



JAPAN QUALITY ASSURANCE ORGANIZATION  
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JQA APPLICATION NO.: 400-00667

Issue Date : March 21, 2001

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## **EMI TEST REPORT**

JQA APPLICATION NO. : 400-00667

Model No. : TMR-RF915R

Type of Equipment : RF STEREO TRANSMITTER

Regulations Applied : CFR 47 FCC Rules and Regulations Part 15

FCC ID : AK8TMRRF915R

Applicant : Sony Corporation

Address : 6-7-35 Kitashinagawa, Shinagawa-ku,  
Tokyo 141-0001, Japan

Manufacture : Sony Corporation

Address : 6-7-35 Kitashinagawa, Shinagawa-ku,  
Tokyo 141-0001, Japan

Received date of EUT : March 12, 2001

**Final Judgment : Passed**

**TEST RESULTS IN THIS REPORT** are obtained in use of equipment that is traceable to Electro-Technical Lab. of METI and Communications Research Lab. of MPHPT.

**The test results** only respond to the tested sample. This report should not be reproduced except in full, without the written approval of JQA EMC Engineering Dept. Testing Div.

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## 1 DOCUMENTATION

### 1.1 TEST REGULATION

FCC Rules and Regulations Part 15 Subpart A and C (June 23, 1989) Intentional Radiators

#### Test procedure :

AC power line conducted emission, radiated emission, frequency stability and occupied bandwidth tests were performed according to the procedures in ANSI C63.4-1992.

### 1.2 GENERAL INFORMATION

#### 1.2.1 Test facility :

- 1) Test Facility located at EMC Engineering Dept. Testing Div. :
  - No.2 and 3 Anechoic Chambers(3 meters Site).
  - Shielded Enclosure.

Expiration date of FCC test facility filing : June 04, 2002

- 2) EMC Engineering Dept. Testing Div. is recognized under the National Voluntary Laboratory accreditation Program for satisfactory compliance established in title 15, Part 285 Code of Federal Regulations.

NVLAP Lab Code : 200189-0 (Effective through : June 30, 2001)

#### 1.2.2 Description of the Equipment Under Test (EUT) :

- |                                                                                                       |                                                 |
|-------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| 1) Type of Equipment                                                                                  | : RF Stereo Transmitter                         |
| 2) Product Type                                                                                       | : Prototype                                     |
| 3) Category                                                                                           | : Low Power Communication Device<br>Transmitter |
| 4) EUT Authorization                                                                                  | : Certification                                 |
| 5) FCC ID                                                                                             | : AK8TMRRF915R                                  |
| 6) Trade Name                                                                                         | : SONY                                          |
| 7) Model No.                                                                                          | : TMR-RF915R                                    |
| 8) Operating Frequency Range                                                                          | : 913.5 MHz - 914.5 MHz                         |
| 9) Highest Frequency Used in the EUT                                                                  | : 914.5 MHz                                     |
| 10) Serial No.                                                                                        | : None                                          |
| 11) Date of Manufacture                                                                               | : None                                          |
| 12) Power Rating                                                                                      | : DC 9.0 V                                      |
| The EUT was operated with the AC adaptor(Model:AC-S901, Input:120VAC 60Hz,<br>Output:9.0VDC by SONY). |                                                 |
| 13) EUT Grounding                                                                                     | : None                                          |

#### 1.2.3 Definitions for symbols used in this test report :

- x   - indicates that the listed condition, standard or equipment is applicable for this report.
- indicates that the listed condition, standard or equipment is not applicable for this report.



### 1.3 TEST CONDITION

#### 1.3.1 The measurement of the AC Power Line Conducted Emission

- ☒ - was performed in the following test site.  
☐ - was not applicable.

##### Test location :

Safety Testing Center EMC Engineering Dept. Testing Div.  
21-25, Kinuta 1-chome, Setagaya-ku, Tokyo 157-8573, Japan

- ☒ - Shielded Enclosure  
☐ - Anechoic Chamber No. 2 (portable Type)

##### Used test instruments :

| Type                                                | Model No. | Manufacturer        | Serial No.   | Last Cal. | Interval |
|-----------------------------------------------------|-----------|---------------------|--------------|-----------|----------|
| <input checked="" type="checkbox"/> - Test Receiver | ESH-2     | Rohde & Schwarz     | 880370/016   | Sep. 2000 | 1 Year   |
| <input type="checkbox"/> - Test Receiver            | ESH-3     | Rohde & Schwarz     | 881460/030   | June 2000 | 1 Year   |
| <input type="checkbox"/> - LISN(for Peripheral)     | KNW-407   | Kyoritsu Electrical | 8-833-6      | Apr. 2000 | 1 Year   |
| <input type="checkbox"/> - LISN(for EUT)            | KNW-407   | Kyoritsu Electrical | 8-855-2      | Apr. 2000 | 1 Year   |
| <input type="checkbox"/> - LISN                     | KNW-407   | Kyoritsu Electrical | 8-757-1      | Apr. 2000 | 1 Year   |
| <input type="checkbox"/> - RF Cable                 | 3D-2W     | Fujikura            | 155-21-006E0 | Apr. 2000 | 1 Year   |
| <input checked="" type="checkbox"/> - RF Cable      | 3D-2W     | Fujikura            | 155-21-007E0 | Apr. 2000 | 1 Year   |
| <input type="checkbox"/> - 50ohm Termination        | -         | SUHNER              | 154-06-501E0 | Jan. 2001 | 1 Year   |
| <input type="checkbox"/> - 50ohm Termination        | -         | SUHNER              | 154-06-502E0 | Jan. 2001 | 1 Year   |

## 1.3.2 The measurement of the Radiated Emission(30 MHz - 1000 MHz)

- x   - was performed in the following test site.  
      - was not applicable.

### Test location :

Safety Testing Center EMC Engineering Dept. Testing Div.  
 21-25, Kinuta 1-chome, Setagaya-ku, Tokyo 157-8573, Japan

- x   - Anechoic Chamber No. 2 (3 meters)  
      - Anechoic Chamber No. 3 (3 meters)

### Validation of Site Attenuation :

- 1) Last Confirmed Date :March, 2000  
 2) Interval :1 year

### Used test instruments :

| Type                             | Model No. | Manufacturer        | Serial No.   | Last Cal. | Interval |
|----------------------------------|-----------|---------------------|--------------|-----------|----------|
| <u>  </u> - Test Receiver        | ESH-2     | Rohde & Schwarz     | 880370/016   | Sep. 2000 | 1 Year   |
| <u>  </u> - Test Receiver        | ESV       | Rohde & Schwarz     | 872148/039   | May 2000  | 1 Year   |
| <u>  x  </u> - Test Receiver     | ESVS10    | Rohde & Schwarz     | 826148/002   | May 2000  | 1 Year   |
| <u>  </u> - Test Receiver        | ESVS10    | Rohde & Schwarz     | 832699/001   | May 2000  | 1 Year   |
| <u>  x  </u> - Antenna           | KBA-511A  | Kyoritsu Electrical | 0-170-1      | Nov. 2000 | 1 Year   |
| <u>  </u> - Antenna              | KBA-511A  | Kyoritsu Electrical | 0-201-13     | Nov. 2000 | 1 Year   |
| <u>  x  </u> - Antenna           | KBA-611   | Kyoritsu Electrical | 0-147-14     | Nov. 2000 | 1 Year   |
| <u>  </u> - Antenna              | KBA-611   | Kyoritsu Electrical | 0-210-5      | Nov. 2000 | 1 Year   |
| <u>  </u> - Biconical Antenna    | BBA9106   | Schwarzbeck         | VHA91031150  | May 2000  | 1 Year   |
| <u>  </u> - Biconical Antenna    | BBA9106   | Schwarzbeck         | 11905078E0   | May 2000  | 1 Year   |
| <u>  </u> - Log-Periodic Antenna | UHALP9107 | Schwarzbeck         | 11905079E0   | May 2000  | 1 Year   |
| <u>  </u> - Log-Periodic Antenna | UHALP9107 | Schwarzbeck         | 11905110     | May 2000  | 1 Year   |
| <u>  x  </u> - RF Cable          | 5D-2W     | Fujikura            | 155-21-001E0 | Feb. 2001 | 1 Year   |
| <u>  </u> - RF Cable             | 5D-2W     | Fujikura            | 155-21-002E0 | Feb. 2001 | 1 Year   |



### 1.3.3 The measurement of the Radiated Emission(Above 1000 MHz)

- ☒ - was performed in the following test site.  
☐ - was not applicable.

#### Test location :

Safety Testing Center EMC Engineering Dept. Testing Div.  
21-25, Kinuta 1-chome, Setagaya-ku, Tokyo 157-8573, Japan

- ☒ - No. 2 site (3 meters)  
☐ - No. 3 site (3 meters)

#### Validation of Site Attenuation :

- 1) Last Confirmed Date : N/A  
2) Interval : N/A

#### Used test instruments :

| Type                                                       | Model No.         | Manufacturer       | Serial No.   | Last Cal. | Interval |
|------------------------------------------------------------|-------------------|--------------------|--------------|-----------|----------|
| <input type="checkbox"/> - Spectrum Analyzer               | 8560E             | Hewlett Packard    | 3240A00189   | Nov. 2000 | 1 Year   |
| <input type="checkbox"/> - Spectrum Analyzer               | 8566B             | Hewlett Packard    | 2140A01091   | Apr. 2000 | 1 Year   |
| <input type="checkbox"/> - RF Pre-selector                 | 85685A            | Hewlett Packard    | 2648A00522   | Apr. 2000 | 1 Year   |
| <input checked="" type="checkbox"/> - Spectrum Analyzer    | 8566B             | Hewlett Packard    | 2747A05855   | June 2000 | 1 Year   |
| <input checked="" type="checkbox"/> - RF Pre-selector      | 85685A            | Hewlett Packard    | 2091A00933   | June 2000 | 1 Year   |
| <input checked="" type="checkbox"/> - Log-Periodic Antenna | HL 025            | Rohde & Schwarz    | 340182/015   | Nov. 2000 | 1 Year   |
| <input type="checkbox"/> - RF Amplifier                    | DBP-0102N5334272B | DBS Microwave Inc. | 012          | Mar. 2001 | 1 Year   |
| <input checked="" type="checkbox"/> - RF Amplifier         | WJ-6882-814       | Watkins-Johnson    | 0414         | June 2000 | 1 Year   |
| <input checked="" type="checkbox"/> - RF Amplifier         | WJ-5315-556       | Watkins-Johnson    | 106          | June 2000 | 1 Year   |
| <input type="checkbox"/> - RF Amplifier                    | WJ-5320-307       | Watkins-Johnson    | 645          | June 2000 | 1 Year   |
| <input checked="" type="checkbox"/> - RF Cable(10m)        | S 04272B          | Suhner             | 155-21-011E0 | May 2000  | 1 Year   |
| <input type="checkbox"/> - RF Cable(2m)                    | SUCOFLEX 104      | Suhner             | 155-21-012E0 | May 2000  | 1 Year   |
| <input checked="" type="checkbox"/> - RF Cable(1m)         | SUCOFLEX 104      | Suhner             | 155-21-013E0 | May 2000  | 1 Year   |



#### 1.3.4 The measurement of the Frequency Stability

- ☐ - was performed.  
☒ - was not applicable.

##### Used test instruments :

| Type                                         | Model No. | Manufacturer     | Serial No. | Last Cal. | Interval |
|----------------------------------------------|-----------|------------------|------------|-----------|----------|
| <input type="checkbox"/> - Frequency Counter | 53131A    | Hewlett Packard  | 3546A11807 | June 2000 | 1 Year   |
| <input type="checkbox"/> - Oven              | -         | Ohnishi Co. Ltd. | -          | Aug. 2000 | 1 Year   |
| <input type="checkbox"/> - DC Power Supply   | 6628A     | Hewlett Packard  | 3224A00284 | July 2000 | 1 Year   |

#### 1.3.5 The measurement of the Occupied Bandwidth

- ☒ - was performed.  
☐ - was not applicable.

##### Used test instruments :

| Type                                                     | Model No. | Manufacturer    | Serial No. | Last Cal. | Interval |
|----------------------------------------------------------|-----------|-----------------|------------|-----------|----------|
| <input type="checkbox"/> - Spectrum Analyzer             | 8566B     | Hewlett Packard | 2140A01091 | Apr. 2000 | 1 Year   |
| <input checked="" type="checkbox"/> - Spectrum Analyzer  | 8566B     | Hewlett Packard | 2747A05855 | June 2000 | 1 Year   |
| <input checked="" type="checkbox"/> - Function Generator | 3325A     | Hewlett Packard | 2512A21776 | May 2000  | 1 Year   |
| <input checked="" type="checkbox"/> - FM Linear Detector | MS61A     | Anritsu Corp.   | M77486     | Sep. 2000 | 1 Year   |
| <input checked="" type="checkbox"/> - Level Meter        | ML422C    | Anritsu Corp.   | M87571     | June 2000 | 1 Year   |
| <input type="checkbox"/> - Measuring Amplifier           | 2636      | B & K           | 1614851    | June 2000 | 1 Year   |
| <input type="checkbox"/> - AF Amplifier                  | P-500L    | Accuphase       | BOY806     | June 2000 | 1 Year   |
| <input type="checkbox"/> - Microphone                    | 4134      | B & K           | 1269477    | June 2000 | 1 Year   |
| <input type="checkbox"/> - Preamplifier                  | 2639      | B & K           | 1268763    | June 2000 | 1 Year   |
| <input type="checkbox"/> - Pistonphone                   | 4220      | B & K           | 1165008    | June 2000 | 1 Year   |
| <input type="checkbox"/> - Artificial Mouth              | 4227      | B & K           | 1274869    | N/A       | N/A      |



#### 1.4 EUT MODIFICATION / Deviation from Standard

##### 1.4.1 EUT MODIFICATION

- ☒ -No modifications were conducted by JQA to achieve compliance to Class B levels.  
☐ -To achieve compliance to Class B levels, the following changes were made by JQA during the compliance test.

The modifications will be implemented in all production models of this equipment.

Applicant :

Date :

Typed Name :

Position :

##### 1.4.2 Deviation from Standard:

- ☒ -No deviations from the standard described in clause 1.1.  
☐ - The following deviations were employed from the standard described in clause 1.1:



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## 1.5 TEST RESULTS

**AC Power Line Conducted Emission**

[§15.207(a)]

The requirements are

  x   - Applicable        - NOT Applicable  x   - PASSED        - NOT PASSED

Remarks :

**Radiated Emission**

[§15.249(a)(c)]

The requirements are

  x   - Applicable        - NOT Applicable  x   - PASSED        - NOT PASSED

Remarks:

**Frequency Stability**

The requirements are

       - Applicable   x   - NOT Applicable       - PASSED        - NOT PASSED

Remarks:

**Occupied Bandwidth [§15.249(c)]**

The requirements are

  x   - Applicable        - NOT Applicable  x   - PASSED        - NOT PASSED

Remarks:

**1.6 SUMMARY****General Remarks :**

The EUT was tested according to the requirements of FCC Rules and Regulations Part 15 Subpart A, B and C (June 23, 1989) under the test configuration, as shown in clause 1.7 to 1.10.

The conclusion for the test items which are required by the applied regulation is indicated under the final judgment.

**Final Judgment :**

The "as received" sample;

- x   - fulfill the test requirements of the regulation mentioned on clause 1.1.
- fulfill the test requirements of the regulation mentioned on clause 1.1, but with certain qualifications.
- doesn't fulfill the test regulation mentioned on clause 1.1.

Begin of testing : March 14, 2001

End of testing : March 15, 2001

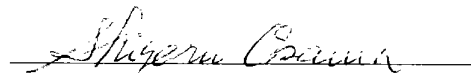
**- JAPAN QUALITY ASSURANCE ORGANIZATION -**

Approved by:

Issued by:



Masaaki Takahashi  
Manager  
JQA EMC Engineering Dept.



Shigeru Osawa  
Assistant Manager  
JQA EMC Engineering Dept.

**1.7 TEST CONFIGURATION / OPERATION OF EUT****1.7.1 Test Configuration**

The equipment under test (EUT) consists of :

| Symbol | Item                  | Manufacturer     | Model No.  | FCC ID       | Serial No. |
|--------|-----------------------|------------------|------------|--------------|------------|
| A(*1)  | RF Stereo Transmitter | Sony Corporation | TMR-RF915R | AK8TMRRF915R | None       |
| B      | AC Adaptor            | Sony Corporation | AC-S901    | None         | None       |

Note 1. This equipment was operated with the AC adaptor(Input:120VAC, 60Hz, Output:9.0VDC by Sony) .

The measurements was carried out with the following supported connected :

| Symbol | Item            | Manufacturer     | Model No. | Serial No. |
|--------|-----------------|------------------|-----------|------------|
| C      | Cassette Corder | Sony Corporation | TCM-20DV  | 590031     |

**Type of Cable :**

| Symbol | Description      | Identification<br>(Manufacturer etc.) | Shielded<br>YES / NO | Ferrite<br>Core | Connector type<br>Shielded<br>YES / NO | Length<br>(m) |
|--------|------------------|---------------------------------------|----------------------|-----------------|----------------------------------------|---------------|
| 1      | AC Adaptor Cable | Sony Corporation                      | NO                   | NO              | NO                                     | 2.0           |
| 2      | Audio Cable      | Sony Corporation                      | NO                   | NO              | NO                                     | 1.0           |

**1.7.2 Operating condition**

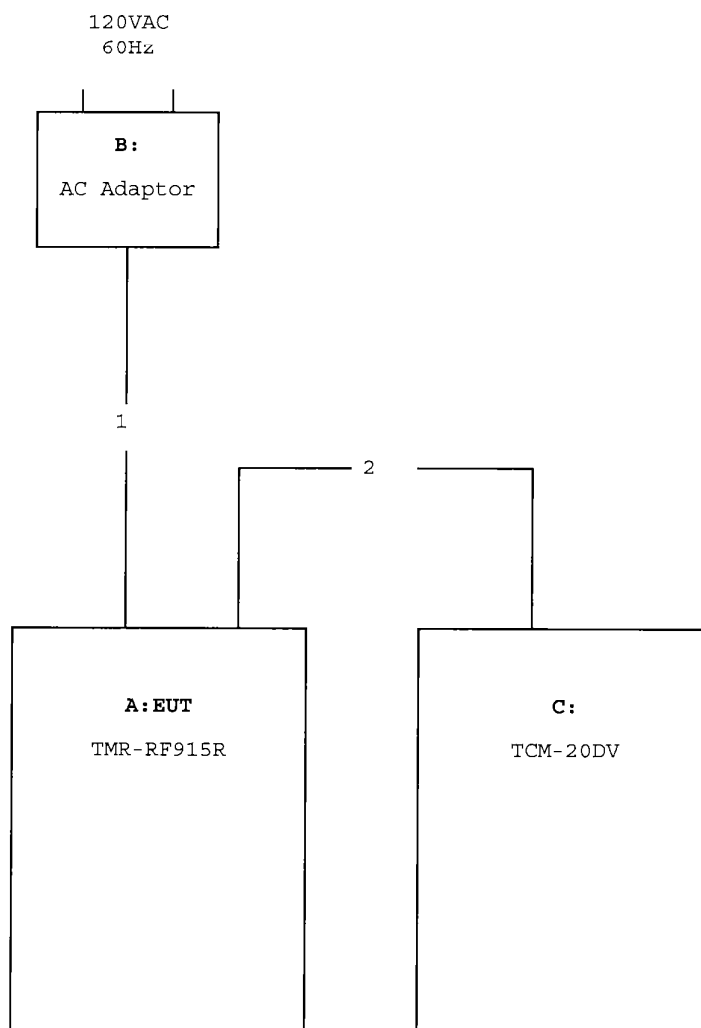
Power supply Voltage : 120VAC 60Hz (for AC Adaptor)

The tests have been carried out under the following condition.

- Transmitting (Operating Frequency: 913.5 and 914.5 MHz)

**1.7.3 Generating and Operating frequency of EUT**

913.5 MHz and 914.5 MHz

**1.8 EUT ARRANGEMENT (DRAWINGS)**

## 1.9 PRELIMINARY TEST AND TEST-SETUP (DRAWINGS)

### 1.9.1 AC Power Line Conducted Emission ( 450 kHz - 30 MHz) :

According to description of ANSI C63.4-1992 sec.13.1.3.1, the AC power line preliminary conducted emissions measurements were carried out.

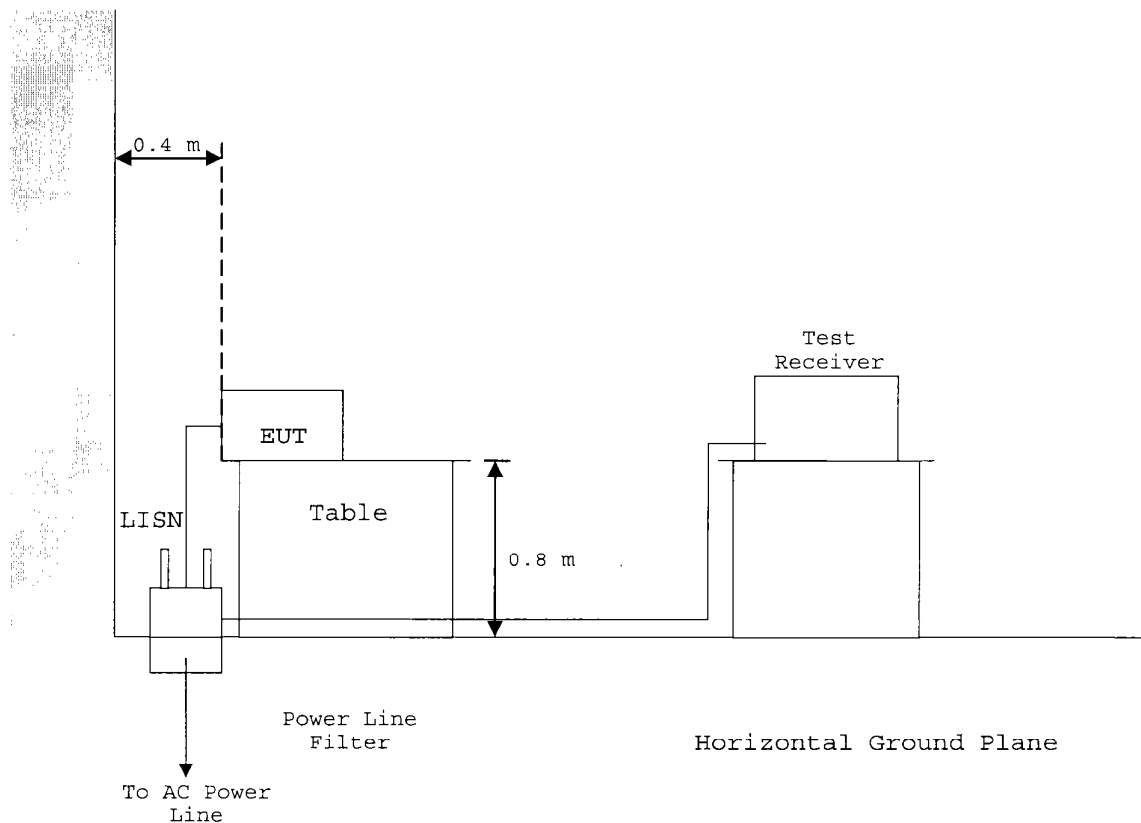
The preliminary conducted measurements were performed using the spectrum analyzer to observe the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for final AC power line conducted emissions measurements.

### Shielded Enclosure

#### - Side View -

Vertical  
Ground  
Plane



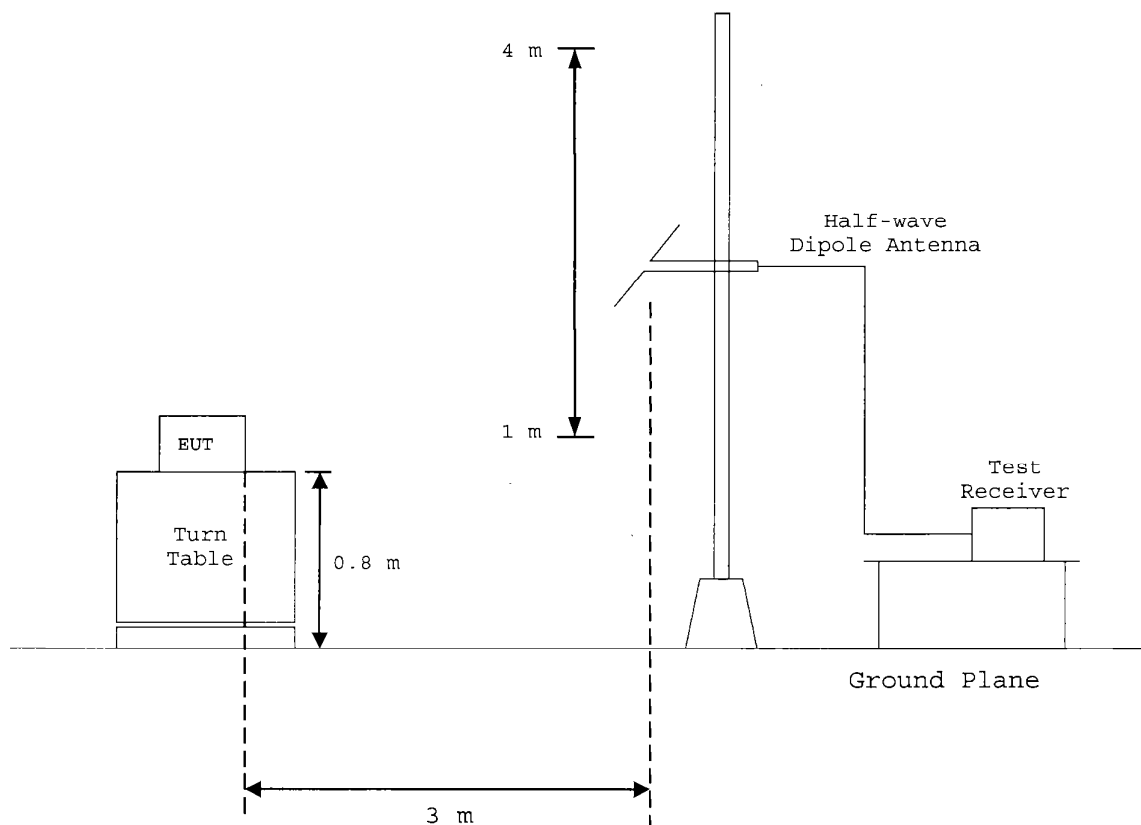
## 1.9.2 Radiated Emission ( 30 MHz - 1000 MHz ) :

According to description of ANSI C63.4-1992 sec.13.1.4.1, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

### Anechoic Chamber

- Side View -



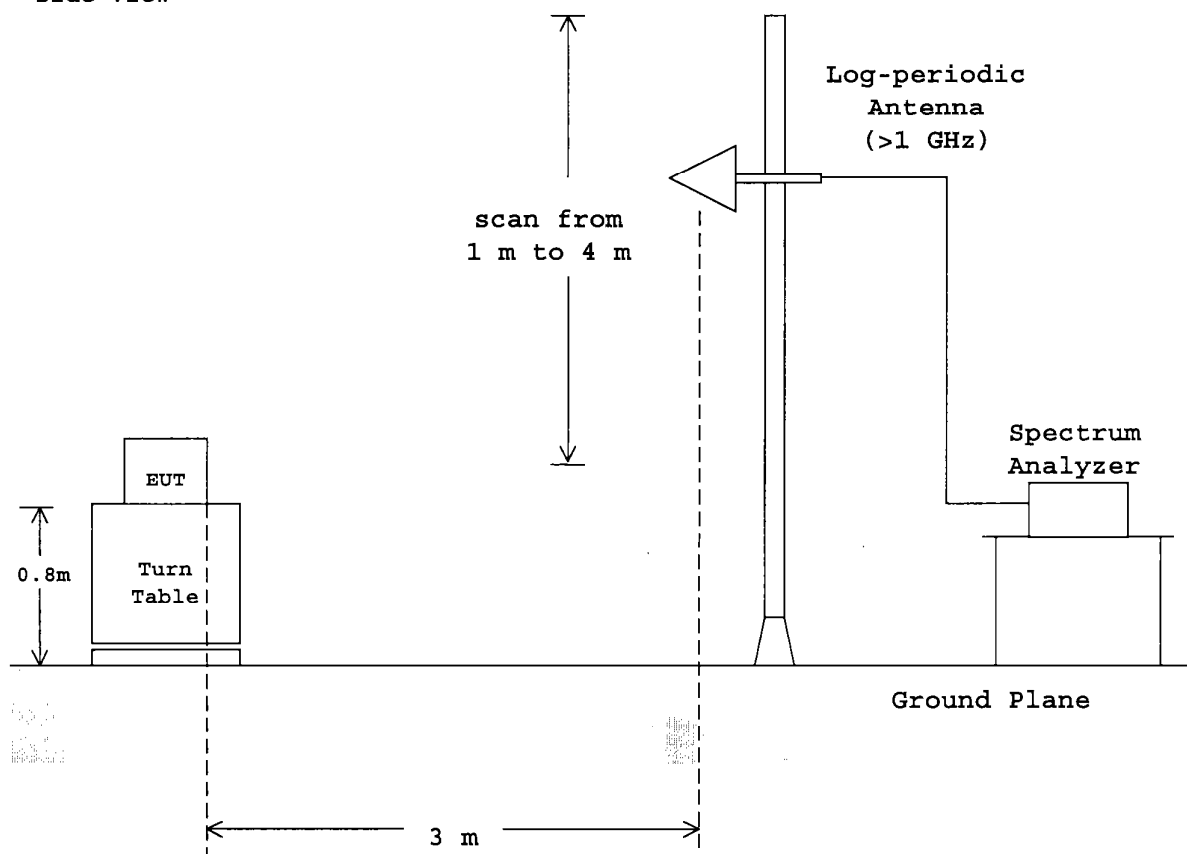
## 1.9.3 Radiated Emission (Above 1 GHz) :

According to description of ANSI C63.4-1992 sec.13.1.4.1, the preliminary radiated emissions measurements were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

### Anechoic Chamber

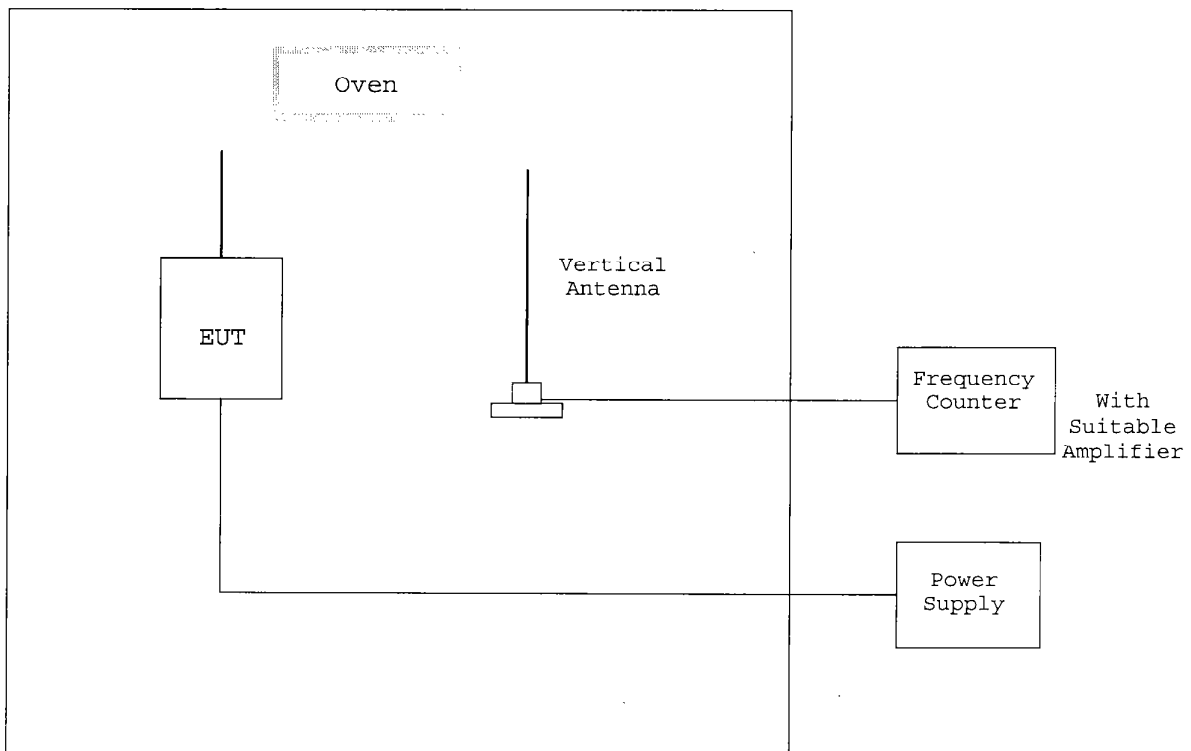
- Side View -



**1.9.4 Frequency Stability :**

According to description of ANSI C63.4-1992 sec.13.1.5 and sec.13.1.6, the frequency stability measurements were carried out. By using frequency counter with suitable RF amplifier, the carrier frequency of the transmitter under test was measured with a temperature variation of  $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  at the normal supply voltage, and if required, with a variation in the primary voltage from 85 % to 115 % the rated supply voltage at the temperature of  $+20^{\circ}\text{C}$ .

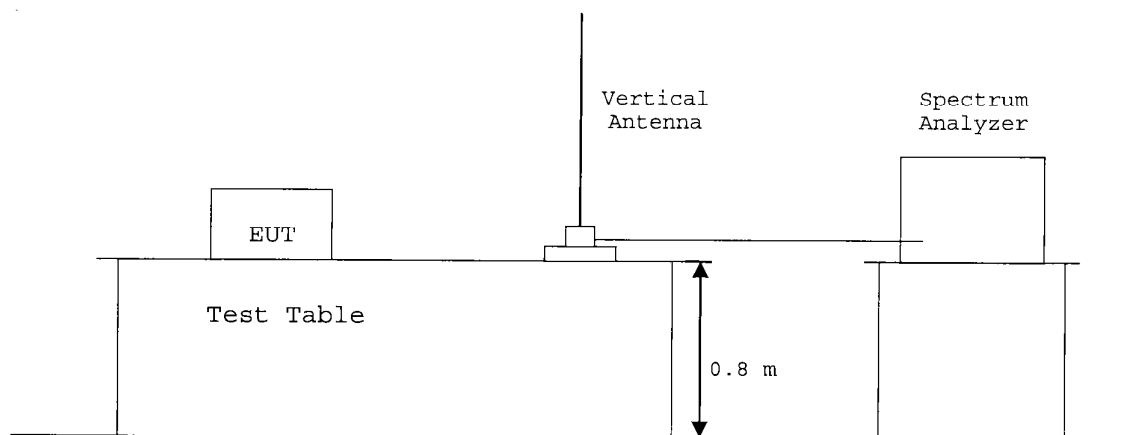
These measurements were carried out after allow sufficient time (approximately 1 hour) for the temperature of the chamber to stabilize.



**1.9.5 Occupied Bandwidth :**

According to description of ANSI C63.4-1992 sec.13.1.7, the occupied bandwidth measurements were carried out. By using a spectrum analyzer with a vertical antenna for picking up the signal, the measurements of the emission were made under the transmitting modes of the EUT.

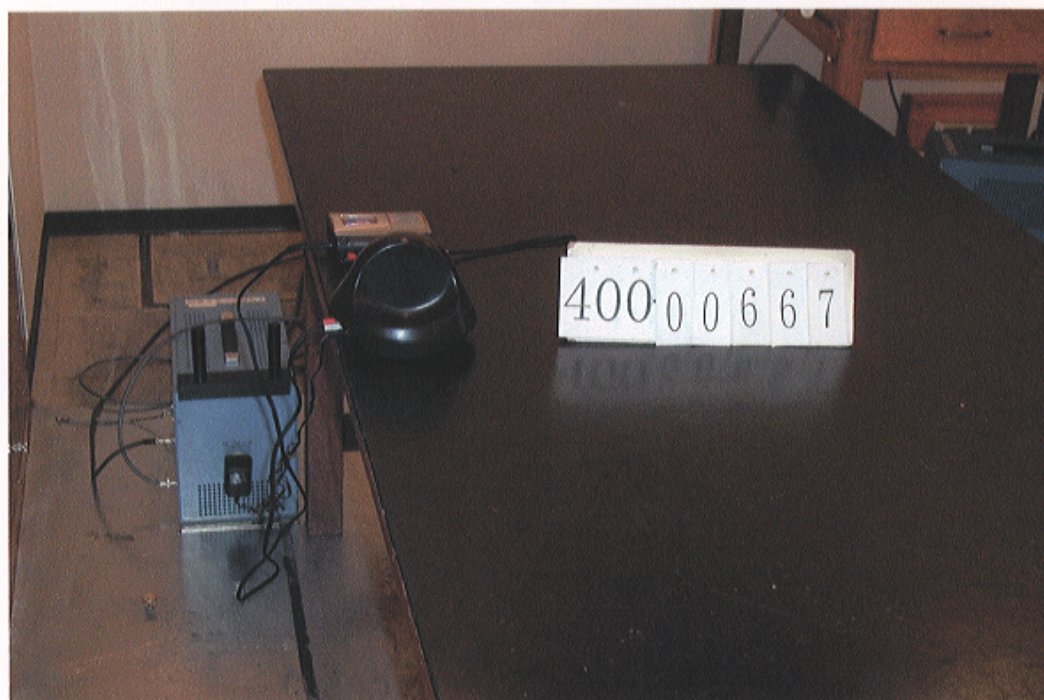
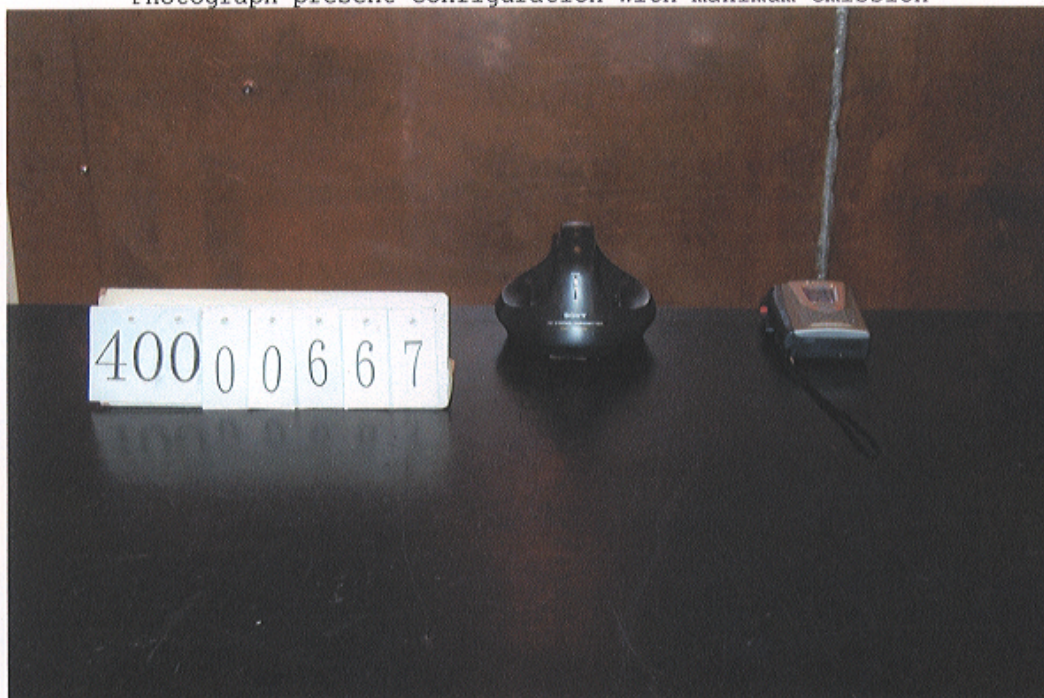
The resolution bandwidth of spectrum analyzer was set to the value specified in sec.13.1.7.



### 1.10 TEST ARRANGEMENT (PHOTOGRAPHS)

#### PHOTOGRAPHS OF EUT CONFIGURATION FOR AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT

Photograph present configuration with maximum emission



**PHOTOGRAPHS OF EUT CONFIGURATION FOR RADIATED EMISSIONS MEASUREMENT**  
Photograph present configuration with maximum emission





JQA Application No. :400-00667  
Model No. :TMR-RF915R  
Standard :CFR 47 FCC Rules Part 15

FCC ID :AK8TMRRF915R  
Issue Date :March 21, 2001  
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## TEST DATA

### 2.1 AC Power Line Conducted Emission Measurement( 0.45 MHz - 30 MHz )

Date : March 14, 2001  
Temp.: 20 °C Humi.: 50 %

| Frequency LISN |       | Meter Reading (dBuV) |     |      |     | Limits |     | Emission Level |     | Margins |     |
|----------------|-------|----------------------|-----|------|-----|--------|-----|----------------|-----|---------|-----|
| Factor         |       | V-A                  |     | V-B  |     | (dBuV) |     | (dBuV)         |     | (dB)    |     |
| (MHz)          | (dB)  | Q.P                  | AVE | Q.P  | AVE | Q.P    | AVE | Q.P            | AVE | Q.P     | AVE |
| 0.45           | 0.2   | 23.0                 | -   | 30.5 | -   | 48.0   | -   | 30.7           | -   | 17.3    | -   |
| 0.80           | 0.2 < | 10.0                 | -   | 18.5 | -   | 48.0   | -   | 18.7           | -   | 29.3    | -   |
| 1.00           | 0.2 < | 10.0                 | -   | 11.0 | -   | 48.0   | -   | 11.2           | -   | 36.8    | -   |

- Notes : 1) The spectrum was checked from 0.45 MHz to 30 MHz.  
2) The cable loss is included in the LISN factor.  
3) The symbol of "<"means "or less".  
4) The symbol of ">"means "or greater".  
5) The symbol of "-"means "Not applicable".  
6) V-A : One end & Ground V-B : The other end & Ground  
7) Q.P : Quasi-peak AVE : Average  
8) Asample calculation was made at 0.45 (MHz).  
Lf + Mr = 0.2 + 30.5 = 30.7(dBuV)  
Lf = LISN Factor  
Mr = Meter Reading

Tested by :

Shigeru Osawa  
Shigeru Osawa  
Testing Engineer

## AC POWER LINE CONDUCTED EMISSION MEASUREMENT

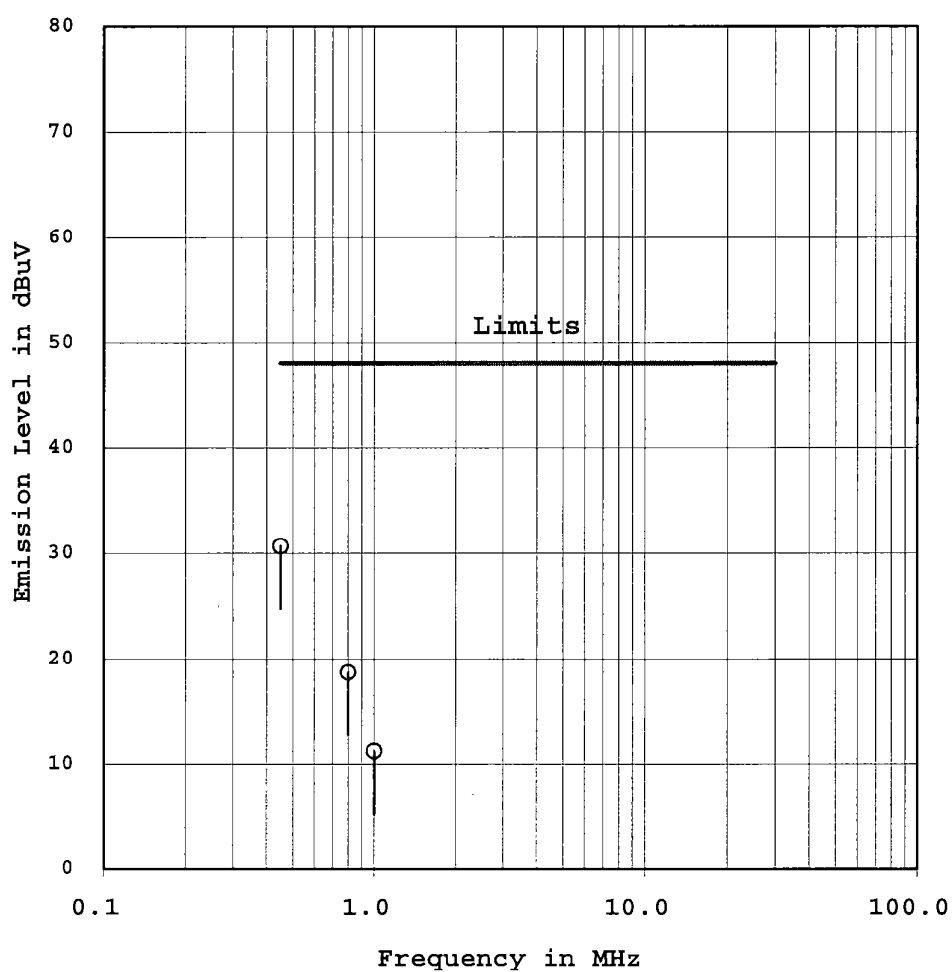
Model No. : TMR-RF915R

Standard : CFR 47 FCC Rules Part 15

Category : Class B

○ Quasi-peak

x Average



## 2.2 Radiated Emissions Measurement

Date : March 14, 2001  
 Temp.: 23 °C Humi.: 49 %

Operating Frequency : 913.5 MHz  
 Distance of Measurement : 3.0 meters

| Frequency<br>(MHz)                     | Correction | Meter Reading |        | Limits<br>(dBμV/m) | Field Strength at 3 m |          |
|----------------------------------------|------------|---------------|--------|--------------------|-----------------------|----------|
|                                        | Factor     | Horiz.        | Vert.  |                    | Horiz.                | Vert.    |
|                                        | (dB/m)     | (dBμV)        | (dBμV) |                    | (dBμV/m)              | (dBμV/m) |
| Fundamental                            |            |               |        |                    |                       |          |
| 913.500                                | 32.4       | 52.5          | 58.9   | 94.0               | 84.9                  | 91.3     |
| Harmonics & other Frequency components |            |               |        |                    |                       |          |
| 1827.000                               | 30.7       | < 5.0         | < 5.0  | 54.0               | < 35.7                | < 35.7   |
| 2740.500                               | -10.8      | 43.1          | 46.1   | 54.0               | 32.3                  | 35.3     |
| 3654.000                               | -7.1       | 42.2          | 45.3   | 54.0               | 35.1                  | 38.2     |
| 4567.500                               | -4.1       | < 30.0        | < 30.0 | 54.0               | < 25.9                | < 25.9   |
| 5481.000                               | -1.7       | < 30.0        | < 30.0 | 54.0               | < 28.3                | < 28.3   |
| 6394.500                               | 0.5        | < 30.0        | < 30.0 | 54.0               | < 30.5                | < 30.5   |
| 7308.000                               | 2.4        | < 30.0        | < 30.0 | 54.0               | < 32.4                | < 32.4   |
| 8221.500                               | 11.1       | < 30.0        | < 30.0 | 54.0               | < 41.1                | < 41.1   |
| 9135.000                               | 12.7       | < 30.0        | < 30.0 | 54.0               | < 42.7                | < 42.7   |

Operating Frequency : 914.5 MHz  
 Distance of Measurement : 3.0 meters

| Frequency<br>(MHz)                     | Correction       | Meter Reading    |                 | Limits<br>(dBμV/m) | Field Strength at 3 m |                   |
|----------------------------------------|------------------|------------------|-----------------|--------------------|-----------------------|-------------------|
|                                        | Factor<br>(dB/m) | Horiz.<br>(dBμV) | Vert.<br>(dBμV) |                    | Horiz.<br>(dBμV/m)    | Vert.<br>(dBμV/m) |
| Fundamental                            |                  |                  |                 |                    |                       |                   |
| 914.500                                | 32.4             | 52.6             | 59.0            | 94.0               | 85.0                  | 91.4              |
| Harmonics & other Frequency components |                  |                  |                 |                    |                       |                   |
| 1829.000                               | 30.8             | < 5.0            | < 5.0           | 54.0               | < 35.8                | < 35.8            |
| 2743.500                               | -10.8            | 42.8             | 46.4            | 54.0               | 32.0                  | 35.6              |
| 3658.000                               | -7.1             | 42.4             | 45.9            | 54.0               | 35.3                  | 38.8              |
| 4572.500                               | -4.1             | < 30.0           | < 30.0          | 54.0               | < 25.9                | < 25.9            |
| 5487.000                               | -1.7             | < 30.0           | < 30.0          | 54.0               | < 28.3                | < 28.3            |
| 6401.500                               | 0.5              | < 30.0           | < 30.0          | 54.0               | < 30.5                | < 30.5            |
| 7316.000                               | 2.4              | < 30.0           | < 30.0          | 54.0               | < 32.4                | < 32.4            |
| 8230.500                               | 11.1             | < 30.0           | < 30.0          | 54.0               | < 41.1                | < 41.1            |
| 9145.000                               | 12.8             | < 30.0           | < 30.0          | 54.0               | < 42.8                | < 42.8            |

Note: 1. The spectrum was checked from 25 MHz to 10th harmonics of the fundamental frequency component. All emissions not listed were found to be more than 20 dB below the limits.

2. The symbol of "<" means "or less".

3. The cable loss, antenna factor and preamplifier gain were included in the correction factor.

4. Sample calculation :

at 913.500 MHz

$$Cf + Mr = 32.4 + 58.9 = 91.3 \text{ dB}\mu\text{V/m}$$

Where,

Cf = Correction Factor

Mr = Meter Reading

5. Measuring Instrument Setting:

Below 1000 MHz

Detector function : CISPR Quasi-peak

IF Bandwidth : 120 kHz

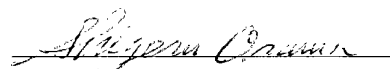
Above 1000 MHz

Detector function : Peak

IF Bandwidth : 1 MHz

Video Bandwidth : 10 Hz

Tested by :

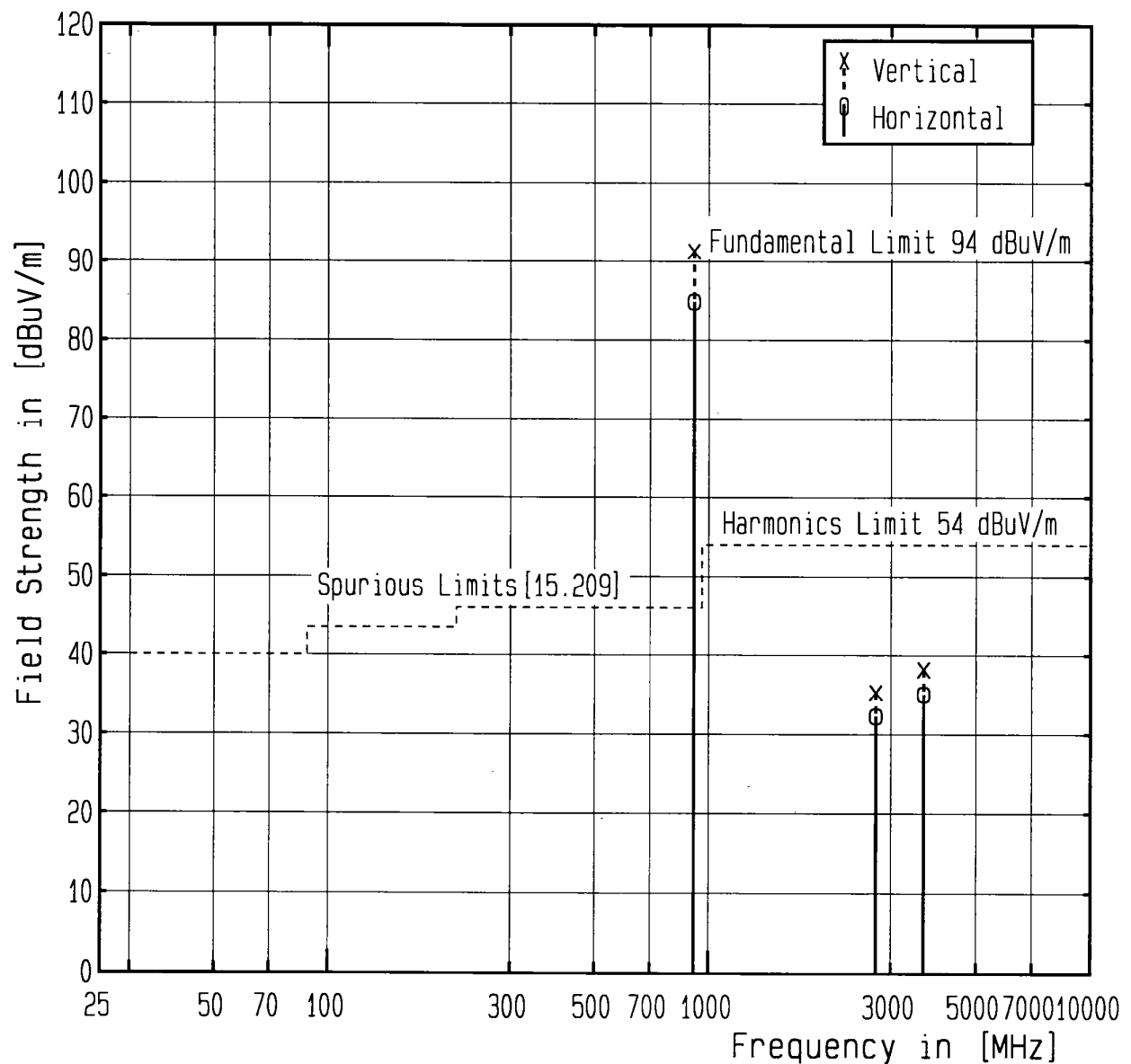


Shigeru Osawa

Testing Engineer

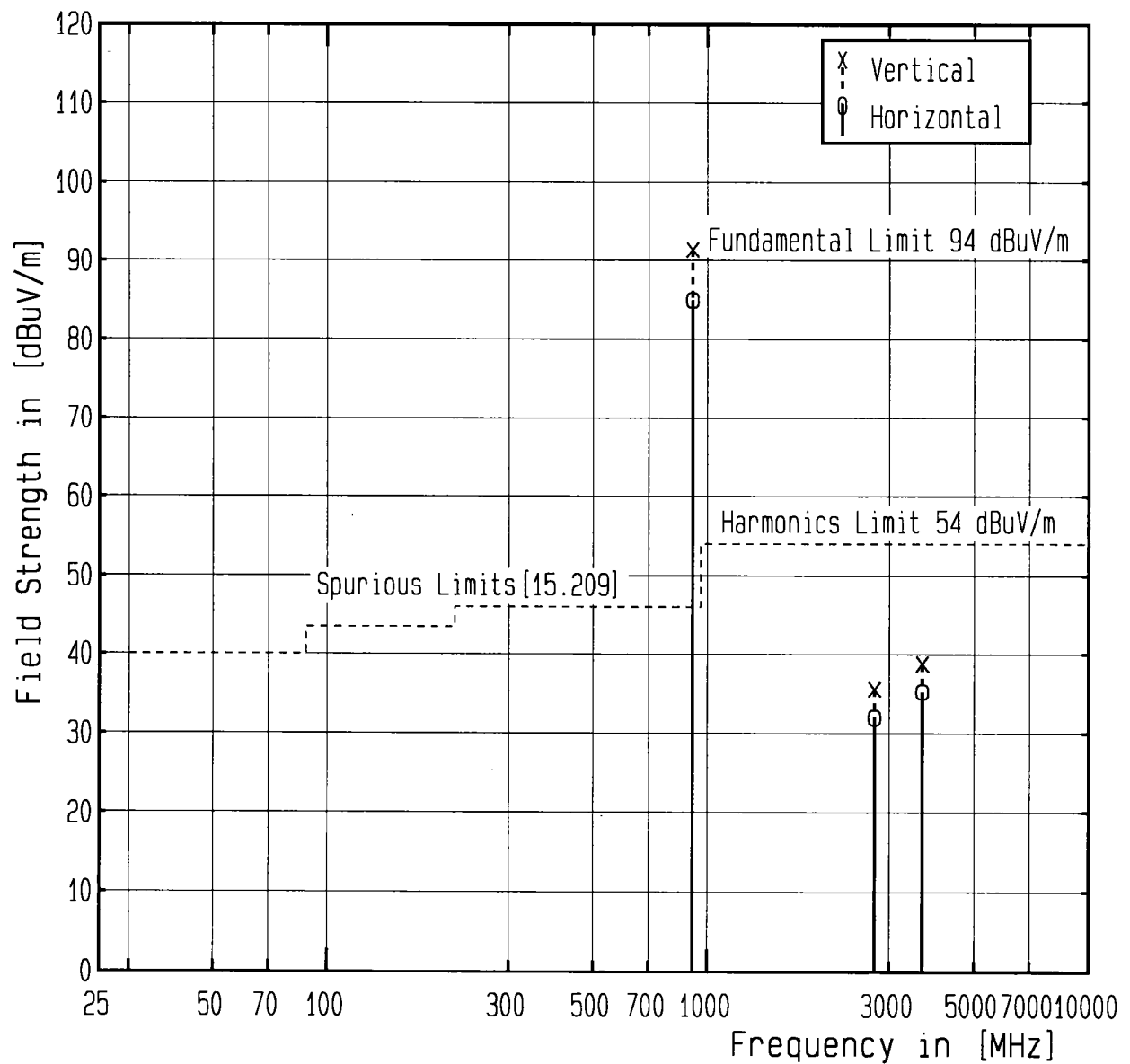
## Transmitter Fundamental and Spurious Emissions

Model No. : TMR-RF915R  
 Operating Frequency : 913.5 MHz  
 Test Condition :



## Transmitter Fundamental and Spurious Emissions

Model No. : TMR-RF915R  
 Operating Frequency : 914.5 MHz  
 Test Condition :





JQA Application No. :400-00667  
Model No. :TMR-RF915R  
Standard :CFR 47 FCC Rules Part 15

FCC ID :AK8TMRRF915R  
Issue Date :March 21, 2001  
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## 2.4 Occupied Bandwidth Measurement

Date : March 15, 2001  
Temp.: 24°C Humi.: 39 %

### Measurements Results :

Specified Limits : Emission radiated outside of the specified frequency bands(902 MHz - 928 MHz), except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Modulation : External Input Level(85 % Modulation): -7.1 dBV (Carrier 913.5 MHz)  
-4.8 dBV (Carrier 914.5 MHz)  
Frequency Deviation at 100 % Modulation : 75 kHz(Manufacturer Defined)

Refer to the attached graphs.

Tested by :

Shigeru Osawa  
Shigeru Osawa  
Testing Engineer

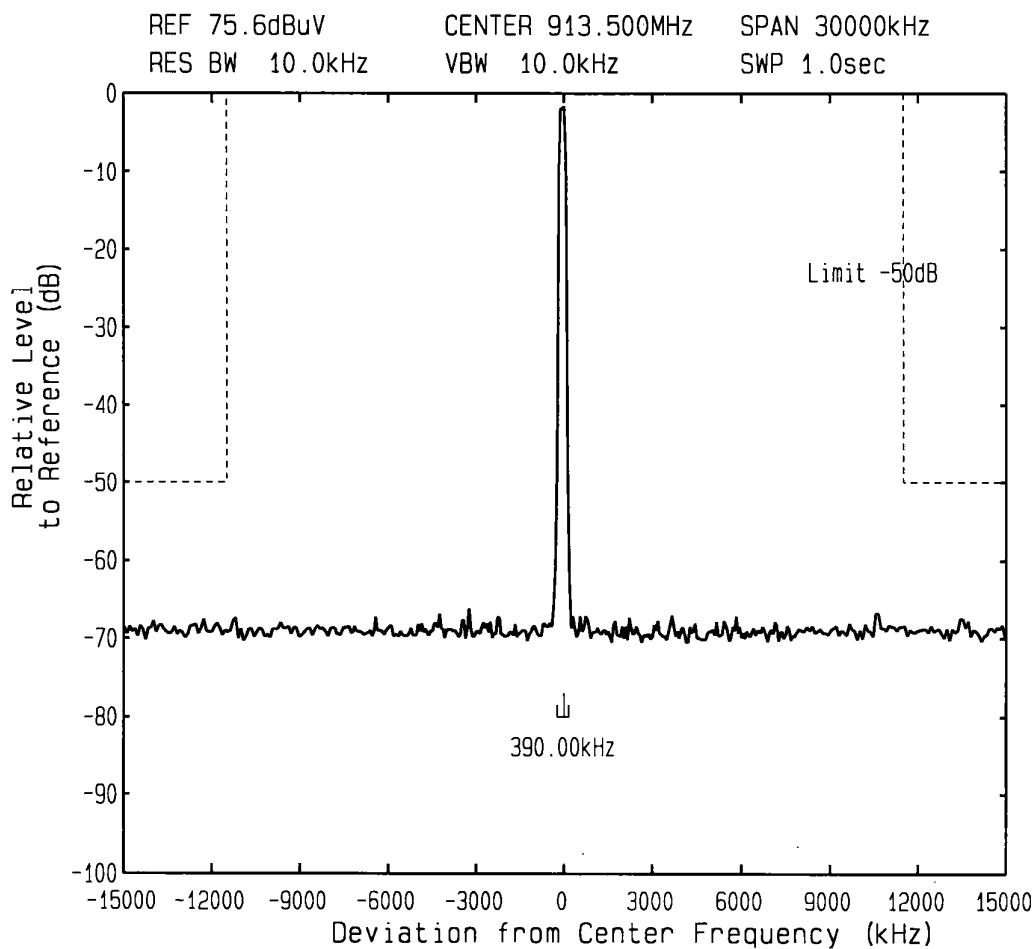
## Emission Limitation

FCC ID : AK8TMRRF915R

Model : TMR-RF915R

Mode of EUT : Transmit (913.5 MHz)

External Signal : 2.5 kHz, -7.1 dBV



## Emission Limitation

FCC ID : AK8TMRRF915R

Model : TMR-RF915R

Mode of EUT : Transmit (914.5 MHz)

External Signal : 2.5 kHz, -4.8 dBV

