RADIO TEST REPORT

Test Report No. : 29EE0190-HO-01-A

Applicant	:	**Sony Computer Entertainment Inc.**
Type of Equipment	:	**PSP**
Model No.	:	**PSP-3001**
FCC ID	:	**AK8PSP3001B**
Test regulation	:	**FCC Part 15 Subpart C 2009 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.
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Date of test: December 22, 2008 to January 27, 2009

Tested by:

Takumi Shimada	Kazuya Yoshioka	Kenichi Adachi
EMC Services	EMC Services	EMC Services

Approved by :

Mitsuru Fujimura
Assistant Manager of EMC Services

NVLAP LAB CODE: 200572-0

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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
Telephone Number	+81-3-6483-8023
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Contact Person	Tatsuya Suzuki

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

2.1 Identification of E.U.T.

Type of Equipment	PSP
Model No.	PSP-3001
Serial No.	-0100000542-PSPXXXX for Conducted Emission and Radiated Emission tests -0100000696-PSPXXXX for Antenna Terminal Conducted tests
WLAN Module	Module 1
Rating	DC 5V, AC Adaptor (AC 100V-240V)
Country of Manufacture	China
Condition of EUT	Production prototype (Not for sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample	December 20, 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	HBS01-SO01
Antenna type	Inverted F antenna
Antenna Gain	+3.5 dBi (Max.)

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part15 Subpart C: 2009, final revised on February 17, 2009
Title	:	FCC 47CFR Part15 Radio Frequency Devices Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

*The revision on February 17, 2009 does not influence the test specification applied to the EUT

The EUT complies with FCC Part 15 Subpart B. Refer to the test report 29EE0162-YW.

FCC 15.31 (e)
This EUT provides stable voltage (DC3.1V/1.9V) constantly to RF Part 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.

3.2 Procedures and results

[DSSS and other forms of modulation]

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted emission	**FCC:** ANSI C63.4:2003 7. AC powerline conducted emission measurements	**FCC:** Section 15.207	Conducted	N/A	**[QP]** 20.2dB 0.19456MHz, L **[AV]** 18.9dB 0.19456MHz, L	Complied
		IC: RSS-Gen 7.2.2	**IC:** RSS-Gen 7.2.2				
2	6dB Bandwidth	**FCC:** "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247"	**FCC:** Section 15.247(a)(2)	Conducted	N/A	See data.	Complied
		IC: RSS-Gen 4.6.2	**IC:** RSS-210 A8.2(a)				
3	Maximum Peak Output Power	**FCC:** "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247"	**FCC:** Section 15.247(b)(3)	Conducted	N/A		Complied
		IC: RSS-Gen 4.8	**IC:** RSS-210 A8.4(4)				
4	Restricted Band Edges	**FCC:** "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247"	**FCC:** Section 15.247 (d)	Conducted/ Radiated	N/A		Complied
		IC: -	**IC:** RSS-210 A8.5				
5	Power Density	**FCC:** "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247"	**FCC:** Section 15.247 (e)	Conducted	N/A		Complied
		IC: -	**IC:** RSS-210 A8.2(b)				
6	Spurious Emission	**FCC:** "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247"	**FCC:** Section15.247(d)	Conducted/ Radiated	N/A	**[Tx]** 5.7dB 2390.00MHz Horizontal, AV **[Rx]** 7.5dB 77.210MHz Vertical, QP	Complied
		IC: RSS-Gen 4.9 RSS-Gen 4.10	**IC:** RSS-210 A8.5 RSS-Gen 7.2.1 and 7.2.3				
Note: UL Japan, Inc.'s EMI Work Procedures No.QPM05 and QPM15.							

*These tests were performed without any deviations from test procedure except for addition or exclusion.
* In case any questions arise about test procedure, ANSI C63.4: 2003 is also referred.

3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Bandwidth	**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	4.4dB	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)
[Tx] The data listed in this report meets the limits unless the uncertainty is taken into consideration.
[Rx] 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.

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 Mode(s)

The mode used for test :

Test	Mode	Tested frequency
Conducted Emission Spurious Emission	WLAN 11b Transmitting (Tx), 11Mbps *1)	2412MHz(L) 2437MHz(M) 2462MHz(H)
	WLAN 11b Receiving (Rx)	2437MHz(M)
6dB Bandwidth Maximum Peak Output Power Power Density 99% Occupied Bandwidth	WLAN 11b Transmitting (Tx), 11Mbps, *1)	2412MHz(L) 2437MHz(M) 2462MHz(H)
Restricted Band Edge	WLAN 11b Transmitting (Tx), 11Mbps, *1)	2412MHz(L) 2462MHz(H)

*Transmitting duty was 100% on all tests.
*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum power.
*1) Continuous transmitting of the signal, which is spread with complimentary code (8bit) defined in the Chapter 18 of IEEE Std 802.11b.

4.2 Configuration and peripherals

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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 0.8m 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

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 Section15.247 ".
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 Section15.247 ".
EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m, raised 0.8m 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.
The radiated emission measurements were made with the following detector function of the test receiver and the Spectrum analyzer.
In any 100kHz bandwidth outside the restricted 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 *1)
Detector IF Bandwidth	QP: BW 120kHz(T/R) 20dBc : RBW: 100kHz VBW: 300kHz (S/A)	PK: RBW: 1MHz/VBW: 1MHz AV *2): RBW: 1MHz/VBW: 10Hz 20dBc: RBW: 100kHz/VBW: 300kHz

*1) The Spectrum Analyzer was used in 3dB resolution bandwidth.
*2) 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.

Test data : APPENDIX 2
Test result : Pass

SECTION 7: Bandwidth

6dB 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

99% Occupied Bandwidth

Test Procedure

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

- Span: Enough width to display 20dB Bandwidth
- RBW: as close to 1% of the Span as is possible without being below 1%
- VBW: Three times of RBW
- 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 ".

- Span: 9MHz
- RBW: 30kHz*)
- VBW: 100kHz
- Sweep: 300sec
- Detector: Peak
- Trace: Max Hold

*) The test was not performed at RBW: 3kHz that was stated in the Regulation.
However, the measurement value with RBW:3kHz is less than the value of RBW:30kHz and the test data met the limit with RBW:3kHz.

Test data : APPENDIX 2
Test result : Pass