



RADIO TEST REPORT

Test Report No.: 29LE0256-SH-01-A-R1

Applicant : Sony EMCS Corporation Tokai TEC
Type of Equipment : IC Recording Media
Model No. : MS-JX8G
FCC ID : AK8MSJX8G
Test regulation : FCC Part15 Subpart F: 2009
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 limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. Original test report number of this report is 29LE0256-SH-A

Date of test: September 4, 2009

Tested by: 
Tatsuya Arai

Approved by: 
Osamu Watatani
Assistant Manager of Shonan EMC Lab.

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1 Applicant information

Company Name : Sony EMCS Corporation Tokai TEC
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Telephone Number : +81-564-62-6642
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Contact Person : Tadashi Nagaya

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

2.1 Identification of E.U.T.

Type of Equipment : IC Recording Media
Model No. : MS-JX8G
Serial No. : R1-191
Rating : DC2.7V to 3.6V / 0.34A
Country of Mass-production : Japan
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.
Receipt Date of Sample : September 4, 2009

2.2 Product description

Model: MS-JX8G (referred to as the EUT in this report) is a IC Recording Media.
This EUT has a wireless communication function.

Equipment type : Transceiver
Frequency of operation : 4480MHz
Clock frequency : 60MHz, 4.4kHz, 20MHz, 140MHz
Effective Bandwidth : 560MHz
(not 10dB Bandwidth)
Type of modulation : DSSS
Antenna type : Electric Field Coupling Antenna
Antenna connector type : N/A
Antenna gain : -0.8dBi
ITU code : Q7D
Operation temperature range : -5 to +65 deg.C.

FCC 15.31 (e)

The RF Module has its own regulator.

The RF Module is constantly provided voltage (DC1.8V, DC1.2V) through its own regulator regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203

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 Test specification, procedures and results

3.1 Test specification

Test specification : FCC Part 15 Subpart F: 2009, final revised on February 27, 2009
 Title : FCC 47CFR Part15 Radio Frequency Device
 Subpart F Ultra-Wideband Operation
 Section 15.519 Technical requirements for hand held UWB systems

* The EUT complies with FCC Part 15 Subpart B: 2009, final revised on February 27, 2009.

3.2 Procedures & Results (Hand held UWB systems)

| Item | Test Procedure | Specification | Remarks | Deviation | Worst Margin | Results |
|----------------------------|---------------------------------------|----------------------------------|-----------|-----------|---|----------|
| Conducted Emission | ANSI C63.4:2003 | FCC 15.505(a) FCC 15.207 | - | N/A | 21.8dB 0.43644MHz, N, QP 0.43334MHz, L1, QP | Complied |
| UWB Bandwidth | ANSI C63.4:2003 FCC 15.503 (a) | FCC 15.503 (d) FCC 15.519 (b) | Conducted | N/A | - | Complied |
| Radiated Emission | ANSI C63.4:2003 FCC 15.521 (d) | 15.519 (c) (d) | Radiated | N/A | 1.1dB 17920.00MHz, Horizontal | Complied |
| Peak level of the Emission | ANSI C63.4:2003 FCC 15.521 (e) (g) | FCC 15.209 FCC 15.519 (e) | Radiated | N/A | 30.6dB 4620.00MHz, Horizontal | Complied |
| Transmitter Timeout | ANSI C63.4:2003 | FCC 15.519 (a) (1) | Conducted | N/A | - | Complied |

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

3.3 Addition to standard

| Item | Test Procedure | Specification | Remarks | Worst Margin | Results |
|--------------------------|----------------------------------|---------------|-----------|--------------|---------|
| Occupied Bandwidth (99%) | ANSI C63.4:2003 RSS-Gen 4.6.1 | RSS-Gen 4.6.1 | Conducted | - | N/A |

* Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

| | No.1 anechoic chamber (±) | No.2 anechoic chamber (±) | No.3 anechoic chamber (±) |
|-------------------------------|---------------------------|---------------------------|---------------------------|
| Conducted emission | | | |
| 150kHz-30MHz | 3.0 dB | 2.7 dB | 2.8 dB |
| Radiated emission (3m) | | | |
| 30-300MHz | 4.4 dB | 4.3 dB | 4.5 dB |
| 300-1000MHz | 4.3 dB | 4.2 dB | 4.5 dB |
| 1GHz< | 5.7 dB | 5.6 dB | 5.6 dB |

Conducted emission test

The data listed in this test report has enough margin, more than site margin.

Radiated emission test

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

3.5 Test location

UL Japan, Inc. Shonan EMC Lab.

1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN

Telephone number : +81 463 50 6400

Facsimile number : +81 463 50 6401

No.1/ No.2/ No.3 anechoic chamber has been fully described in a report submitted to FCC office, and accepted on April 17, 2009 (Registration No.: 697847).

IC Registration No. : 2973D-1 (No1 anechoic chamber)
 2973D-2 (No2 anechoic chamber)
 2973D-3 (No3 anechoic chamber)

| Test room | Width x Depth x Height (m) | Test room | Width x Depth x Height (m) |
|-------------------------------|---|--------------------|----------------------------|
| No.1 Semi-anechoic chamber | 20.6 x 11.3 x 7.65 Maximum measurement distance: 10m | No.1 Shielded room | 6.8 x 4.1 x 2.7 |
| No.2 Semi-anechoic chamber | 20.6 x 11.3 x 7.65 Maximum measurement distance: 10m | No.2 Shielded room | 6.8 x 4.1 x 2.7 |
| No.3 Semi-anechoic chamber | 12.7 x 7.7 x 5.35 Maximum measurement distance: 5m | No.3 Shielded room | 6.3 x 4.7 x 2.7 |
| No.4 Semi-anechoic chamber | 8.1 x 5.1 x 3.55 | No.4 Shielded room | 4.4 x 4.7 x 2.7 |
| | | No.5 Shielded room | 7.8 x 6.4 x 2.7 |
| | | No.6 Shielded room | 7.8 x 6.4 x 2.7 |

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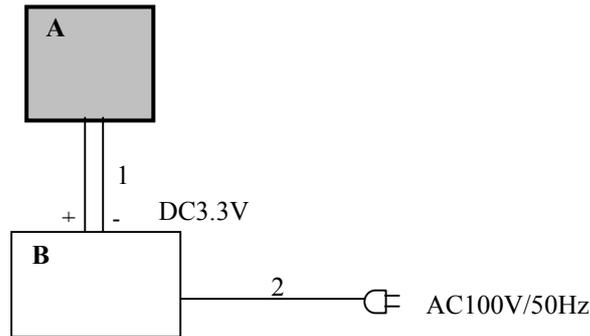
4 System test configuration

4.1 Justification

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

| Test item | Operating mode | Tested frequency |
|-----------|---------------------------------|------------------|
| All Item | Transmitting (Data system: M18) | 4480MHz |

4.2 Configuration of tested system



* Test data was taken under worse case conditions.

Description of EUT and support equipment

| No. | Item | Model number | Serial number | Manufacturer | FCC ID (Remarks) |
|-----|--------------------|--------------|---------------|--------------|------------------|
| A | IC Recording Media | MS-JX8G | R1-191 | SONY | AK8MSJX8G (EUT) |
| B | DC Power Supply | PAN35-10A | NA000955 | Kikusui | - |

List of cables used

| No. | Name | Length (m) | Shield | | Remark |
|-----|----------|------------|------------|------------|--------|
| | | | Cable | Connector | |
| 1 | DC Cable | 2.1 | Unshielded | Unshielded | - |
| 2 | AC Cable | 1.8 | Unshielded | Unshielded | - |

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5 Conducted emissions

5.1 Operating environment

The test was carried out in No.3 anechoic chamber.

5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.

The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.

The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface.

DC Power Supply was located 80cm from LISN and excess AC cable was bundled in center.

Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source.

Photographs of the set up are shown in Appendix 1.

5.3 Test conditions

Frequency range : 0.15 - 30MHz
EUT position : Table top
EUT operation mode: Transmitting

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT within a screened room.

The DC Power Supply was connected to a Line Impedance Stabilization Network (LISN).

An overview sweep with peak detection has been performed.

The measurements had been performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver.

Detector Type : Quasi-Peak/ Average
IF Bandwidth : 9kHz

5.5 Results

Summary of the test results : Pass

Date : September 4, 2009 Test engineer : Tatsuya Arai

6 UWB bandwidth & Occupied bandwidth (99%)

Test procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass

Date : September 4, 2009 Test engineer : Tatsuya Arai

UL Japan, Inc.

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7 Radiated Emission and Peak level of the Emission

7.1 Operating environment

The test was carried out in No.3 anechoic chamber.

7.2 Test configuration

EUT was placed on a urethane platform of nominal size, 0.25m by 0.25m, raised 0.8m(below 960MHz) and 1.0m (above 960MHz) above the conducting ground plane. Photographs of the set up are shown in Appendix 1.

7.3 Test conditions

Frequency range : 30MHz - 40GHz
 Test distance : 3m (30-960MHz), 0.5m (960MHz-10.6GHz), 0.3m (10.6-26.5GHz),
 0.1m (26.5-40GHz)

7.4 Test procedure

The Radiated Emission has been measured with a ground plane and at a distance of 3m, 0.5m, 0.3m and 0.1m. The measuring antenna height was 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. Measurements were performed with QP, RMS and Peak detector.

The radiated emission measurements were made with the following detector function of the test receiver.

| | | | |
|---------------|---|------------|--|
| Frequency | : | 30-960MHz | 960MHz-40GHz |
| Detector Type | : | Quasi-Peak | RMS Peak |
| IF Bandwidth | : | 120kHz | RBW:1MHz/VBW:1MHz RBW:3MHz/VBW:3MHz RBW:1kHz/VBW:1kHz (15.519(d)) |

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.

Combinations of the worst position

| Worst position | |
|----------------------------|----------------------------|
| Below 1GHz | Above 1GHz |
| Horizontal: Y, Vertical: Y | Horizontal: Y, Vertical: X |

7.6 Results

Summary of the test results : Pass

Date : September 4, 2009

Test engineer : Tatsuya Arai

8 Transmitter Timeout

Test procedure

The Transmitter Timeout was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass

Date : September 4, 2009

Test engineer : Tatsuya Arai

APPENDIX 1: Photographs of test setup

| | | |
|---------|---|---------------------------------|
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| Page 12 | : | Radiated emission |
| Page 13 | : | Pre-check of the worst position |

APPENDIX 2: Test data

| | | |
|--------------|---|--|
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| Page 15 | : | USB bandwidth and Occupied Bandwidth (99%) |
| Page 16 - 17 | : | Radiated Emission |
| Page 18 | : | Peak level of the Emission |
| Page 19 | : | Transmitter Timeout |

APPENDIX 3: Test instruments

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|---------|---|------------------|
| Page 20 | : | Test instruments |
|---------|---|------------------|