



JQA APPLICATION NO.: 441-30678  
Issue Date : November 18, 2003  
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## EMI TEST REPORT

JQA APPLICATION NO. : 441-30678  
Model No. : IMB-521-03  
Type of Equipment : Immobilizer ECU  
Regulations Applied : CFR 47 FCC Rules and Regulations Part 15  
FCC ID : BGBX1T190IMB52103  
Applicant : Mitsubishi Electric Corporation Himeji Works  
Address : 840, Chiyoda-machi, Himeji-shi,  
Hyogo 670-8677, Japan  
Manufacture : Mitsubishi Electric Corporation Himeji Works  
Address : 840, Chiyoda-machi, Himeji-shi,  
Hyogo 670-8677, Japan  
Received date of EUT : October 30, 2003  
**Final Judgment** : **Passed**

**TEST RESULTS IN THIS REPORT** are obtained in use of equipment that is traceable to National Institute of Advanced Industrial Science and Technology (AIST) of Japan and Communication Research Laboratory (CRL) of Japan.

**The test results** only respond to the tested sample. It is not allowed to copy this report even partly without the allowance of the JQA Safety & EMC Center EMC Engineering Department TSURU EMC Branch

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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 JQA Safety & EMC Center EMC Engineering Department TSURU EMC Branch:  
Open Site No.1, No.2, An Anechoic Chamber (3 m and 10 m, on common plane) and a Shielded Room

**FCC Registration Number: 90728 (Date of Listing : April 2, 2002)**

2) JQA Safety & EMC Center EMC Engineering Department TSURU EMC Branch 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 : 200192-0 (Effective through : June 30, 2004)**

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

1) Type of Equipment	:	Immobilizer ECU
2) Product Type	:	Pre-Production
3) Category	:	Low Power Communication Device Transmitter
4) EUT Authorization	:	Certification
5) FCC ID	:	BGBX1T190IMB52103
6) Trade Name	:	IMMOBILIZER ECU
7) Model No.	:	IMB521-03
8) Operating Frequency Range	:	134.5 kHz
9) Highest Frequency Used in the EUT	:	134.5 kHz
10) Serial No.	:	-
11) Date of Manufacture	:	-
12) Power Rating	:	12.0 VDC
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 :**

JQA Safety & EMC Center EMC Engineering Department TSURU EMC Branch  
2096 Ohata, Tsuru-shi Yamanashi-ken 402-0045, JAPAN

       - Shielded Room A  
       - Shielded Room B  
       - Anechoic Chamber  
       - Open Site No.1  
       - Open Site No.2

**Used test instruments :**

Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
- Test Receiver(R-7)	ESI7	Rohde & Schwarz	100059	2003/10	1 Year
- Test Receiver(R-8)	ESCS30	Rohde & Schwarz	100203	2003/2	1 Year
- Test Receiver(R-1)	ESHS30	Rohde & Schwarz	842053/001	2003/11	1 Year
- Test Receiver(R-3)	ESH3	Rohde & Schwarz	881460/016	2003/5	1 Year
- LISN(L-1)	KNW-407	Kyoritsu Electrical	8-833-5	2003/8	1 Year
- LISN(L-2)	KNW-407	Kyoritsu Electrical	8-680-14	2003/8	1 Year
- LISN(L-3)	KNW-407	Kyoritsu Electrical	8-757-1	2003/6	1 Year
- LISN(L-4)	KNW-242	Kyoritsu Electrical	8-755-1	2003/6	1 Year
- LISN(L-5)	KNW-242C	Kyoritsu Electrical	8-837-14	2003/6	1 Year
- LISN(L-9)	KNW-243C	Kyoritsu Electrical	8-831-2	2003/6	1 Year
- LISN(L-7)	KNW-243C	Kyoritsu Electrical	8-831-3	2003/6	1 Year
- LISN(L-8)	KNW-243C	Kyoritsu Electrical	8-831-4	2003/6	1 Year
- LISN(L-6)	KNW-243C	Kyoritsu Electrical	8-692-5	2003/7	1 Year
- RF Cable(C-9)	3D-2W	Fujikura	No.1	2003/5	1 Year
- RF Cable(C-10)	3D-2W	Fujikura	No.2	2003/5	1 Year
- RF Cable(C-11)	3D-2W	Fujikura	No.3	2003/5	1 Year
- 50ohm Termination(TM-1)	-	TDC	15406501E1	2003/3	1 Year
- 50ohm Termination(TM-2)	-	-	15406502E1	2003/3	1 Year

**1.3.2 The measurement of the Radiated Emission(9 kHz - 30 MHz)**

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

**Test location :**

JQA Safety & EMC Center EMC Engineering Department TSURU EMC Branch  
2096 Ohata, Tsuru-shi Yamanashi-ken 402-0045, JAPAN

   - Open Site No. 1 (3, 10 or 30 meters)  
   - Open Site No. 2 (3 or 10 meters)  
x - Anechoic Chamber(3 or 10 meters)

**Validation of Site Attenuation :**

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

**Used test instruments :**

	<u>Type</u>	<u>Model No.</u>	<u>Manufacturer</u>	<u>Serial No.</u>	<u>Last Cal.</u>	<u>Interval</u>
<u>x</u> -	Test Receiver(R-7)	ESI7	Rohde & Schwarz	100059	2003/10	1 Year
<u>  </u> -	Test Receiver(R-8)	ESCS30	Rohde & Schwarz	100203	2003/2	1 Year
<u>  </u> -	Test Receiver(R-1)	ESHS30	Rohde & Schwarz	842053/001	2003/11	1 Year
<u>x</u> -	Loop Antenna(A-17)	HFH2-Z2	Rohde & Schwarz	879284/14	2003/5	1 Year

**1.3.3 The measurement of the Radiated Emission(30 MHz - 1000 MHz)**

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

**Test location :**

JQA Safety & EMC Center EMC Engineering Department TSURU EMC Branch  
2096 Ohata, Tsuru-shi Yamanashi-ken 402-0045, JAPAN

   - Open Site No. 1 (3, 10 or 30 meters)  
   - Open Site No. 2 (3 or 10 meters)  
x - Anechoic Chamber(3 or 10 meters)

**Validation of Site Attenuation :**

1) Last Confirmed Date :May. 2003  
2) Interval :1 year

**Used test instruments :**

Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
<u>x</u> - Test Receiver(R-7)	ESI7	Rohde & Schwarz	100059	2003/10	1 Year
<u>  </u> - Test Receiver(R-8)	ESCS30	Rohde & Schwarz	100203	2003/2	1 Year
<u>  </u> - Test Receiver(R-6)	ESVS10	Rohde & Schwarz	84231/004	2003/3	1 Year
<u>  </u> - Test Receiver(R-5)	ESVS10	Rohde & Schwarz	843744/018	2003/4	1 Year
<u>  </u> - Biconical Antenna(A-4)	BBA9106	Schwarzbeck	91031741	2003/5	1 Year
<u>  </u> - Biconical Antenna(A-2)	BBA9106	Schwarzbeck	91031516	2003/5	1 Year
<u>x</u> - Biconical Antenna(A-3)	BBA9106	Schwarzbeck	11905516	2003/5	1 Year
<u>  </u> - Log-Periodic Antenna(A-6)	UHALP9107	Schwarzbeck	9107915	2003/5	1 Year
<u>  </u> - Log-Periodic Antenna(A-8)	UHALP9107	Schwarzbeck	1357	2003/5	1 Year
<u>x</u> - Log-Periodic Antenna(A-9)	UHALP9108	Schwarzbeck	0278	2003/5	1 Year
<u>  </u> - Dipole Antenna(A-11)	KBA-511A	Kyoritsu Electrical	0-195-5	2003/8	1 Year
<u>  </u> - Dipole Antenna(A-12)	KBA-611	Kyoritsu Electrical	0-196-8	2003/8	1 Year
<u>  </u> - Dipole Antenna(A-13)	KBA-511A	Kyoritsu Electrical	0-228-13	2003/8	1 Year
<u>  </u> - Dipole Antenna(A-14)	KBA-611	Kyoritsu Electrical	0-230-6	2003/8	1 Year
<u>  </u> - RF Cable(C-1)	20D/5D-2W	Fujikura	No.1	2003/5	1 Year
<u>  </u> - RF Cable(C-2)	20D/5D-2W	Fujikura	No.2	2003/5	1 Year
<u>x</u> - RF Cable(C-3)	20D/5D-2W	Fujikura	No.3	2003/5	1 Year

**1.3.4 The measurement of the Radiated Emission(Above 1000 MHz)**

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

**Test location :**

JQA Safety & EMC Center EMC Engineering Department TSURU EMC Branch  
2096 Ohata, Tsuru-shi Yamanashi-ken 402-0045, JAPAN

       - Open Site No. 1 (3, 10 or 30 meters)  
       - Open Site No. 2 (3 or 10 meters)  
       - Anechoic Chamber(3 or 10 meters)

**Validation of Site Attenuation :**

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

**Used test instruments :**

<u>Type</u>	<u>Model No.</u>	<u>Manufacturer</u>	<u>Serial No.</u>	<u>Last Cal.</u>	<u>Interval</u>
<u>      </u> - Spectrum Analyzer(S-1)	8563E	Hewlett Packard	3438A00756	2003/4	1 Year
<u>      </u> - Spectrum Analyzer(S-3)	R3361C	Advantest	71720774	2003/5	1 Year
<u>      </u> - Log-Periodic Antenna(A-9)	UHALP9108	Schwarzbeck	0278	2003/5	1 Year
<u>      </u> - Log-Periodic Antenna(A-20)	USLP9143	Schwarzbeck	140	2003/5	1 Year
<u>      </u> - Log-Periodic Antenna(A-15)	94612-1	Eaton	-	2003/5	1 Year
<u>      </u> - Pre-Amplifier(PA-5)	WJ-6611-513	Watkins Johnson	0288	2003/5	1 Year
<u>      </u> - Pre-Amplifier(PA-6)	WJ-6682-834	Watkins Johnson	0052	2003/5	1 Year
<u>      </u> - Pre-Amplifier(PA-7)	WJ-6870-506	Watkins Johnson	0018	2003/5	1 Year
<u>      </u> - RF Cable(7m)(C-4)	SUCOFLEX 104	Suhner	52146/4	2003/5	1 Year
<u>      </u> - RF Cable(3m)(C-5)	SUCOFLEX 104	Suhner	52053/4	2003/5	1 Year
<u>      </u> - RF Cable(2m)(C-6)	SUCOFLEX 104	Suhner	39934/4	2003/5	1 Year
<u>      </u> - RF Cable(1m)(C-7)	SUCOFLEX 104	Suhner	35687/4	2003/5	1 Year

**1.3.5 The measurement of the Frequency Stability**

       - was performed.  
x - was not applicable.

**Used test instruments :**

Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
— - Frequency Counter	53131A	Hewlett Packard	3546A11807	2003/05	1 Year
— - Oven	-	Ohnishi Co. Ltd.	-	2003/08	1 Year
— - DC Power Supply	6628A	Hewlett Packard	3224A00284	2003/07	1 Year

**1.3.6 The measurement of the Occupied Bandwidth**

       - was performed.  
x - was not applicable.

**Used test instruments :**

Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
— - Spectrum Analyzer	8560E	Hewlett Packard	3240A00189	2003/9	1 Year
— - Spectrum Analyzer	8563E	Hewlett Packard	3221A00201	2003/5	1 Year
— - Spectrum Analyzer	8566B	Hewlett Packard	2140A01091	2003/4	1 Year
— - Spectrum Analyzer	8566B	Hewlett Packard	2747A05855	2003/5	1 Year
— - Function Generator	3325A	Hewlett Packard	2512A21776	2003/5	1 Year
— - FM Linear Detector	MS61A	Anritsu Corp.	M77486	2003/9	1 Year
— - Level Meter	ML422C	Anritsu Corp.	M87571	2003/6	1 Year



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## 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**  - Applicable  - NOT Applicable

The requirements are  - PASSED  - NOT PASSED

**Remarks :**

**Radiated Emission [§15.209(a)(b)]**  - Applicable  - NOT Applicable

The requirements are  - PASSED  - NOT PASSED

**Remarks:**

**Frequency Stability**  - Applicable  - NOT Applicable

The requirements are  - PASSED  - NOT PASSED

**Remarks:**

**Occupied Bandwidth**  - Applicable  - NOT Applicable

The requirements are  - PASSED  - NOT PASSED

**Remarks:**

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

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

The conclusion for the test items of 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 : November 3, 2003

End of testing : November 15, 2003

- JAPAN QUALITY ASSURANCE ORGANIZATION -

Approved by:

  
Takaharu Hada  
Director  
TSURU EMC Branch  
JQA EMC Engineering Dept.

Signatories:

Issued by:

  
Kazuya Hayashi  
Assistant Manager  
TSURU EMC Branch  
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.	Serial No.
A	Immobilizer ECU	Mitsubishi Electric Corporation Himeji Works	IMB521-03	-

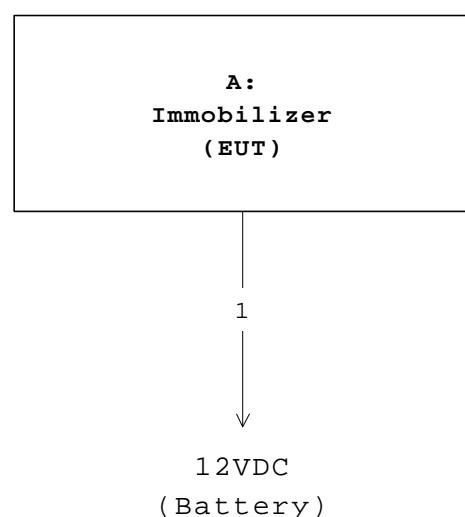
**The measurement was carried out with the following support equipment connected :****None.****Type of Cable :**

Symbol	Description	Identification (Manufacturer etc.)	Shielded YES / NO	Ferrite Core	Connector type Shielded YES / NO	Length (m)
1	DC Power Cable(for EUT)	-	NO	NO	NO	1.0

**1.7.2 Operating condition**

Power supply Voltage : 12.0 VDC(from Battery)

The tests have been carried out under the transmitting condition.

**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 ) :

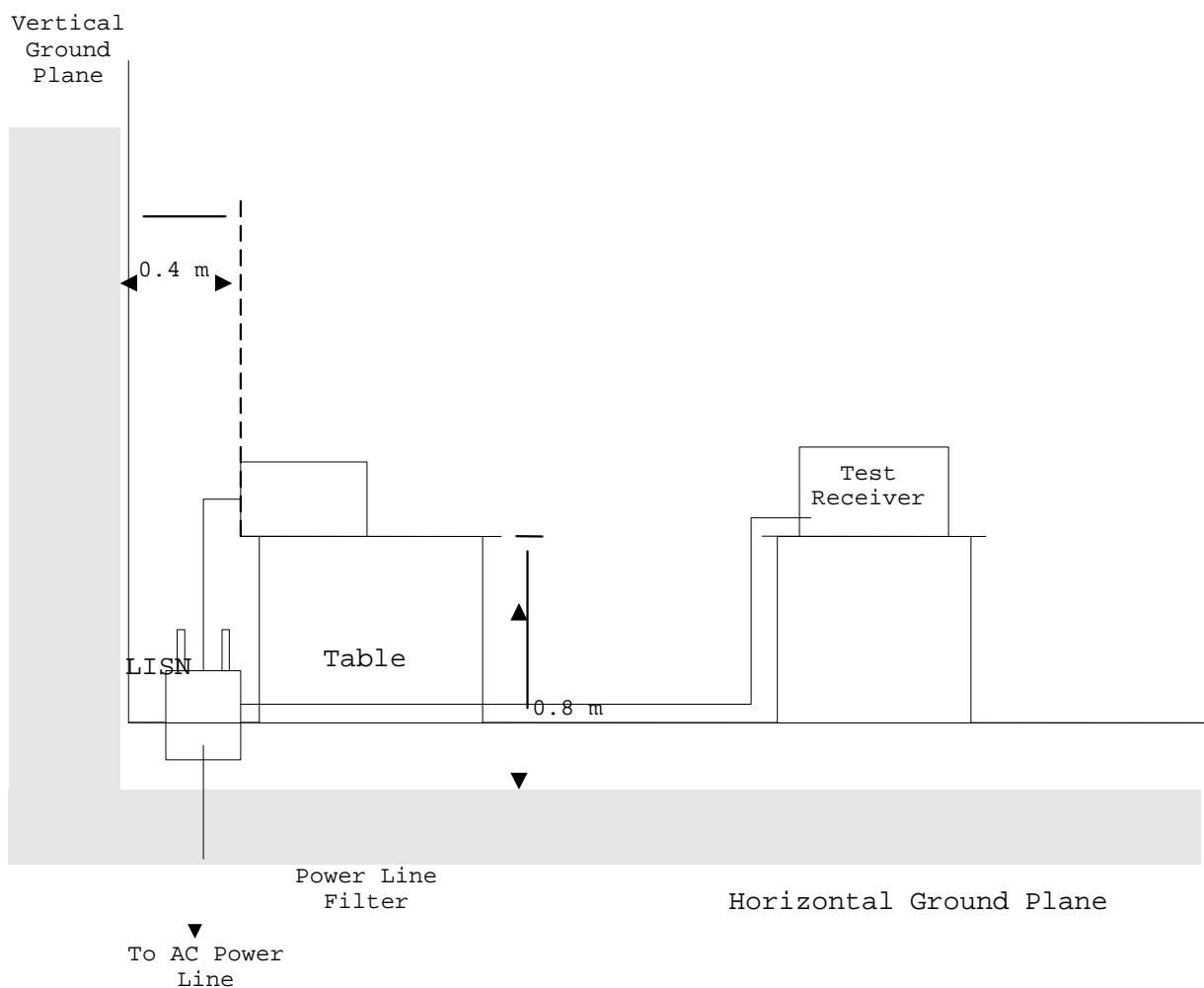
According to description of ANSI C63.4-1992 sec.13.1.3.1, the AC power line preliminary conducted emissions measurements were carried out.

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

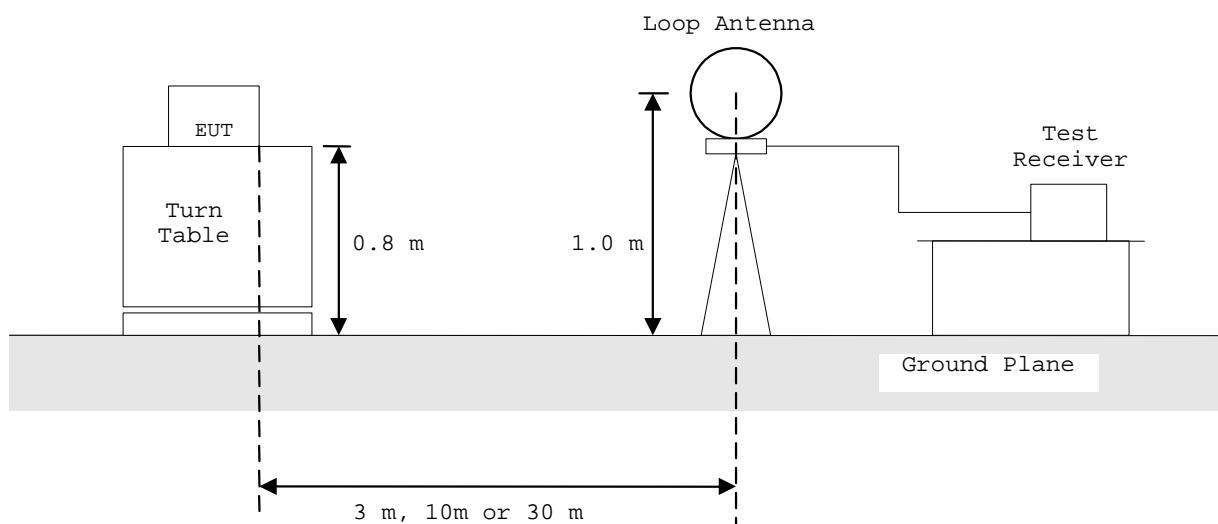
- Side View -



**1.9.2 Radiated Emission ( 9 kHz - 30 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.

**- Side View -**

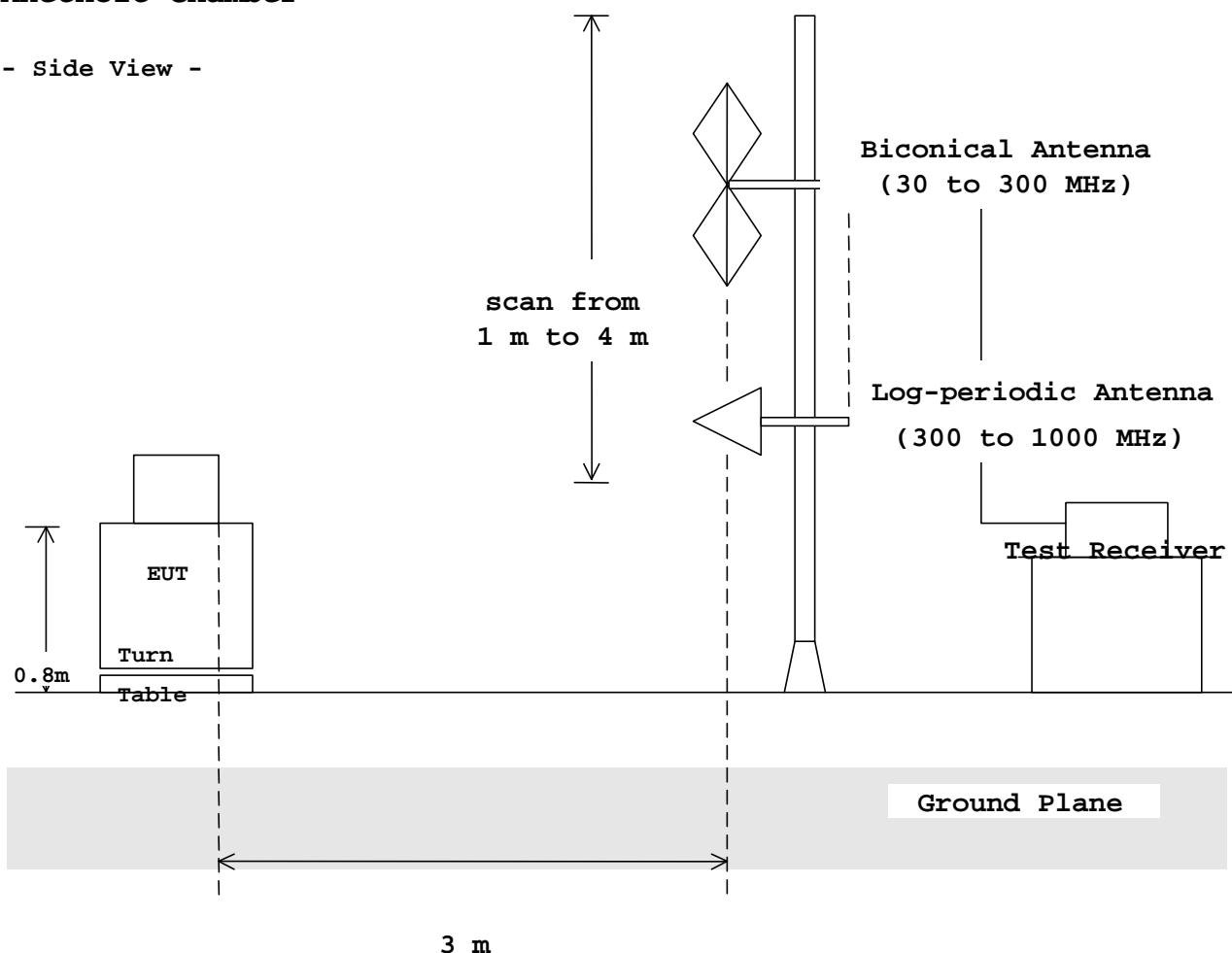
**1.9.3 Radiated Emission ( 30 MHz - 1000 MHz ) :**

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 -



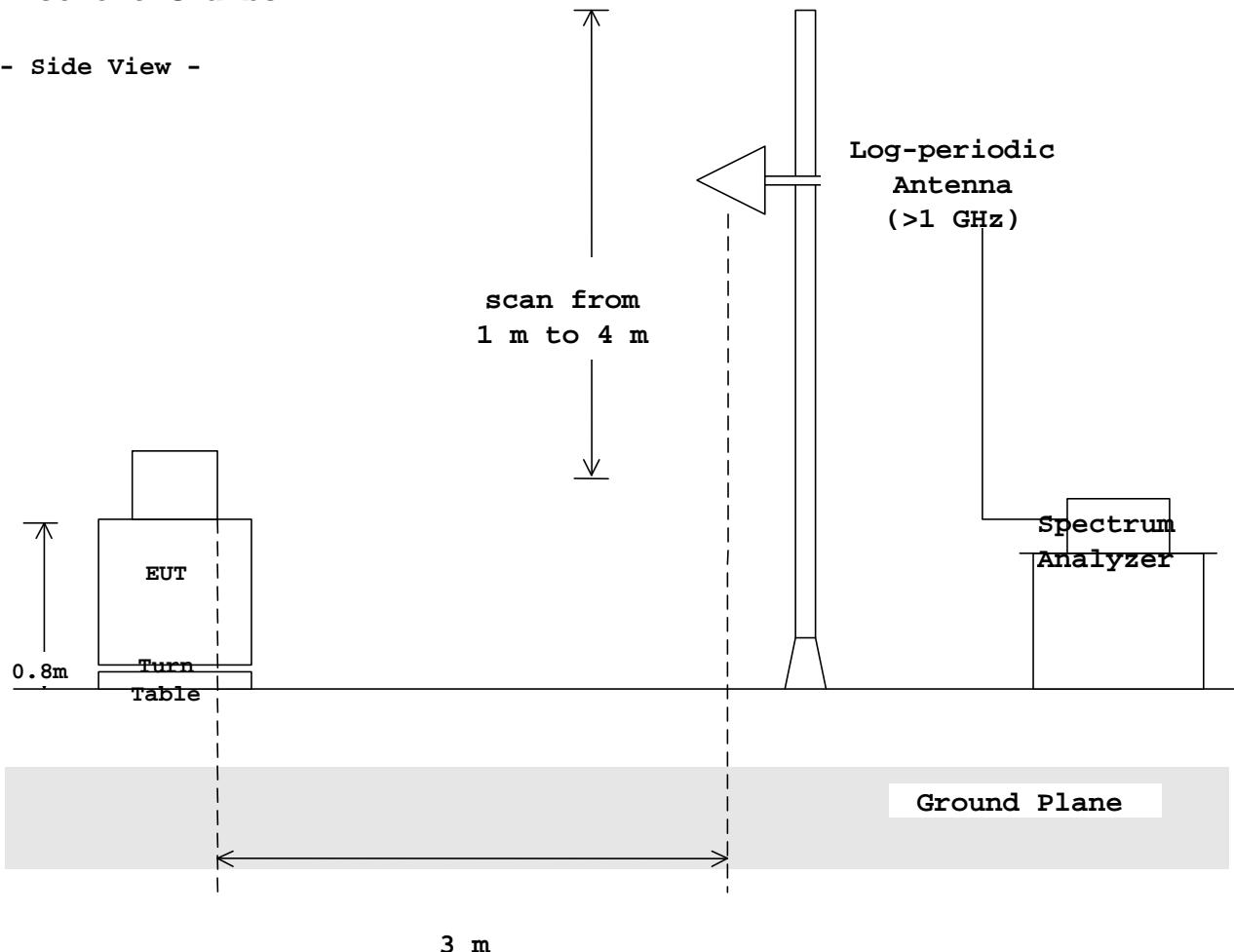
#### 1.9.4 Radiated Emission (Above 1 GHz) :

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

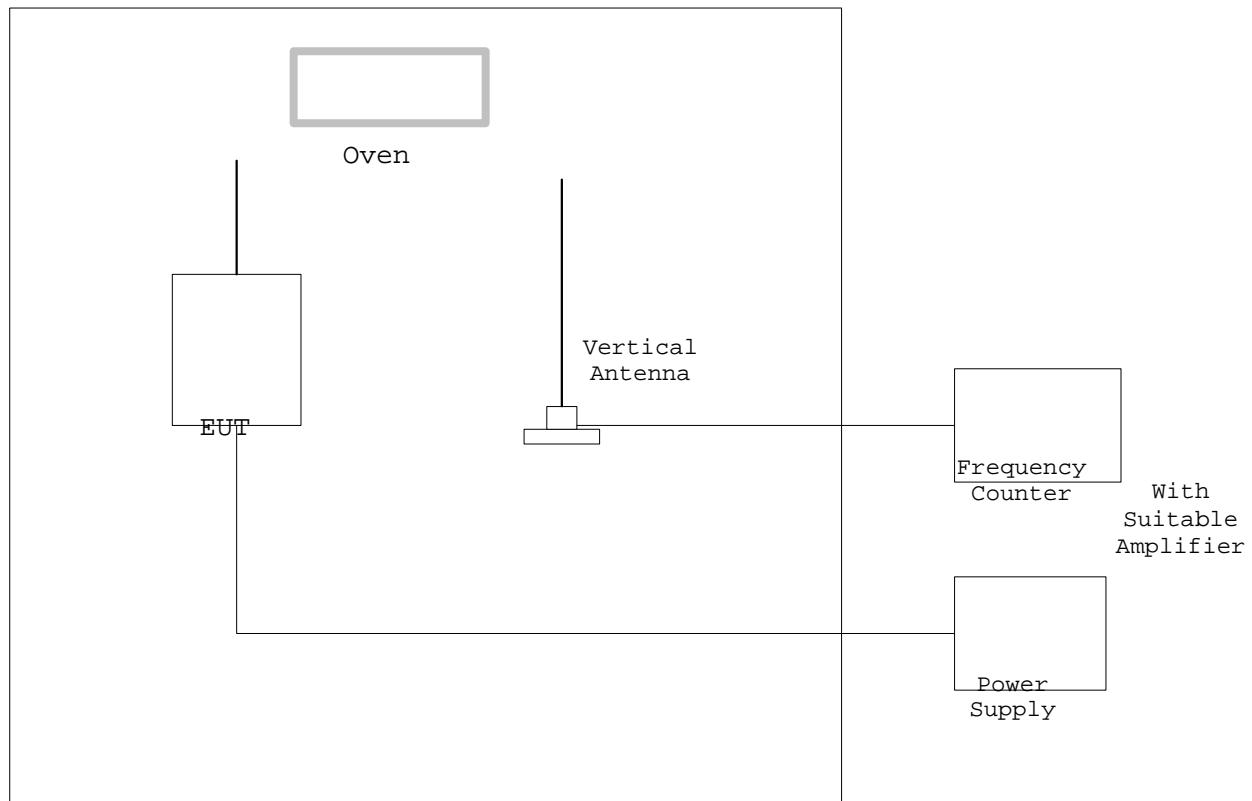
- Side View -



**1.9.5 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  $+20^{\circ}\text{C}$ .

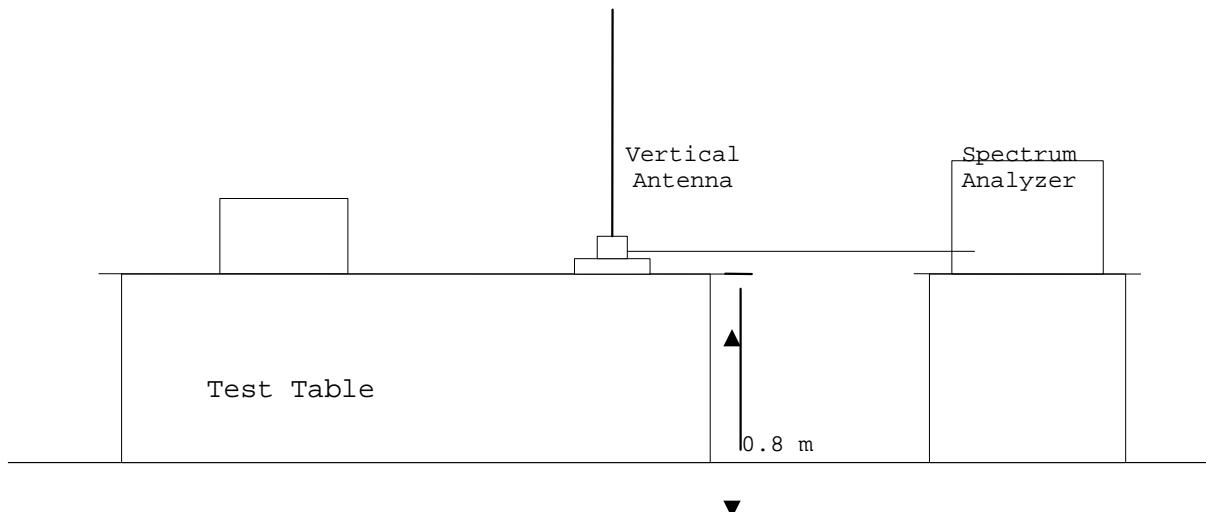
These measurements were carried out after allow sufficient time (approximately 1 hour) for the temperature of the chamber to stabilize.



**1.9.6 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.

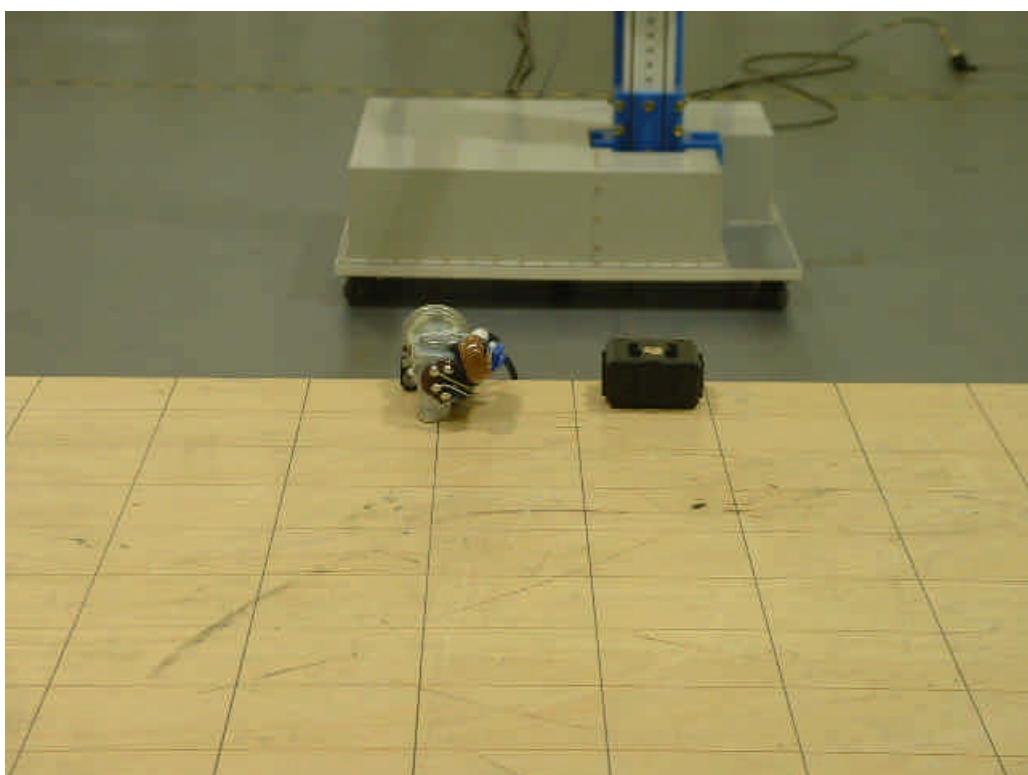
The resolution bandwidth of spectrum analyzer was set to the value specified in sec.13.1.7.



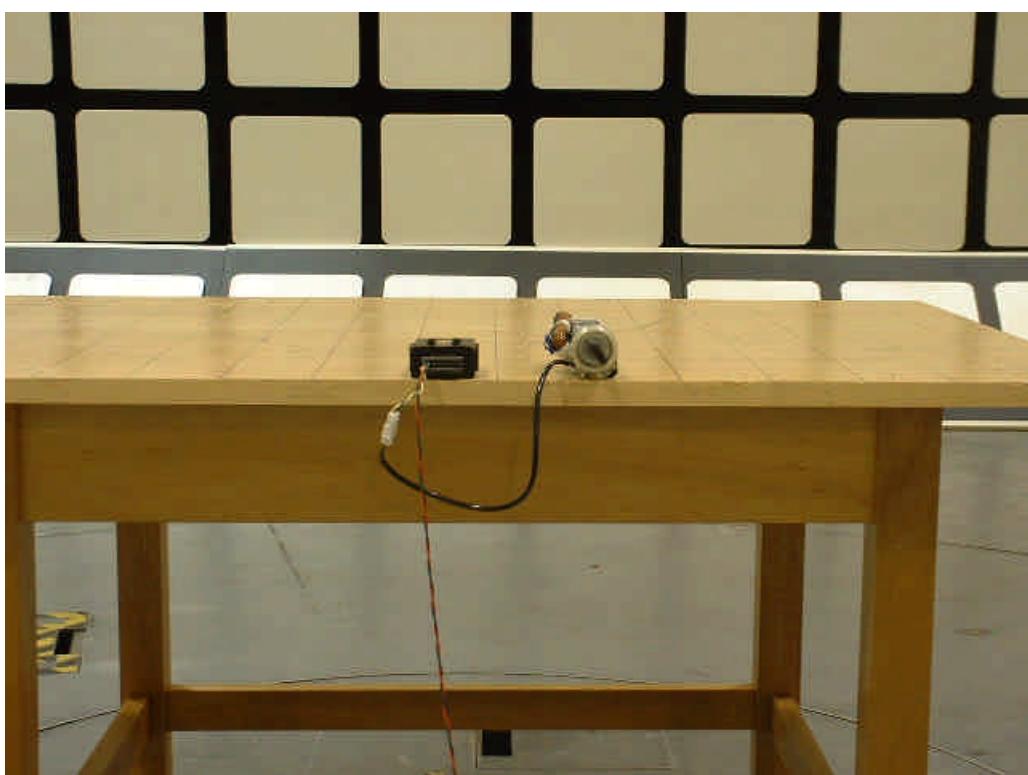
**1.10 TEST ARRANGEMENT (PHOTOGRAPHS)****PHOTOGRAPHS OF EUT CONFIGURATION FOR RADIATED EMISSIONS MEASUREMENT**

Photograph present configuration with maximum emission

- Front View -



- Rear View -





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## 2. TEST DATA

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

Note : This test was not applicable.

### 2.2 Radiated Emissions Measurement( 9 kHz - 30 MHz )

Date : November 15, 2003

Temp. : 24 °C Humi. : 36 %

**Operating Frequency** : 134.5 kHz  
**Distance of Measurement** : 30 meters

Frequency (MHz)	Meter Reading (dB?V/m)	Field Strength (dB?V/m)
<b>Fundamental</b>		
0.1345	< 30.0	< 30.0
<b>Harmonic Frequency</b>		
0.269	< 33.2	< 33.2
0.4035	< 31.4	< 31.4
0.538	< 30.1	< 30.1
0.6725	< 29.0	< 29.0
0.807	< 28.1	< 28.1
0.9415	< 27.3	< 27.3
1.076	< 27.0	< 27.0
1.2105	< 27.0	< 27.0
1.345	< 27.0	< 27.0

Note : The fundamental field strength was found undetectable weak of the field strength meter.

Tested by :

Kazuhisa Fukagawa  
Testing Engineer

**The distance of measurements was reduced to 10 meters.**

Date : November 15, 2003

Temp.: 24 °C Humi.: 36 %

**Operating Frequency** : 134.5 kHz  
**Distance of Measurement** : 10 meters

Frequency (MHz)	Meter Reading (dB?V/m)	Field Strength (dB?V/m)
<b>Fundamental</b>		
0.1345	46.6	46.6(Average)
0.1345	46.7	46.7(Peak)
<b>Harmonic Frequency</b>		
0.269	< 33.2	< 33.2(Average)
0.269	< 39.4	< 39.4(Peak)
0.4035	< 31.4	< 31.4(Average)
0.4035	< 36.6	< 36.6(Peak)
0.538	< 30.1	< 30.1
0.6725	< 29.0	< 29.0
0.807	< 28.1	< 28.1
0.9415	< 27.3	< 27.3
1.076	< 27.0	< 27.0
1.2105	< 27.0	< 27.0
1.345	< 27.0	< 27.0

**Note:** 1. Meter reading value shows field strength, because the value includes antenna factor.

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

3. Measuring Instrument Setting:

Frequency Range : 110 kHz to 403.5 kHz

Detector Function : Average/Peak, IF Band width : 10 kHz

Frequency Range : 538.0 kHz to 1345 kHz

Detector Function : CISPR Quasi-peak Peak, IF Band width : 9 kHz

For fundamental, the measured field strength was extrapolated to distance 300 meters, using the formula that field strength varies as the inverse distance square(40 dB per decade of distance).

**Calculation :**

Average:  $46.6 \text{ dB?V/m} - 20\log_{10}((300/10)^2) = 46.6 - 59.1 = -12.5 \text{ dB?V/m}$  at 300 meters  
Limits for fundamental(§15.209(a)) =  $20\log_{10}(2400/125) = 25.7 \text{ dB?V/m}$

Peak:  $46.7 \text{ dB?V/m} - 20\log_{10}((300/10)^2) = 46.7 - 59.1 = -12.4 \text{ dB?V/m}$  at 300 meters  
Limits for fundamental(§15.209(a)) =  $20\log_{10}(2400/125)+20 = 45.7 \text{ dB?V/m}$

Tested by :



Kazuhisa Fukagawa

Testing Engineer

**2.3. Radiated Emissions Measurements (30 MHz - 1000 MHz)**

Date : November 15, 2003  
 Temp. : 24°C Humi. : 36% Atmo. : 965hPa

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading (dB $\mu$ V)		Limits (dB $\mu$ V/m)		Emission Level (dB $\mu$ V/m)		Margin (dB)		Comment
		Horiz.	Ver.	Horiz.	Ver.	Horiz.	Ver.	Horiz.	Ver.	
30.0	19.8	< -2.0	3.4	40.0	< 17.8	23.2	> 22.2	16.8	16.8	
37.6	16.9	-0.3	17.1	40.0	16.6	34.0	23.4	6.0	6.0	
43.4	14.7	0.8	16.8	40.0	15.5	31.5	24.5	8.5	8.5	
48.0	13.3	3.0	14.8	40.0	16.3	28.1	23.7	11.9	11.9	
53.6	11.4	5.1	22.6	40.0	16.5	34.0	23.5	6.0	6.0	
80.1	7.4	-1.3	4.2	40.0	6.1	11.6	33.9	28.4	28.4	
111.5	12.9	< -2.0	8.1	43.5	< 10.9	21.0	> 32.6	22.5	22.5	
127.5	14.5	6.5	13.6	43.5	21.0	28.1	22.5	15.4	15.4	
208.3	18.1	0.2	2.7	43.5	18.3	20.8	25.2	22.7	22.7	
288.4	21.1	1.4	4.2	46.0	22.5	25.3	23.5	20.7	20.7	
320.0	17.1	-0.2	1.7	46.0	16.9	18.8	29.1	27.2	27.2	
351.5	18.2	-0.4	-0.8	46.0	17.8	17.4	28.2	28.6	28.6	
500.0	21.1	< -2.0	< -2.0	46.0	< 19.1	< 19.1	> 26.9	> 26.9	> 26.9	
700.0	24.4	< -2.0	< -2.0	46.0	< 22.4	< 22.4	> 23.6	> 23.6	> 23.6	
900.0	27.0	< -2.0	< -2.0	46.0	< 25.0	< 25.0	> 21.0	> 21.0	> 21.0	
1000.0	28.5	< -2.0	< -2.0	54.0	< 26.5	< 26.5	> 27.5	> 27.5	> 27.5	

Notes:

- 1) Test Location : Anechoic Chamber
- 2) Test Distance : 3 m
- 3) The spectrum was checked from 30 MHz to 1000 MHz.
- 4) Antenna factor includes the cable loss for 33 meter.
- 5) The symbol of "<" means "or less".
- 6) The symbol of ">" means "more than".
- 7) A sample calculation was made at 30.0 MHz  

$$Af + Mr = 19.8 + 3.4 = 23.2 \text{ dB}\mu\text{V/m}$$

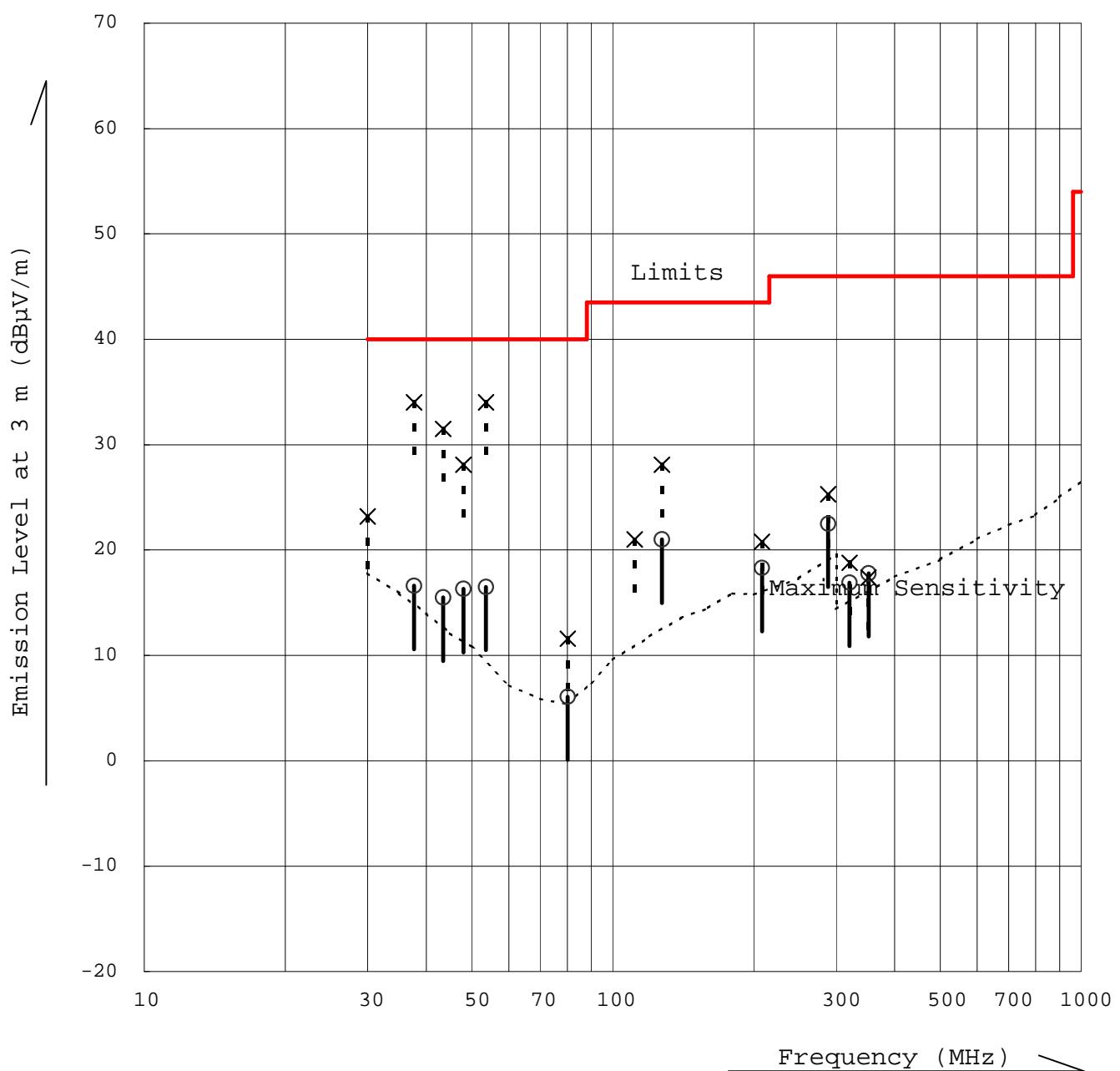
$$Af : \text{Antenna Factor} \quad Mr : \text{Meter Reading}$$
- 8) Setting of measuring instrument :
  - Detector Function : CISPR Quasi-Peak
  - IF Bandwidth : 120 kHz

Tested by :


  
 Kazuhisa Fukagawa

**Radiated Emissions Measurements (30 MHz - 1000 MHz)**

Measuring Distance : 3 m	○	Horizontal
Classifications : B	×	Vertical





JQA Application No. :441-30678

Model No. :IMB521-03

Standard :CFR 47 FCC Rules Part 15

FCC ID : N/A

Issue Date : November 18, 2003

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#### **2.4 Radiated Emissions Measurement( Above 1 GHz )**

Note : This test was not applicable.

#### **2.5 Frequency Stability Measurement**

Note : This test was not applicable.

#### **2.6 Occupied Bandwidth Measurement**

Note : This test was not applicable.