



# EMI TEST REPORT

**Test Report No. : 26CE0272-YK-1**

**Applicant** : Sony EMCS Corporation Saitama TEC  
**Type of Equipment** : Transmitter  
**Model No.** : TMR-RF930  
**FCC ID** : AK8TMR930  
**Test Standard** : FCC Part15 Subpart C,  
Section 15.207, Section 15.215, Section 15.249: 2005  
**Test Result** : Complied

1. This test report shall not be reproduced except in full, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with above regulation. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this test report are traceable to the national or international standards.

**Date of test:** November 7 and 15, 2005

**Tested by:** T. Suzuki & T. Amamura  
Takahiro Suzuki & Toyokazu Imamura

**Approved by:** O. Watatani  
Osamu Watatani  
Site Manager of Yamakita EMC Lab.

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MF060b(01.06.05)

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## 1 Applicant Information

Company Name : Sony EMCS Corporation Saitama TEC  
Address : Shinagawa INTERCITY C Tower Shinagawa Tec.  
2-15-3 Konan Minato-ku, Tokyo, 108-6201 JAPAN  
Telephone Number : +81-3-5769-5640  
Facsimile Number : +81-3-5769-5962  
Contact Person : Kikuo Murata

## 2 Product Description

Type of Equipment : Transmitter  
Model No. : TMR-RF930  
Serial No. : 2020355  
Rating : DC9V (AC120V/60Hz)  
Country of Manufacture : Malaysia  
Receipt Date of Sample : November 7, 2005  
Condition of EUT : Engineering prototype  
(Not for Sale: This sample is equivalent to mass-produced items.)

Model: TMR-RF930 (referred to as the EUT in this report) is a Transmitter of Wireless Speaker System SRS-RF930RK.

Frequency of operation : 913.5 – 914.5 MHz  
Type of modulation : FM  
Antenna type : Integral antenna  
Antenna connector type : None  
Mode of operation : Simplex  
Emission designation : F8E  
Operation temperature range: 0 ~ 40 deg. C.

### \*FCC Part15.31 (e)

The transmitter provides the module with stable power supply (DC9V), and the power is not changed when voltage of the transmitter is varied. Therefore, the equipment complies power supply regulation.

### \*FCC Part15.203

The transmitter and its antenna comply with this requirement since this antenna is built in the equipment and it cannot be replaced by end users.

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### 3 Test Specification, Procedures and Results

#### 3.1 Test specification

Test specification : FCC Part15 Subpart C: 2005  
 Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators  
 Section 15.207 Conducted limits  
 Section 15.215 Additional provisions to the general radiated emission limitations  
 Section 15.249 Operation within the bands 902-928MHz, 2400-2483.5MHz,  
 5725-5875MHz, and 24.0-24.25MHz

#### 3.2 Procedures & Results

| Item                 | Test Procedure   | Specification                 | Remarks   | Deviation | Worst Margin                         | Results  |
|----------------------|--|-------------------------------|-----------|-----------|--------------------------------------|----------|
| Conducted Emission   | ANSI C63.4:2003<br>7. AC powerline conducted emission measurements | Section 15.207                | -         | N/A       | 29.6dB<br>(0.2903MHz, N, QP)         | Complied |
| 20dB Bandwidth       | ANSI C63.4:2003<br>13. Measurement of intentional radiators        | Section 15.215                | Conducted | N/A       | -                                    | Complied |
| Fundamental Emission | ANSI C63.4:2003<br>13. Measurement of intentional radiators        | Section 15.249 (a)<br>(d)     | Radiated  | N/A       | 5.6dB (Vertical)                     | Complied |
| Spurious Emission    | ANSI C63.4:2003<br>13. Measurement of intentional radiators        | Section 15.249 (a)<br>(d) (e) | Radiated  | N/A       | 10.8dB<br>(1828.00MHz, AV, Vertical) | Complied |

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

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

#### 3.3 Uncertainty

##### Conducted emission

The measurement uncertainty (with a 95% confidence level) for this test was  $\pm 1.3$ dB.

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

##### Radiated emission

The measurement uncertainty (with 95% confidence level) for this test using Biconical antenna is  $\pm 4.8$ dB.

The measurement uncertainty (with 95% confidence level) for this test using Logperiodic antenna is  $\pm 5.2$ dB.

The measurement uncertainty (with 95% confidence level) for this test using Horn antenna is  $\pm 6.6$ dB.

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

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### 3.4 Test Location

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Telephone number : +81 465 77 1011  
Facsimile number : +81 465 77 2112  
NVLAP Lab. code : 200441-0

No. 1 test site has been fully described in a report submitted to FCC office, and accepted on August 26, 2005 (Registration No.: 95486).  
IC Registration No. : IC3489A

No. 2 test site has been fully described in a report submitted to FCC office, and accepted on April 4, 2005 (Registration No.: 466226).  
IC Registration No. : IC3489A-2

No. 1 anechoic chamber has been fully described in a report submitted to FCC office, and accepted on November 2, 2005 (Registration No.: 95967).  
IC Registration No. : IC3489A-B

| Test room          | Width x Depth x Height (m) | Test room                                | Width x Depth x Height (m) |
|--------------------|----------------------------|--|----------------------------|
| No.1 shielded room | 8.0 x 5.0 x 2.5            | No.1 EMS lab.<br>(Semi-anechoic chamber) | 10.0 x 7.5 x 5.7           |
| No.2 shielded room | 5.0 x 4.0 x 2.5            |  |                            |
| No.3 shielded room | 4.0 x 5.0 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 mode: Transmitting mode (914.0MHz)

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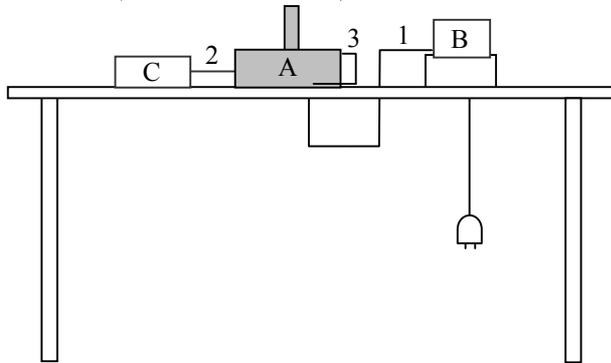
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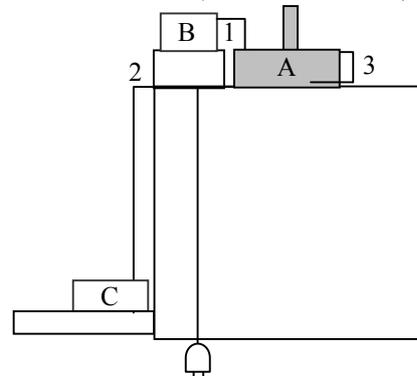
## 4.2 Configuration of Tested System

Front View (Conducted emission)



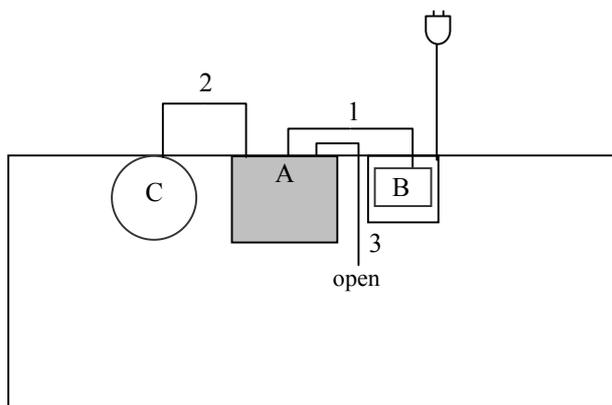
AC120V/60Hz

Front View (Radiated emission)

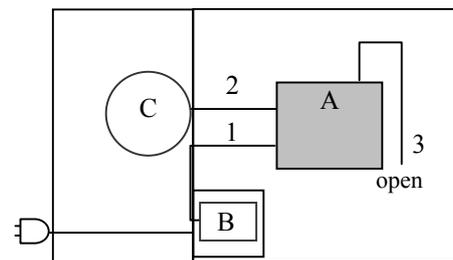


AC120V/60Hz

Top View (Conducted emission)



Top View (Radiated emission)



\* 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   | Transmitter | TMR-RF930    | 2020355       | SONY         | AK8TMR930 (EUT)  |
| B   | AC Adaptor  | AC-S901      | -             | SONY         | -                |
| C   | CD Player   | D-NE509      | 5115173       | SONY         | -(Battery use)   |

### List of cables used

| No. | Name        | Length (m) | Shield     | Remark |
|-----|-------------|------------|------------|--------|
| 1   | AC cable    | 2.15       | Unshielded | -      |
| 2   | Audio cable | 1.4        | Unshielded | -      |
| 3   | Audio cable | 1          | Unshielded | -      |

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## 5 Conducted Emissions

### 5.1 Operating environment

The test was carried out in No.3 shielded room.

### 5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.8m, 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 was 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) and excess AC cable was bundled in center. I/O cable 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.

### 5.3 Test conditions

Frequency range : 0.15 - 30MHz  
EUT operation mode : Transmitting

### 5.4 Test procedure

The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

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

Detector: QP/AV  
IF Bandwidth: 10kHz

### 5.5 Results

Summary of the test results : Pass  
Test data : APPENDIX 2 Page 15 to 17

Date : November 7, 2005      Test engineer : Takahiro Suzuki

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## 6 Radiated Emissions

### 6.1 Operating environment

The test was carried out in No.2 open site.

### 6.2 Test configuration

EUT was placed on a platform of nominal size, 0.5m by 0.5m, raised 80cm above the conducting ground plane. A drawing of the set up is shown in the photos of Appendix 1.

### 6.3 Test conditions

Frequency range : 30MHz - 10GHz  
Test distance : 3m  
EUT operation mode : Transmitting

### 6.4 Test procedure

The Radiated Electric Field Strength intensity has been measured with a ground plane and at a distance of 3m. 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.

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.

Measurements were performed with QP, PK, and AV detector.

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

| 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 |

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

### 6.5 Results

Summary of the test results : Pass  
Test data : APPENDIX 2 Page 18 (Fundamental)  
: APPENDIX 2 Page 19 to 21 (Spurious)

Date : November 7, 2005 Test engineer : Takahiro Suzuki

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## 7 20dB Bandwidth

### 7.1 Operating environment

The test was carried out in preparation room of No.4 shielded room.

### 7.2 Test procedure

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

**20dB Bandwidth** : 85.77kHz  
**Occupied Bandwidth (99%)** : 114.53kHz

### 7.3 Results

Summary of the test results : Pass  
Test data : APPENDIX 2 Page 22

Date : November 15, 2005      Test engineer : Toyokazu Imamura

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### **APPENDIX 1: Photographs of test setup**

Page 12 : Conducted emission  
Page 13 : Radiated emission

### **APPENDIX 2: Test Data**

Page 14 - 16 : Conducted emission  
Page 17 - 20 : Radiated emission  
17 : Fundamental  
18 - 20 : Spurious  
Page 21 : 20dB Bandwidth

### **APPENDIX 3: Test instruments**

Page 22 : Test instruments

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### Conducted emission



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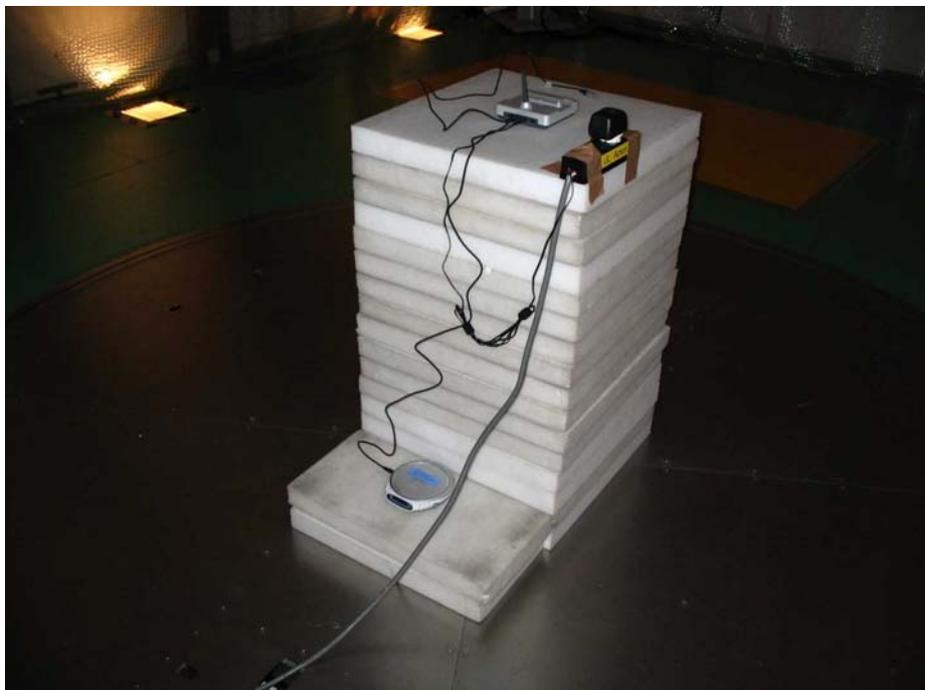
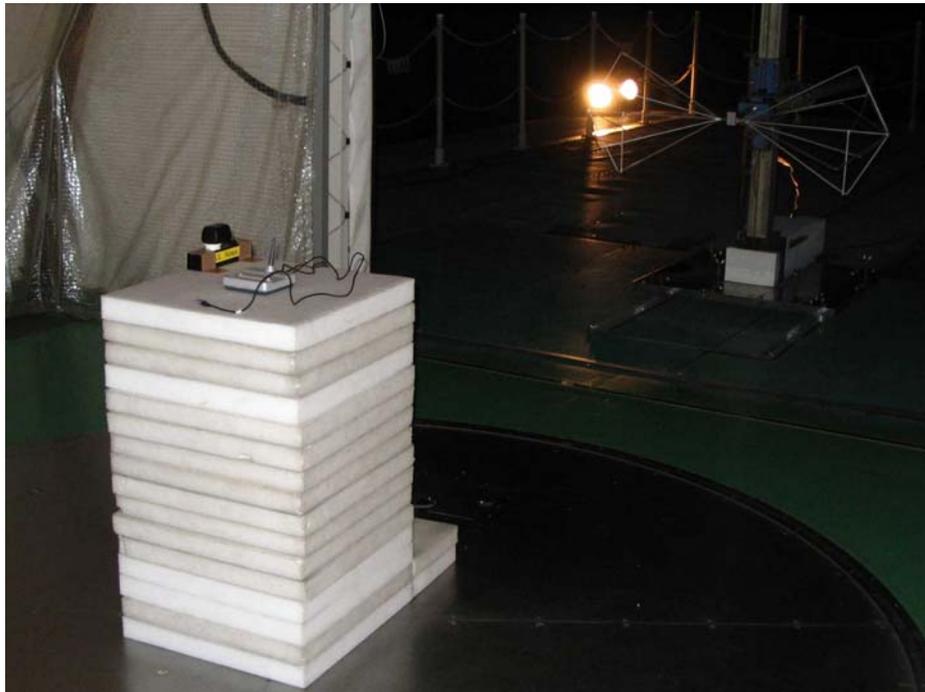
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## Radiated emission



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# DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.  
YAMAKITA No.3 SHIELD TEST ROOM  
Report No. : 26CE0272-YK - 1

Applicant : Sony EMCS Corporation Saitama TEC  
 Kind of Equipment : Transmitter  
 Model No. : TMR-RF930  
 Serial No. : 2020355  
 Power : AC120V/60Hz  
 Mode : Transmitting(914.0MHz)  
 Remarks :  
 Date : 11/7/2005  
 Phase : Single Phase  
 Temperature : 21 °C  
 Humidity : 56 %  
 Regulation : FCC Part15C § 15. 207. (CISPR Pub. 22 )

Engineer : Takahiro Suzuki

| No. | FREQ.<br>[MHz] | READING (N)    |    | READING (L1)   |    | LISN<br>FACTOR<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT     |                | LIMITS         |            | MARGIN |   |
|-----|----------------|----------------|----|----------------|----|------------------------|-----------------------|----------------|------------|----------------|----------------|------------|--------|---|
|     |                | QP<br>[dB μ V] | AV | QP<br>[dB μ V] | AV |                        |                       |                | QP<br>[dB] | AV<br>[dB μ V] | QP<br>[dB μ V] | AV<br>[dB] |        |   |
| 1.  | 0.1500         | 29.3           | -  | 29.2           | -  | 0.1                    | 0.1                   | 0.0            | 29.5       | -              | 66.0           | 56.0       | 36.5   | - |
| 2.  | 0.2848         | 30.6           | -  | 30.2           | -  | 0.1                    | 0.1                   | 0.0            | 30.8       | -              | 60.7           | 50.7       | 29.9   | - |
| 3.  | 0.2903         | 30.7           | -  | 30.5           | -  | 0.1                    | 0.1                   | 0.0            | 30.9       | -              | 60.5           | 50.5       | 29.6   | - |
| 4.  | 0.4481         | 24.0           | -  | 23.9           | -  | 0.1                    | 0.2                   | 0.0            | 24.3       | -              | 56.9           | 46.9       | 32.6   | - |
| 5.  | 0.5000         | 22.2           | -  | 23.6           | -  | 0.1                    | 0.2                   | 0.0            | 23.9       | -              | 56.0           | 46.0       | 32.1   | - |
| 6.  | 0.6222         | 19.4           | -  | 20.6           | -  | 0.1                    | 0.2                   | 0.0            | 20.9       | -              | 56.0           | 46.0       | 35.1   | - |

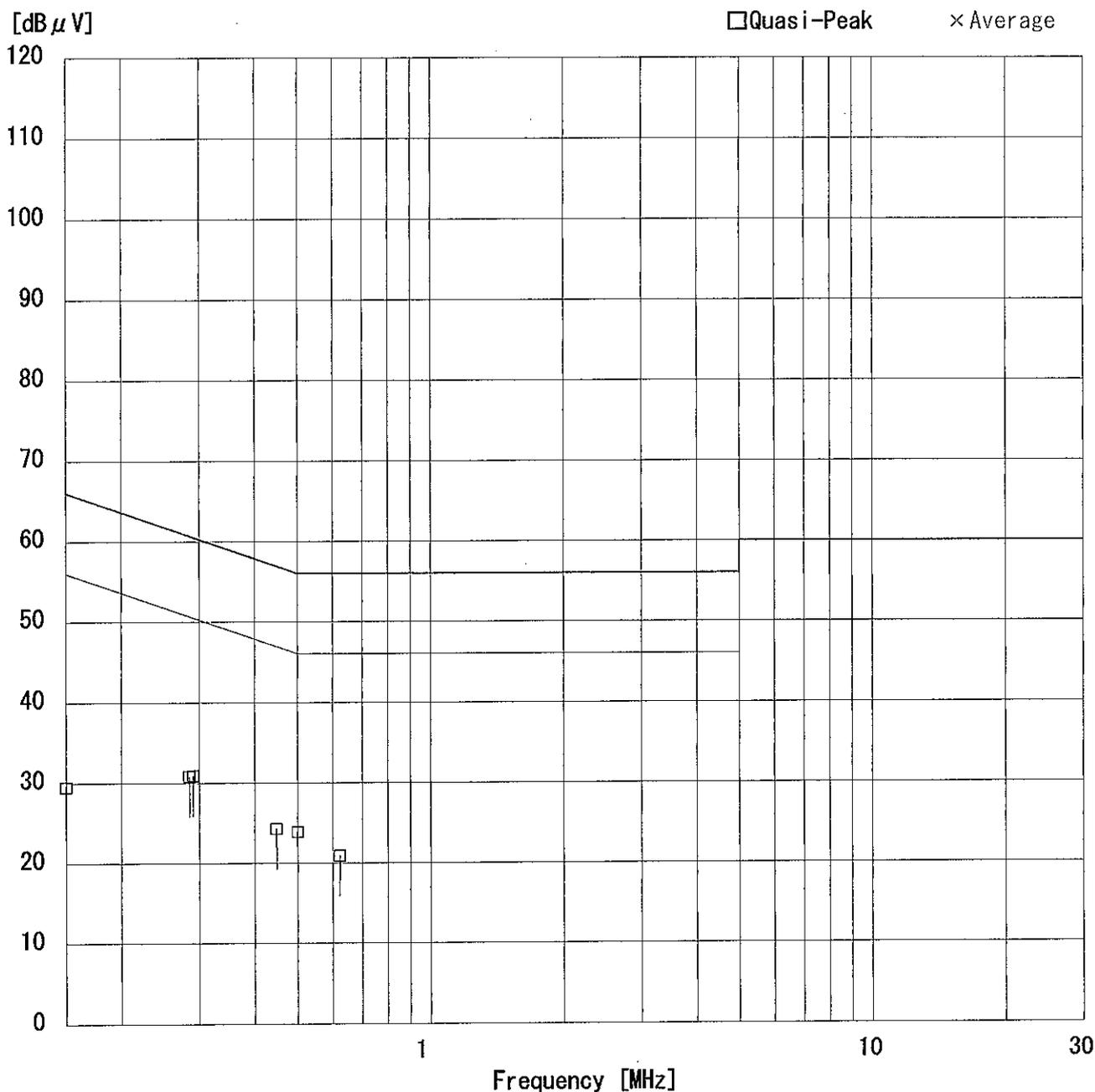
CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

■ LISN: KLS-05 (NSLK8126)    ■ COAXIAL CABLE: KCC-24/25/26/28  
 ■ PULSE LIMITER: KPL-02    ■ EMI RECEIVER: KTR-03 (ESHS10)

# DATA OF CONDUCTION TEST

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YAMAKITA No.3 SHIELD TEST ROOM  
Report No. : 26CE0272-YK - 1

Applicant : Sony EMCS Corporation Saitama TEC  
Kind of Equipment : Transmitter  
Model No. : TMR-RF930  
Serial No. : 2020355  
Power : AC120V/60Hz  
Mode : Transmitting (914.0MHz)  
Remarks :  
Date : 11/7/2005  
Phase : Single Phase  
Temperature : 21 °C  
Humidity : 56 %  
Regulation : FCC Part15C § 15. 207. (CISPR Pub. 22 )  
Engineer : Takahiro Suzuki

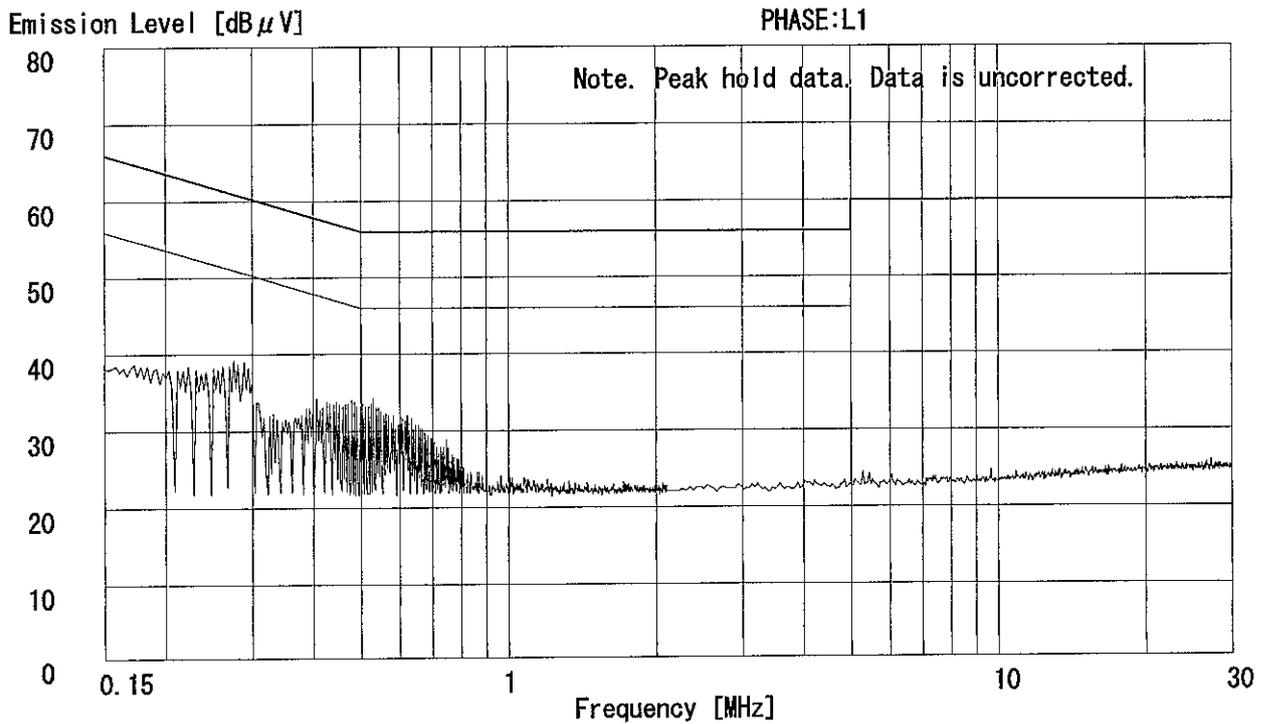
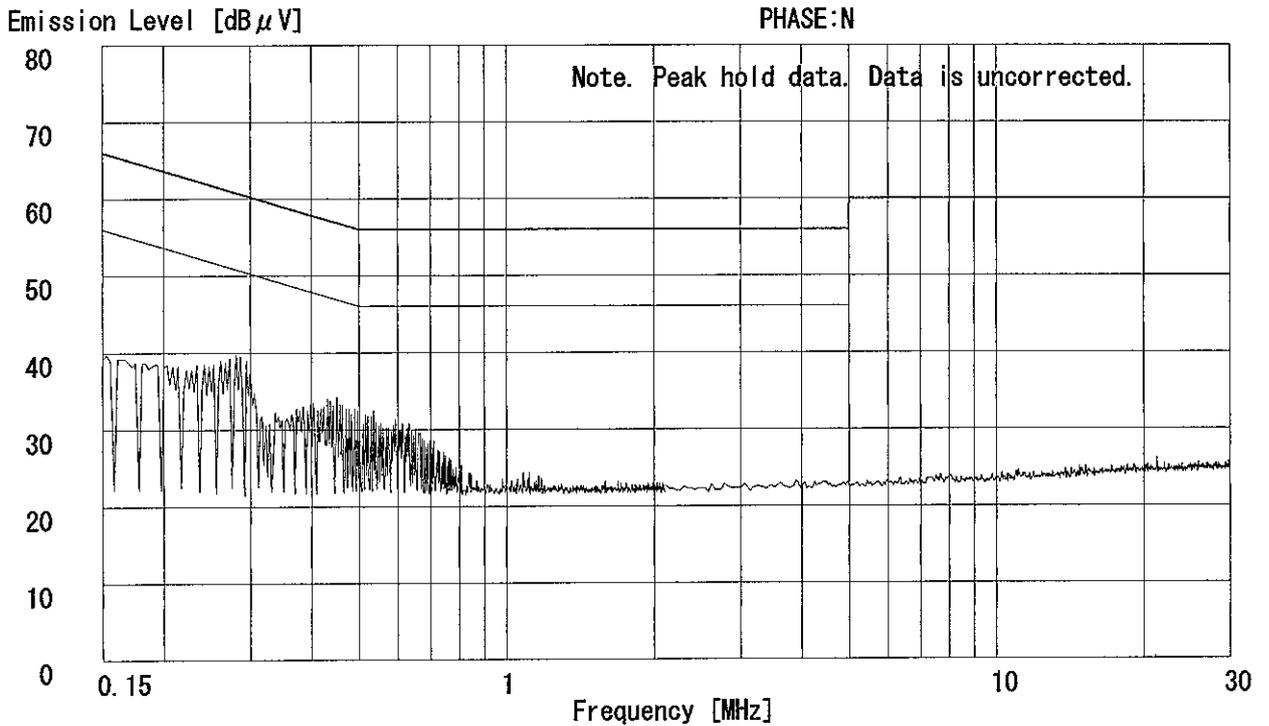


# DATA OF CONDUCTION TEST CHART

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YAMAKITA No.3 SHIELD TEST ROOM  
Report No. : 26GE0272-YK-1

Applicant : Sony EMCS Corporation Saitama TEC  
Kind of Equipment : Transmitter  
Model No. : TMR-RF930  
Serial No. : 2020355  
Power : AC120V/60Hz  
Mode : Transmitting (914.0MHz)  
Remarks :  
Date : 11/7/2005  
Phase : Single Phase  
Temperature : 21 °C  
Humidity : 56 %  
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub. 22 )  
Regulation 2 : FCC Part15C § 15.207. (CISPR Pub. 22 )

Engineer : Takahiro Suzuki



# DATA OF RADIATION TEST

UL Apex Co.,Ltd.  
Yamakita No.2 Open Test Site  
Report No. : 26GE0272-YK-1

Applicant : Sony EMCS Corporation Saitama TEC  
Kind of Equipment : Transmitter  
Model No. : TMR-RF930  
Serial No. : 2020355  
Power : AC120V/60Hz  
Mode : Transmitting (914.0MHz)  
Remarks :  
Date : 11/7/2005  
Test Distance : 3 m  
Temperature : 21 °C Engineer : Takahiro Suzuki  
Humidity : 63 %  
Regulation : FCC Part15C § 15.249(a) Fundamental (D:3m)

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING        |                | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT           |                  | LIMITS      |             | MARGIN |  |
|-----|----------------|-------------|----------------|----------------|-------------------------|---------------------|-----------------------|----------------|------------------|------------------|-------------|-------------|--------|--|
|     |                |             | HOR<br>[dB μV] | VER<br>[dB μV] |                         |                     |                       |                | HOR<br>[dB μV/m] | VER<br>[dB μV/m] | HOR<br>[dB] | VER<br>[dB] |        |  |
| 1.  | 914.00         | BB          | 78.7           | 81.5           | 22.5                    | 28.4                | 6.9                   | 5.8            | 85.5             | 88.3             | 93.9        | 8.4         | 5.6    |  |

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KBA-02 (BBA9106) 30-299MHz/KLA-02 (USLP9143) 300-1000MHz  
■ AMP: KAF-03 (8447D) ■ RECEIVER: KTR-01 (ESI40) ■ CABLE: KCC-20/21/22/23/29

# DATA OF RADIATION TEST

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Yamakita No.2 Open Test Site  
Report No. : 26CE0272-YK = 1

Applicant : Sony EMCS Corporation Saitama TEC  
 Kind of Equipment : Transmitter  
 Model No. : TMR-RF930  
 Serial No. : 2020355  
 Power : AC120V/60Hz  
 Mode : Transmitting(914.0MHz)  
 Remarks :  
 Date : 11/7/2005  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 63 %  
 Regulation : FCC Part15C § 15.209

Engineer : Takahiro Suzuki

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING        |      | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT           |      | LIMITS<br>[dB μV/m] | MARGIN      |      |
|-----|----------------|-------------|----------------|------|-------------------------|---------------------|-----------------------|----------------|------------------|------|---------------------|-------------|------|
|     |                |             | HOR<br>[dB μV] | VER  |                         |                     |                       |                | HOR<br>[dB μV/m] | VER  |                     | HOR<br>[dB] | VER  |
| 1.  | 52.07          | BB          | 23.3           | 35.2 | 11.3                    | 27.8                | 1.5                   | 5.8            | 14.1             | 26.0 | 40.0                | 25.9        | 14.0 |
| 2.  | 92.35          | BB          | 27.9           | 26.3 | 9.1                     | 27.7                | 2.0                   | 5.8            | 17.1             | 15.5 | 43.5                | 26.4        | 28.0 |
| 3.  | 118.50         | BB          | 29.0           | 33.4 | 13.3                    | 27.8                | 2.3                   | 5.8            | 22.6             | 27.0 | 43.5                | 20.9        | 16.5 |
| 4.  | 141.10         | BB          | 26.6           | 27.6 | 15.0                    | 27.8                | 2.5                   | 5.8            | 22.1             | 23.1 | 43.5                | 21.4        | 20.4 |
| 5.  | 320.85         | BB          | 21.7           | 22.9 | 15.0                    | 27.5                | 3.9                   | 5.8            | 18.9             | 20.1 | 46.0                | 27.1        | 25.9 |
| 6.  | 440.00         | BB          | 22.8           | 23.0 | 17.7                    | 28.2                | 4.6                   | 5.8            | 22.7             | 22.9 | 46.0                | 23.3        | 23.1 |

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KBA-02 (BBA9106) 30-299MHz/KLA-02 (USLP9143) 300-1000MHz  
 ■ AMP: KAF-03 (8447D) ■ RECEIVER: KTR-01 (ES140) ■ CABLE: KCC-20/21/22/23/29

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.  
Yamakita No.2 Open Test Site  
Report No. : 26CE0272-YK - 1

Applicant : Sony EMCS Corporation Saitama TEC  
 Kind of Equipment : Transmitter  
 Model No. : TMR-RF930  
 Serial No. : 2020355  
 Power : AC120V/60Hz  
 Mode : Transmitting(914.0MHz)  
 Remarks : AV (RBW:1MHz, VBW:10Hz)  
 Date : 11/7/2005  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 63 %  
 Regulation : FCC Part15C § 15.209 (AV Detection)

Engineer : Takahiro Suzuki

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |      | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |      | LIMITS<br>[dB μ V/m] | MARGIN      |      |
|-----|----------------|-------------|-----------------|------|-------------------------|---------------------|-----------------------|----------------|-------------------|------|----------------------|-------------|------|
|     |                |             | HOR<br>[dB μ V] | VER  |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER  |                      | HOR<br>[dB] | VER  |
| 1.  | 1828.00        | BB          | 39.9            | 40.2 | 24.4                    | 34.9                | 3.5                   | 10.0           | 42.9              | 43.2 | 54.0                 | 11.1        | 10.8 |
| 2.  | 2742.00        | BB          | 35.4            | 35.8 | 26.5                    | 34.5                | 4.2                   | 10.1           | 41.7              | 42.1 | 54.0                 | 12.3        | 11.9 |
| 3.  | 3656.00        | BB          | 31.2            | 35.1 | 27.5                    | 33.3                | 4.9                   | 0.7            | 31.0              | 34.9 | 54.0                 | 23.0        | 19.1 |
| 4.  | 4570.00        | BB          | 28.3            | 29.6 | 29.8                    | 34.0                | 5.4                   | 0.5            | 30.0              | 31.3 | 54.0                 | 24.0        | 22.7 |
| 5.  | 5484.00        | BB          | 28.2            | 28.4 | 30.8                    | 34.0                | 5.9                   | 1.0            | 31.9              | 32.1 | 54.0                 | 22.1        | 21.9 |
| 6.  | 6398.00        | BB          | 28.9            | 28.9 | 32.6                    | 34.2                | 6.2                   | 0.3            | 33.8              | 33.8 | 54.0                 | 20.2        | 20.2 |
| 7.  | 7312.00        | BB          | 29.6            | 29.6 | 34.3                    | 34.3                | 6.7                   | 0.2            | 36.5              | 36.5 | 54.0                 | 17.5        | 17.5 |
| 8.  | 8226.00        | BB          | 29.7            | 29.8 | 35.6                    | 34.5                | 7.0                   | 0.4            | 38.2              | 38.3 | 54.0                 | 15.8        | 15.7 |
| 9.  | 9140.00        | BB          | 29.9            | 30.1 | 36.0                    | 34.7                | 7.1                   | 0.5            | 38.8              | 39.0 | 54.0                 | 15.2        | 15.0 |

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: HA-05 (1-18GHz)

■ AMP: KAF-04 (8449B) ■ SPECTRUM ANALYZER: KSA-04 ■ CABLE: KCC-D3/D7

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.  
Yamakita No.2 Open Test Site  
Report No. : 26CE0272-YK = 1

Applicant : Sony EMCS Corporation Saitama TEC  
 Kind of Equipment : Transmitter  
 Model No. : TMR-RF930  
 Serial No. : 2020355  
 Power : AC120V/60Hz  
 Mode : Transmitting (914.0MHz)  
 Remarks : PK (RBW: 1MHz, VBW: 1MHz)  
 Date : 11/7/2005  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 63 %  
 Regulation : FCC Part15C § 15.209 (PK Detection)

Engineer : Takahiro Suzuki

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING        |      | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT           |      | LIMITS<br>[dB μV/m] | MARGIN      |      |
|-----|----------------|-------------|----------------|------|-------------------------|---------------------|-----------------------|----------------|------------------|------|---------------------|-------------|------|
|     |                |             | HOR<br>[dB μV] | VER  |                         |                     |                       |                | HOR<br>[dB μV/m] | VER  |                     | HOR<br>[dB] | VER  |
| 1.  | 1828.00        | BB          | 46.8           | 46.7 | 24.4                    | 34.9                | 3.5                   | 10.0           | 49.8             | 49.7 | 74.0                | 24.2        | 24.3 |
| 2.  | 2742.00        | BB          | 44.6           | 44.9 | 26.5                    | 34.5                | 4.2                   | 10.1           | 50.9             | 51.2 | 74.0                | 23.1        | 22.8 |
| 3.  | 3656.00        | BB          | 38.8           | 43.0 | 27.5                    | 33.3                | 4.9                   | 0.7            | 38.6             | 42.8 | 74.0                | 35.4        | 31.2 |
| 4.  | 4570.00        | BB          | 37.9           | 38.6 | 29.8                    | 34.0                | 5.4                   | 0.5            | 39.6             | 40.3 | 74.0                | 34.4        | 33.7 |
| 5.  | 5484.00        | BB          | 39.0           | 37.2 | 30.8                    | 34.0                | 5.9                   | 1.0            | 42.7             | 40.9 | 74.0                | 31.3        | 33.1 |
| 6.  | 6398.00        | BB          | 37.8           | 38.1 | 32.6                    | 34.2                | 6.2                   | 0.3            | 42.7             | 43.0 | 74.0                | 31.3        | 31.0 |
| 7.  | 7312.00        | BB          | 38.2           | 38.9 | 34.3                    | 34.3                | 6.7                   | 0.2            | 45.1             | 45.8 | 74.0                | 28.9        | 28.2 |
| 8.  | 8226.00        | BB          | 37.6           | 40.1 | 35.6                    | 34.5                | 7.0                   | 0.4            | 46.1             | 48.6 | 74.0                | 27.9        | 25.4 |
| 9.  | 9140.00        | BB          | 38.9           | 39.8 | 36.0                    | 34.7                | 7.1                   | 0.5            | 47.8             | 48.7 | 74.0                | 26.2        | 25.3 |

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

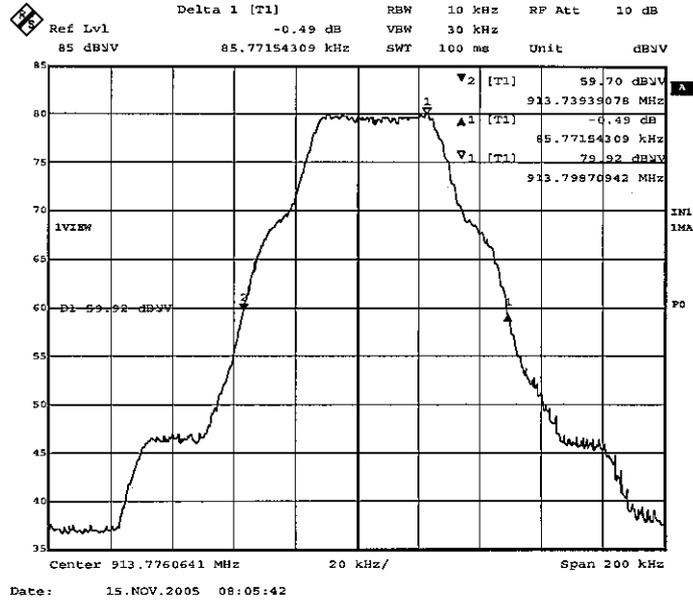
■ ANTENNA: HA-05 (1-18GHz)

■ AMP: KAF-04 (8449B) ■ SPECTRUM ANALYZER: KSA-04 ■ CABLE: KCC-D3/D7

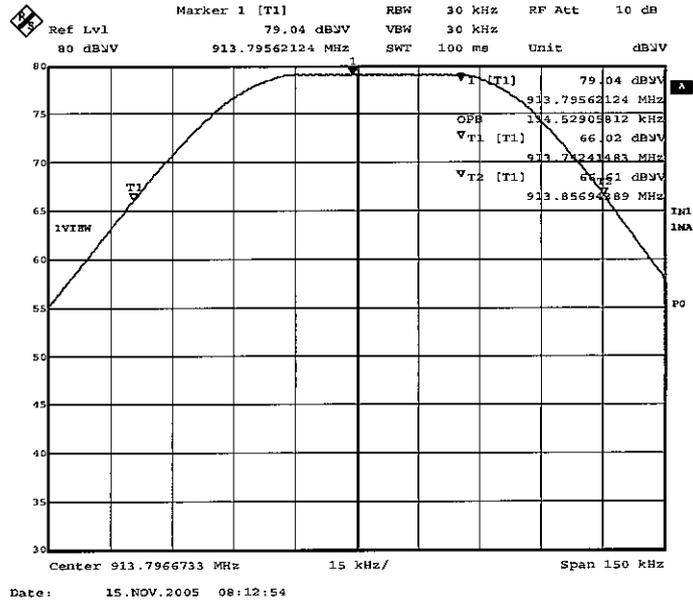
## 20dB Bandwidth: FCC 15.215(c)

|  |   |
|--|---|
| <b>COMPANY</b> : Sony EMCS Corporation Saitama Tec<br><b>EQUIPMENT</b> : Transmitter<br><b>MODEL NUMBER</b> : TMR-RF930<br><b>SERIAL NUMBER</b> : 2020355<br><b>FCC ID</b> : AK8TMR930<br><b>POWER</b> : AC120V/60Hz<br><b>Remarks</b> : - | <b>UL Apex Co.,Ltd. Yamakita No.4 Shielded Room</b><br><b>REPORT NO</b> : 25LE0272-YK-1<br><b>REGULATION</b> : Fcc Part15SubpartC 215(c)<br><b>DATE</b> : 2005/11/15<br><b>TEMP./HUMI</b> : 25°C/39%<br><b>TEST MODE</b> : Transmitting<br><b>ENGINEER</b> : Toyokazu Imamura |
|--|---|

20dB Bandwidth:85.77kHz



Occupied Bandwidth(99%): 114.53kHz



Test Report No : 26CE0272-YK-1

### APPENDIX 3 Test Instruments

#### EMI test equipment

| Control No.                | Instrument                     | Manufacturer          | Model No                             | Test Item | Calibration Date *<br>Interval(month) |
|----------------------------|--------------------------------|-----------------------|--------------------------------------|-----------|---------------------------------------|
| KAF-03                     | Pre Amplifier                  | Hewlett Packard       | 8447D                                | RE        | 2005/09/09 * 12                       |
| KAF-04                     | Pre Amplifier                  | Agilent               | 8449B                                | RE        | 2005/04/28 * 12                       |
| KAT10-S1                   | Attenuator                     | Agilent               | 8449D 010                            | RE        | 2005/04/12 * 12                       |
| KAT6-03                    | Attenuator                     | INMET                 | 18N-6dB                              | RE        | 2005/04/07 * 12                       |
| KBA-02                     | Biconical Antenna              | Schwarzbeck           | BBA9106                              | RE        | 2005/07/29 * 12                       |
| KCC-20/21/22<br>/23/29     | Coaxial Cable                  | Fujikura/Suhner       | 8D-2W/12D-SFA/S0<br>4272B/S04272B    | RE        | 2005/09/02 * 12                       |
| KCC-24/25/26<br>/28/KPL-02 | Coaxial Cable/Pulse<br>Limiter | Fujikura/Suhner/PMM   | 5D-2W/5D-2W/S042<br>72B/S04272B/PL01 | CE        | 2005/09/02 * 12                       |
| KCC-D3/D7                  | Coaxial Cable                  | Rosenberger/Advantest | 2201/JUN-08-01-06<br>1               | RE        | 2005/04/12 * 12                       |
| KCC-D14/D15                | Coaxial cable                  | Suhner                | SUCOFLEX 104                         | RE        | 2005/01/12 * 12                       |
| KFL-01                     | Highpass Filter                | Hewlett Packard       | 84300 80038                          | RE        | 2005/04/12 * 12                       |
| KLA-02                     | Logperiodic Antenna            | Schwarzbeck           | USLP9143                             | RE        | 2005/07/29 * 12                       |
| KLS-05                     | LISN(AMN)                      | Schwarzbeck           | NSLK8126                             | CE        | 2005/09/06 * 12                       |
| KOTS-02                    | Open Test Site                 | JSE                   | 10m                                  | RE        | 2005/08/07 * 12                       |
| KSA-02                     | Spectrum Analyzer              | Advantest             | R3265A                               | CE/RE     | 2005/11/10 * 12                       |
| KSA-04                     | Spectrum Analyzer              | Advantest             | R3271A                               | RE        | 2005/09/13 * 12                       |
| KTR-03                     | Test Receiver                  | Rohde & Schwarz       | ESHS10                               | CE        | 2005/05/11 * 12                       |
| HA-05                      | Horn Antenna                   | Schwarzbeck           | BBHA9120D                            | RE        | 2005/04/06 * 12                       |
| KSCA-01                    | Search coil                    | TSJ                   | SC01                                 | BW        | Pre Check                             |
| KTR-01                     | Test Receiver                  | Rohde & Schwarz       | ESI40                                | BW        | 2005/08/05 * 12                       |
| KCC-A7                     | Coaxial Cable                  | Fujikura              | 5D-2W                                | BW        | 2005/01/06 * 12                       |
|                            |                                |                       |                                      |           |                                       |
|                            |                                |                       |                                      |           |                                       |

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

Test Item:

CE: Conducted emission,

RE: Radiated emission

BW: 20dB Bandwidth