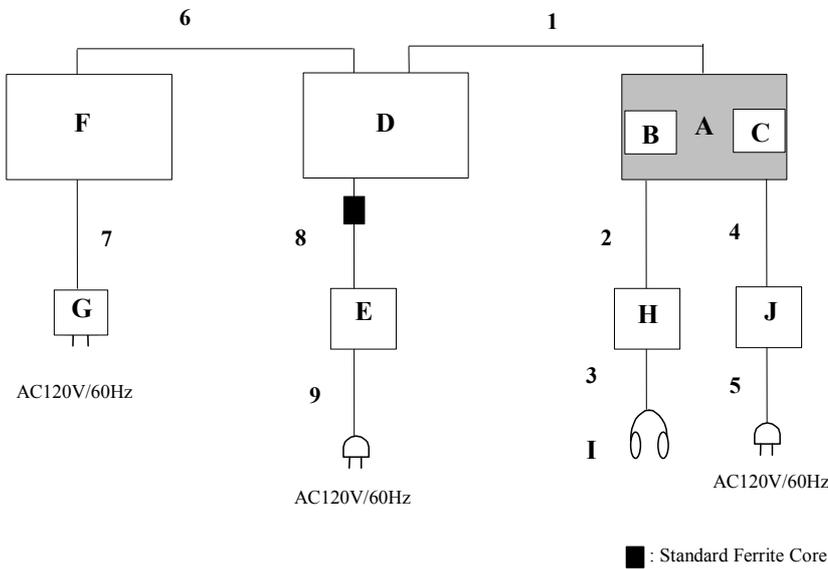
4.1 Operating Modes

The mode used for test :

Test	Mode	Tested frequency
Conducted emission Spurious Emission	WLAN 11b Transmitting (Tx), 11Mbps	2412MHz 2437MHz 2462MHz
	WLAN 11b Receiving (Rx)	2437MHz
6dB Bandwidth Maximum Peak Output Power Power Density 99% Occupied Bandwidth	WLAN 11b Transmitting (Tx), 11Mbps	2412MHz 2437MHz 2462MHz
Restricted Band Edge	WLAN 11b Transmitting (Tx), 11Mbps	2412MHz 2462MHz

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

4.2 Configuration and peripherals



* 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	PSP	PSP-2001	03-TSP1220H-0000650-PSPXXXX *1)	Sony Computer Entertainment	EUT
			03-TSP1220H-0000661-PSPXXXX *2)		
B	Memory Stick Duo	MSX-M256S	-	SONY	-
C	Battery Pack	PSP-S110	-	SONY	-
D	Note PC	2371-4WJ	KV-FCR 04/12	IBM	-
E	AC Adapter	02K6808	11S02K6808Z1Z89H4B95R3	IBM	-
F	Hub	FX-05Mini	37GC00419A	PLANEX	-
G	Adapter for Hub	RHF-050080-1	0709G	PLENEX	-
H	HP Remote Controller	PSP-S120	-	MITSUMI	-
I	Headphones	PSP-130	-	SONY	-
J	AC Adapter	ADP-624SR	#004	MITSUMI	-

*1) Used for Conducted / Radiated Emissions.

*2) Used for Antenna Terminal Conducted Test.

List of cables used

No.	Name	Length (m)	Shield	
			Cable	Connector
1	USB Cable	0.5	Shielded	Shielded
2	HP Remote Control Cable	0.8	Unshielded	Unshielded
3	Headphones Cable	1.1	Unshielded	Unshielded
4	DC Cable	1.5	Unshielded	Unshielded
5	AC Cable	1.5	Unshielded	Unshielded
6	LAN Cable	3.0	Unshielded	Unshielded
7	DC Cable	1.8	Unshielded	Unshielded
8	DC Cable	1.8	Unshielded	Unshielded
9	AC Cable	1.0	Unshielded	Unshielded

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SECTION 5: Conducted Emission

Test Procedure and conditions

EUT was placed on a urethane platform of nominal size, 1.0m 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. All unused 50ohm connectors of the LISN(AMN) were resistivity terminated in 50ohm when not connected to the measuring equipment.

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

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SECTION 6: Spurious Emission

[Conducted]

Test Procedure

The Out of Band Emission was measured with a spectrum analyzer connected to the antenna port.

It was measured based on "1. RF antenna conducted test" of "Guidance on Measurement of Digital Transmission Systems Operating under Section 15.247".

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

It was measured based on "2. Radiated emission test" of "Guidance on Measurement of Digital Transmission Systems Operating under Section 15.247".

EUT was placed on a urethane platform of nominal size, 1.0m 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.

The result also satisfied with the general limits specified in section 15.209(a).

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
Detector	QP: BW 120kHz	PK: RBW:1MHz/VBW: 1MHz
IF Bandwidth		AV: RBW:1MHz/VBW:10Hz

- 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

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SECTION 7: Bandwidth

Test Procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.
It was measured based on "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247".
The following spectrum analyzer setting was used:

- Span: 50MHz
- 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: Auto
- Detector: Peak
- Trace: Max Hold

Test data : APPENDIX 2
Test result : Pass

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