

## TEST REPORT

**APPLICANT** : Sharp Corporation, CS Promotion Group, Quality Assurance Center  
**ADDRESS** : 22-22 Nagaike-cho, Abeno-ku, Osaka, 545-8522, Japan

**PRODUCTS** : Microwave Oven  
**MODEL NO.** : EI30BM55H  
**SERIAL NO.** : --  
**FCC ID** : APYDMR0170

**TEST STANDARD** : CFR 47 FCC Rules and Regulations Part 18

**TESTING LOCATION** : Japan Quality Assurance Organization  
KITA-KANSAI Testing Center  
1-7-7, Ishimaru, Minoh-shi, Osaka 562-0027, Japan

**TEST RESULTS** : **Passed**

**DATE OF TEST** : January 18, 2008 - February 23, 2008

This report must not be used by the client to claim product endorsement by NVLAP or NIST or any agency of the U.S. Government.



Yuichi Fukumoto

Manager

Japan Quality Assurance Organization

KITA-KANSAI Testing Center

Testing Dept. EMC Division

1-7-7, Ishimaru, Minoh-shi, Osaka 562-0027, Japan

- The measurement values stated in Test Report was made with traceable to National Institute of Advanced Industrial Science and Technology (AIST) of Japan and National Institute of Information and Communications Technology (NICT) of Japan.
- The applicable standard, testing condition and testing method which were used for the tests are based on the request of the applicant.
- The test results presented in this report relate only to the offered test sample.
- The contents of this test report cannot be used for the purposes, such as advertisement for consumers.
- This test report shall not be reproduced except in full without the written approval of JQA.

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**DEFINITIONS FOR ABBREVIATION AND SYMBOLS USED IN THIS TEST REPORT**

“EUT” means Equipment Under the Test.

“N/A” means that Not Applicable.

“N/T” means that Not Tested.

- 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.

## Documentation

### 1 Test Regulation

Applied Standard : CFR 47 FCC Rules and Regulations Part 18  
Industrial, Scientific, and Medical Equipment

Test Procedure : FCC/OET MP-5 (1986)  
FCC Methods of Measurements of Radio Noise Emissions from Industrial,  
Scientific, and Medical equipment

### 2 Test Location

KITA-KANSAI Testing Center  
1-7-7, Ishimaru, Minoh-shi, Osaka 562-0027, Japan  
KAMEOKA EMC Branch  
9-1, Ozaki, Inukanno, Nishibetsuin-cho, Kameoka-shi, Kyoto 621-0126, Japan

### 3 Recognition of Test Laboratory

JQA KITA-KANSAI Testing Center Testing Department EMC Division is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility of Testing Division is registered by the following bodies.

VLAC Code : VLAC-001-2 (Effective through : April 3, 2008)  
NVLAP Lab Code : 200191-0 (Effective through : June 30, 2008)  
BSMI Recognition No. : SL2-IS-E-6006, SL2-IN-E-6006, SL2-AI-E-6006  
(Effective through : September 14, 2010)

VCCI Registration No. : R-006, R-008, R-1117, C-006, C-007, C-1674, C-2143  
(Effective through : April 3, 2008)

FCC Registration No. : 683630 (Effective through : June 30, 2008)

IC Registration No. : IC 4125-1, IC 6217-1, IC 6217-2 (Effective through : November 16, 2008)

Accredited as conformity assessment body for Japan electrical appliances and material law by METI.  
(Effective through : February 22, 2010)

#### 4 Description of the Equipment Under Test

1. Manufacturer : Sharp Appliances(Thailand) Limited  
64 Moo 5, Tambol Bangsamuk, Amphur, Bangpankong  
Chachoengsao, Province, Thailand
2. Products : Microwave Oven
3. Model No. : EI30BM55H
4. Serial No. : --
5. Product Type : Prototype
6. Date of Manufacture : --
7. Power Rating : 120VAC 60Hz, 1.65kW
8. Rated RF Power Output : 1000 W
9. EUT Grounding : Grounded at the plug end of the power line
10. Category : Any type unless otherwise specified (miscellaneous)
11. EUT Authorization : Certification
12. Operating Frequency : 2450 MHz (ISM frequency)
13. Upper Frequency of Measurement : 24.5 GHz
14. Received Date of EUT : January 15, 2008

## 5 Test Condition

### 5.1 Power Output

The requirements are  - Applicable  - Tested.  - Not tested by applicant request.]  
 - Not Applicable

Test site : KITA-KANSAI Testing Center

Test instruments : Refer to Appendix B.

### 5.2 ISM Frequency

The requirements are  - Applicable  - Tested.  - Not tested by applicant request.]  
 - Not Applicable

Test site : KITA-KANSAI  - Shielded room  - Anechoic chamber  
KAMEOKA  - Shielded room  - Conducted emission facility  
 - 1st open site

Test instruments : Refer to Appendix B.

### 5.3 Conducted Powerline

The requirements are  - Applicable  - Tested.  - Not tested by applicant request.]  
 - Not Applicable

Test site : KITA-KANSAI  - Shielded room  - Anechoic chamber  
KAMEOKA  - Shielded room  - Conducted emission facility  
 - 1st open site

Test instruments : Refer to Appendix B.

## 5.4 Radiated Emission

### 5.4.1 Radiated Emission 9 kHz – 30 MHz

The requirements are  - Applicable  - Tested.  - Not tested by applicant request.]  
 - Not Applicable

Test site :  - KITA-KANSAI 1st open site (3 m)  
 - KAMEOKA 1st open site  - 3 m  - 10 m  - 30 m  
 - KAMEOKA 2nd open site  - 3 m  - 10 m

Test instruments : Refer to Appendix B.

### 5.4.2 Radiated Emission 30 MHz – 1000 MHz

The requirements are  - Applicable  - Tested.  - Not tested by applicant request.]  
 - Not Applicable

Test site :  - KITA-KANSAI 1st open site (3 m)  
 - KAMEOKA 1st open site  - 3 m  - 10 m  - 30 m  
 - KAMEOKA 2nd open site  - 3 m  - 10 m

Test instruments : Refer to Appendix B.

### 5.4.3 Radiated Emission above 1 GHz

The requirements are  - Applicable  - Tested.  - Not tested by applicant request.]  
 - Not Applicable

Test site :  - KITA-KANSAI 1st open site (3 m)  
 - KAMEOKA 1st open site  - 3 m  - 10 m  - 30 m  
 - KAMEOKA 2nd open site  - 3 m  - 10 m

Test instruments : Refer to Appendix B.

**6 Preliminary Test and Test Setup**

**6.1 Power Output**

The power output is measured by the calorimetric method, computing from the observed temperature rise of the load over a period of time. The measured value of power output is used to determine the allowable out-of-band field strength.

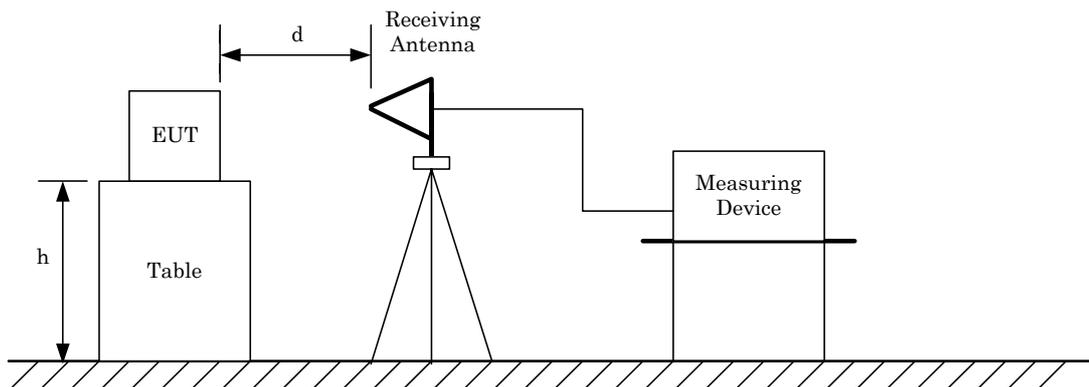
**6.2 ISM Frequency**

For the EUT was operated with a fundamental frequency in one of the designated band listed in International Telecommunication Union for use as ISM frequencies, the frequency was checked with measuring equipment.

The variation of frequency with time, starting with the EUT and load at the room temperature and continuing until the load quantity has been reduced by evaporation to approximately 20 % of the original quantity. This test is made with nominal rated ac supply voltage.

The variation of frequency for line voltage variation from 80 % to 125 % of nominal rated voltage, starting from the EUT warm from at least 10 minutes use, with the load at room temperature at the beginning of the test.

– Side View –



NOTE    h : Arbitrary height  
           d : Arbitrary distance

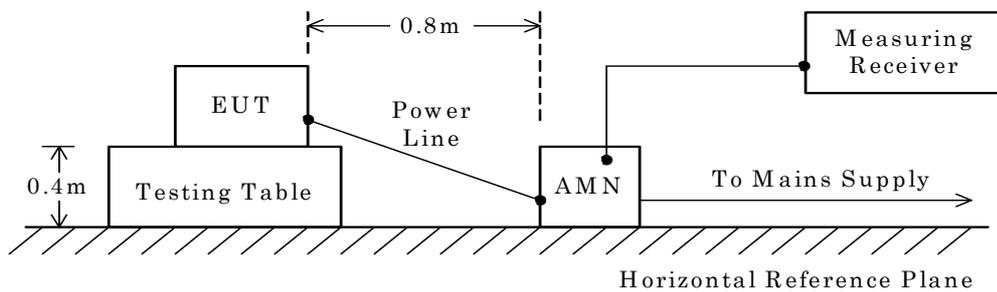
### 6.3 Conducted Powerline

The preliminary tests were performed using the spectrum analyzer to observe the emissions characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.

This configurations was used for final tests.

– Side View –



**NOTE**

AMN : Artificial Mains Network

## 6.4 Radiated Emission

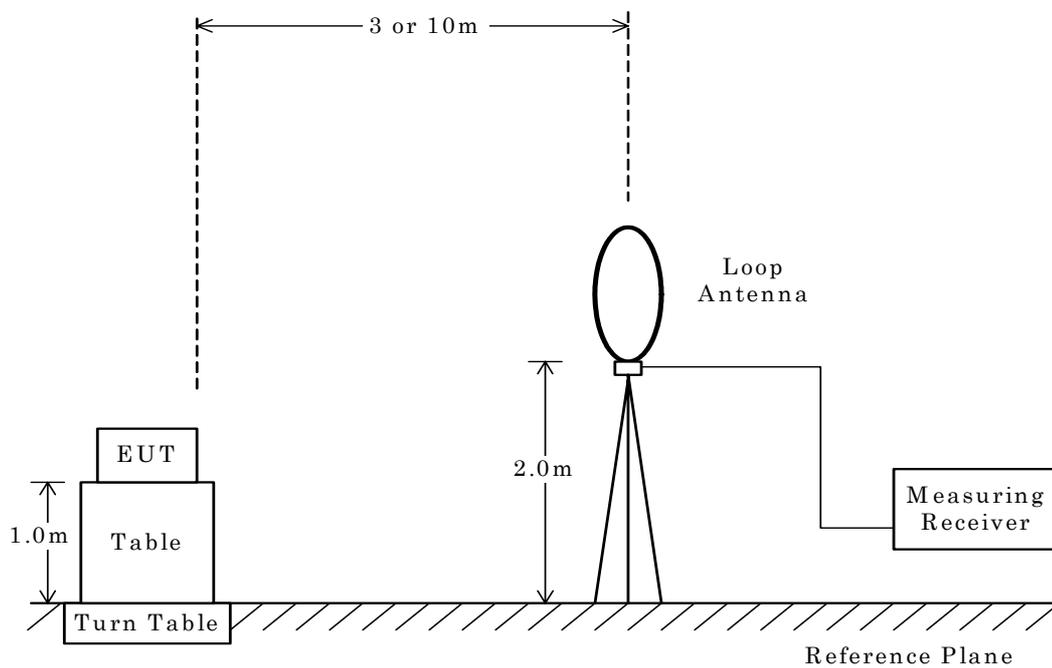
### 6.4.1 Radiated Emission 9 kHz – 30 MHz

The preliminary tests 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.

This configurations was used for the final tests.

– Side View –



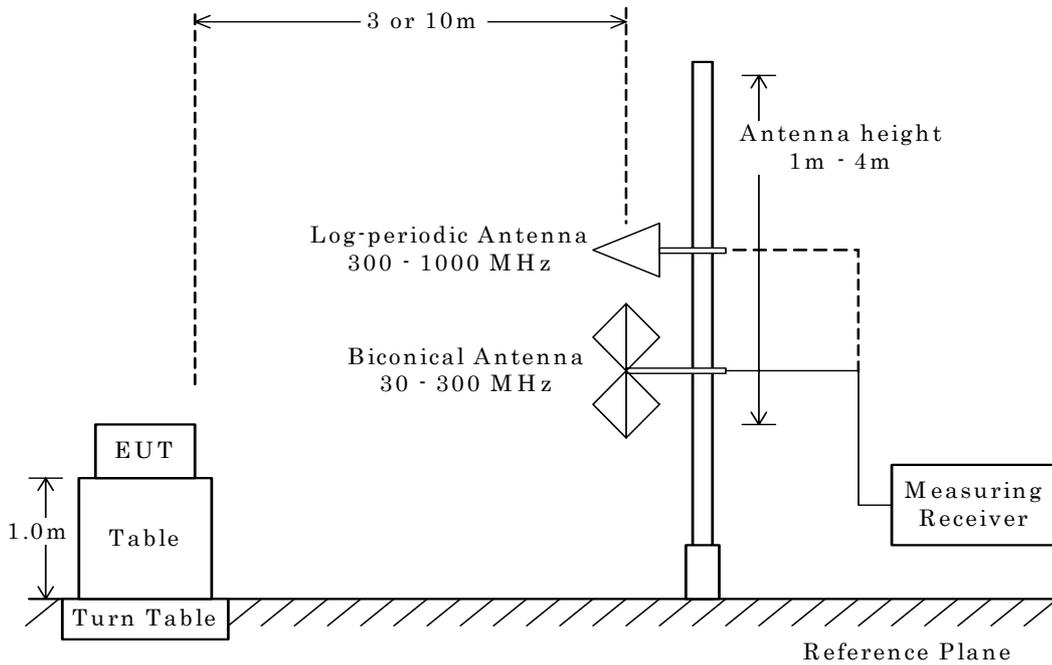
**6.4.2 Radiated Emission 30 MHz – 1000 MHz**

The preliminary tests 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.

This configurations was used for the final tests.

– Side View –



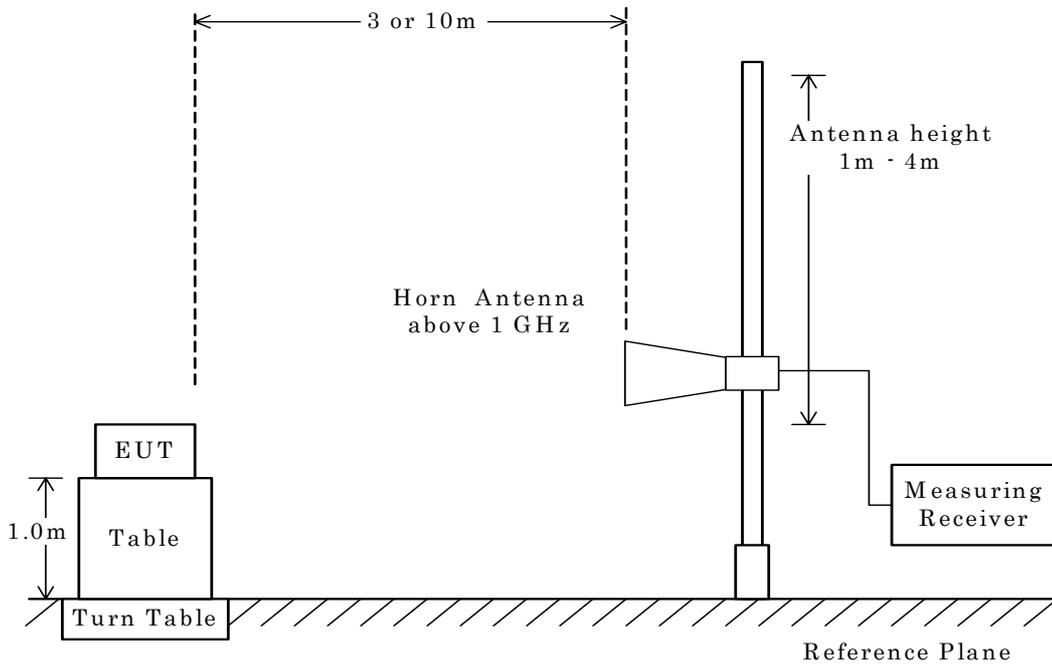
**6.4.3 Radiated Emission above 1 GHz**

The preliminary tests 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.

This configurations was used for the final tests.

– Side View –



**NOTE**

The antenna height is scanned depending on the EUT's size and mounting height.

**7 Equipment Under Test Modification**

- No modifications were conducted by JQA to achieve compliance to the limitations.  
 - To achieve compliance to the limitations, the following changes were made by JQA during the compliance test.

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

Applicant : Not Applicable

Date : Not Applicable

Typed Name : Not Applicable

Position : Not Applicable

Signatory : \_\_\_\_\_

**8 Responsible Party**Responsible Party of Test Item (Product)

Responsible Party :	
Contact Person :	_____
	Signatory

**9 Deviation from Standard**

- No deviations from the standard described in clause 1.  
 - The following deviations were employed from the standard described in clause 1.
- \_\_\_\_\_

**10 Test Results****10.1 Power Output**

The requirements are  - Applicable  - Tested.  - Not tested by applicant request.]  
 - Not Applicable

Power Output (calorimetric method) 686.0 watts

Field Strength Limit 29.3  $\mu\text{V/m}$  at 300 meters

AC Power Input 1371 watts

Remarks : Field strength may not exceed 10  $\mu\text{V/m}$  at 1600 meters.

**10.2 ISM Frequency**

The requirements are  - Applicable  - Tested.  - Not tested by applicant request.]  
 - Not Applicable

- Passed  - Failed  - Not judged

Remarks : \_\_\_\_\_

**10.3 Conducted Powerline**

The requirements are  - Applicable  - Tested.  - Not tested by applicant request.]  
 - Not Applicable

- Passed  - Failed  - Not judged

Min. Limit Margin (Quasi-Peak) 23.6 dB at 0.15 MHz

Max. Limit Exceeding (Quasi-Peak) \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Uncertainty of Measurement Results +/-2.9 dB(2 $\sigma$ )

Remarks : \_\_\_\_\_

**10.4 Radiated Emission**

The requirements are  - Applicable  - Tested.  - Not tested by applicant request.]  
 - Not Applicable

- Passed  - Failed  - Not judged

Min. Limit Margin (Average) 4.2 dB at 7322.7 MHz

Max. Limit Exceeding (Average) \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Uncertainty of Measurement Results  
9 kHz – 30 MHz +/-1.6 dB(2 $\sigma$ )  
30 MHz – 300 MHz +/-4.2 dB(2 $\sigma$ )  
300 MHz – 1000 MHz +/-4.3 dB(2 $\sigma$ )  
above 1 GHz +/-3.7 dB(2 $\sigma$ )

Remarks : \_\_\_\_\_  
\_\_\_\_\_

## 11 Summary

### General Remarks :

The EUT was tested according to the requirements of the following standard.

CFR 47 FCC Rules and Regulations Part 18

The test configuration is shown in clause 12 to 14.

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

### Test Results :

The "as received" sample;

- fulfill the test requirements of the regulation mentioned on clause 1.
- doesn't fulfill the test requirements of the regulation mentioned on clause 1.

Reviewed by:



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Shigeru Kinoshita  
Deputy Manager  
Testing Dept. EMC Div.  
JQA KITA-KANSAI Testing Center

Tested by:



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Akio Hosoda  
Manager  
Testing Dept. EMC Div.  
JQA KITA-KANSAI Testing Center

## 12 Operating Condition

Power Supply Voltage : 120VAC 60Hz

### Operation Mode

The EUT is tested with the dummy load located in the center of the oven.

The load consists of a quantity of tap water in a beaker, which is as follows.

Power output measurement : 1000 ml  
ISM frequency measurement : 1000 ml  
Conducted powerline measurement : 1000 ml  
Radiated emission measurement : 700 ml

For measurement of radiation on 2<sup>nd</sup> and 3<sup>rd</sup> harmonic, two loads, one of 700 ml and the other of 300 ml, of water are used. Each load is tested both with the beaker located in the center of the oven and with it in the right front corner.

Type of Magnetron : 2M240J(L) by Toshiba

## 13 Test Configuration

The equipment under test (EUT) consists of :

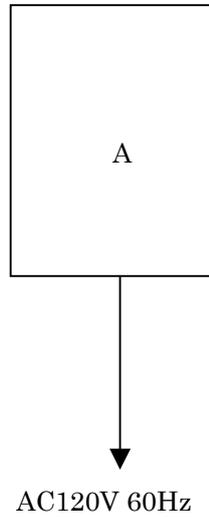
	Item	Manufacturer	Model No.	Serial No.	FCC ID
A	Microwave Oven	Sharp Appliances(Thailand)	EI30BM55H	--	APYDMR0170

The auxiliary equipment used for testing :

None

Type of Cable:

No.	Description	Identification (Manu. etc.)	Connector Shielded	Cable Shielded	Ferrite Core	Length (m)
1	AC Cord	--	--	No	No	1.1

**14 Equipment Under Test Arrangement (Drawings)**

## 15 Equipment Under Test Arrangement (Photographs)

### 15.1 Conducted Powerline



Photograph present configuration with maximum emission

**15.2 Radiated Emission**

– Front View –



– Rear View –

Photograph present configuration with maximum emission

**Appendix A: Test Data**

**A.1 Power Output**

ISM Frequency Device

Test Date: January 18, 2008

Temp.: 28 °C, Humi: 45 %

The power output was measured by the calorimetric method, computing the power output from the observed temperature rise of the load over a period of time.

Rated RF Power: 1000W  
 Load(water): 1000ml (1000ml X2)  
 Time: 42sec  $T = \frac{4.2 \times Load(ml) \times 10}{RFPower}$

	$t_1$ (before test)	$t_2$ (after test)	$t_2 - t_1$	RF Power**
1st	10.9°C	17.6°C	6.7°C	670.0W
2nd	11.0°C	17.9°C	6.9°C	690.0W
3rd	10.9°C	17.8°C	6.9°C	690.0W
4th	10.9°C	17.8°C	6.9°C	690.0W
5th	10.9°C	17.8°C	6.9°C	690.0W

$$**RFPower = \frac{4.2 \times Load(ml) \times (t_2 - t_1)}{T}$$

Results of Average RF Power: 686.0W

The limit of the radiated emission at 300m :  $25\sqrt{686/500}[\mu V/m]=29.3[\mu V/m]$   
 $25\sqrt{686/500}[\mu V/m]=29.3[dB(\mu V/m)]$

The AC power input to the oven is measured to determine if the oven is operating in accordance with the manufacturer's specifications.

Rated Power Supply:AC120V/60Hz, 1650W

Measured Input Power :AC120V60Hz 11.912A, 1371W

**A.2 ISM Frequency**

Test Date : February 23, 2008

Temp. : 22°C Humi. : 48 %

The maximum frequency deviation was measured at -26dB with respect to the maximum level.

<b>Maximum Frequency</b>		<b>Voltage Variations</b>	<b>Remarks</b>
<b>Lower Frequency</b>	<b>Upper Frequency</b>		
2409.0	2479.4	96.0V(80%)	A
2413.0	2487.8	120.0V(100%)	A
2411.4	2481.0	150.0V(125%)	A

The results were within 2450MHz±50MHz.

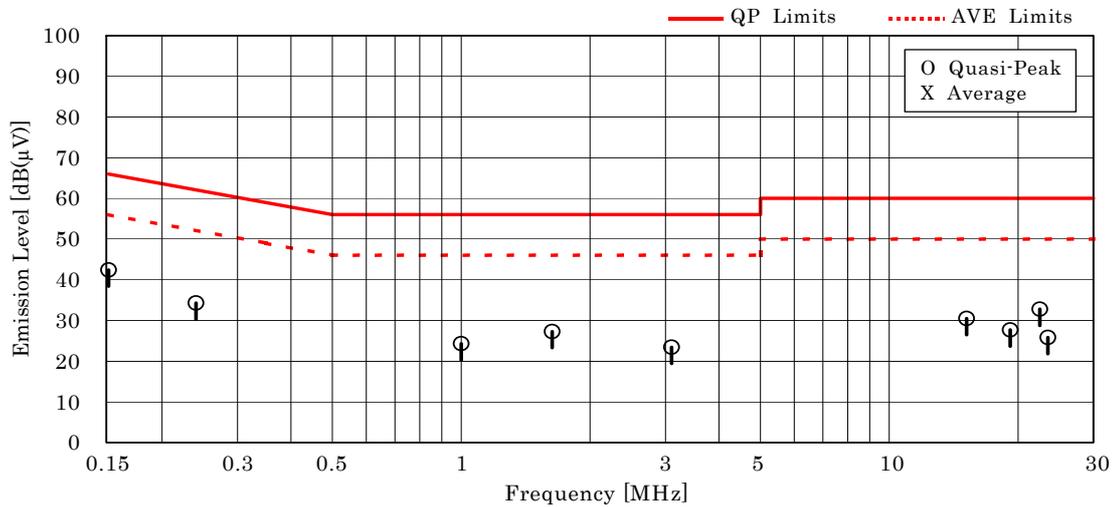
<b>Remarks</b>					
	<b>Detector Function</b>	<b>RES B.W.</b>	<b>V.B.W.</b>	<b>Sweep Time</b>	<b>Span</b>
A	Peak	100 kHz	10 kHz	30 msec.	100 MHz

### A.3 Conducted Powerline

Test Date: January 23, 2008

Temp.: 20 °C, Humi: 58 %

Frequency [MHz]	Corr. Factor [dB]	Meter Readings [dB(μV)]				Limits [dB(μV)]		Results [dB(μV)]		Margin [dB]	Remarks
		VA QP	AVE	VB QP	AVE	QP	AVE	QP	AVE		
0.15	0.4	42.0	--	42.0	--	66.0	56.0	42.4	--	+23.6	-
0.24	0.3	34.0	--	30.0	--	62.1	52.1	34.3	--	+27.8	-
1.00	0.3	24.0	--	22.0	--	56.0	46.0	24.3	--	+31.7	-
1.63	0.3	26.0	--	27.0	--	56.0	46.0	27.3	--	+28.7	-
3.10	0.4	20.0	--	23.0	--	56.0	46.0	23.4	--	+32.6	-
15.17	0.5	30.0	--	25.0	--	60.0	50.0	30.5	--	+29.5	-
19.17	0.7	20.0	--	27.0	--	60.0	50.0	27.7	--	+32.3	-
22.47	0.8	32.0	--	26.0	--	60.0	50.0	32.8	--	+27.2	-
23.46	0.8	25.0	--	25.0	--	60.0	50.0	25.8	--	+34.2	-
24.10	0.8	< 20.0	--	< 20.0	--	60.0	50.0	< 20.8	--	> +39.2	-



NOTES

1. The spectrum was checked from 0.15 MHz to 30 MHz.
2. The correction factor includes the AMN insertion loss and the cable loss.
3. The symbol of "<" means "or less".
4. The symbol of ">" means "more than".
5. The symbol of "--" means "not applicable".
6. Calculated result at 0.15 MHz, as the worst point shown on underline:  
Correction Factor + Meter Reading = 0.4 + 42.0 = 42.4 dB(μV)
7. QP : Quasi-Peak Detector / AVE : Average Detector
8. Test receiver setting(s) : CISPR QP 9 kHz / Average 9 kHz

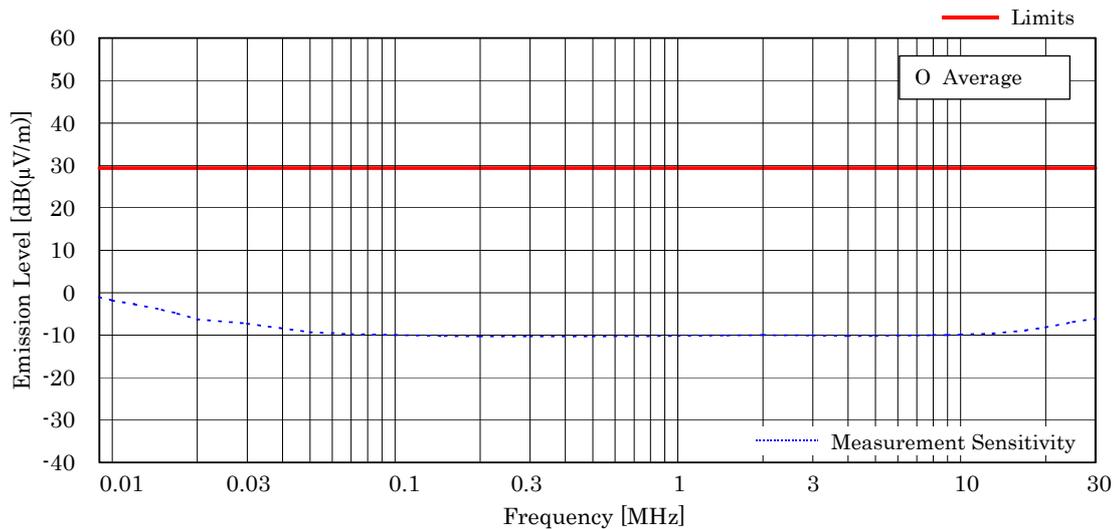
### A.4 Radiated Emission

#### A.2.1 Radiated Emission 9 kHz – 30 MHz

Test Date: February 17, 2008

Temp.: 20 °C, Humi: 54 %

Frequency [MHz]	Correction Factor [dB(1/m)]	Meter Readings at 3 m [dB(μV)]	Limits at 300 m [dB(μV/m)]	Results at 300 m [dB(μV/m)]	Margin [dB]	Remarks
0.15	-0.2	< 40.0	29.3	< - 0.2	> +29.5	-
0.30	-0.3	< 40.0	29.3	< - 0.3	> +29.6	-
0.50	-0.3	< 40.0	29.3	< - 0.3	> +29.6	-
1.00	-0.2	< 40.0	29.3	< - 0.2	> +29.5	-
3.00	-0.1	< 40.0	29.3	< - 0.1	> +29.4	-
5.00	-0.2	< 40.0	29.3	< - 0.2	> +29.5	-
10.00	0.1	< 40.0	29.3	< 0.1	> +29.2	-
20.00	1.8	< 40.0	29.3	< 1.8	> +27.5	-
30.00	3.9	< 40.0	29.3	< 3.9	> +25.4	-



NOTES

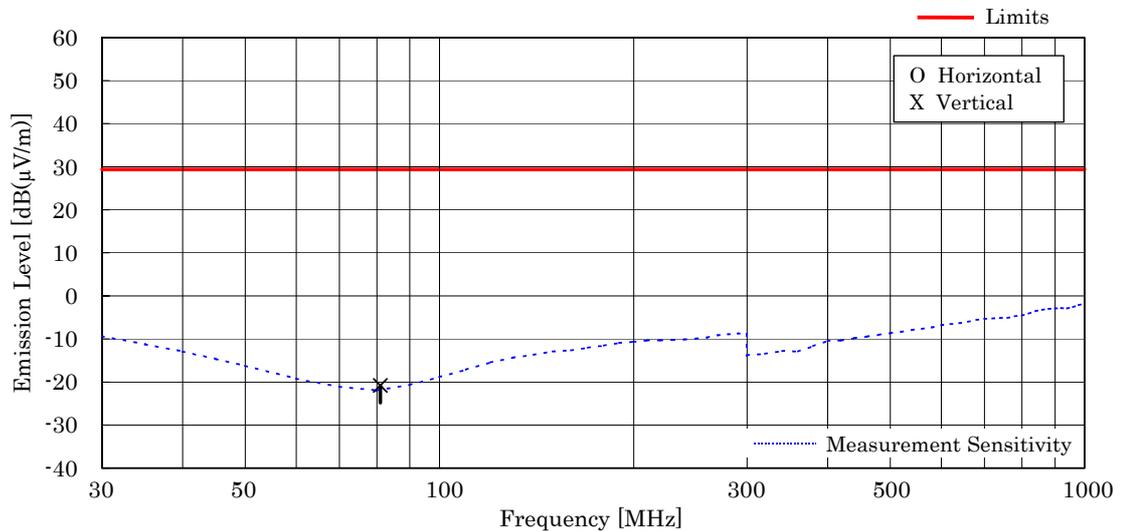
1. Test Distance : 3 m (Specified Distance : 300 m)
2. The spectrum was checked from 9 kHz to 30 MHz.
3. The correction factor includes the antenna factor and the cable loss.
4. The symbol of “<” means “or less”.
5. The symbol of “>” means “more than”.
6. Calculated result at 30.00 MHz, as the worst point shown on underline:  
 Correction Factor + Meter Reading = 3.9 + <40.0 = <43.9 dB(μV/m)  
 Result at 300 m = -40.0 + <43.9 = <3.9 dB(μV/m) = <1.6 μV/m (Conversion Factor : 20dB/decade)
7. Test receiver setting(s) : Average 200 Hz (9 kHz - 150 kHz) / Average 9 kHz (150 kHz - 30 MHz)

**A.2.2 Radiated Emission 30 MHz – 1000 MHz**

Test Date: January 23, 2008

Temp.: 18 °C, Humi: 45 %

Frequency [MHz]	Antenna Factor [dB(1/m)]	Cable Loss [dB]	Meter Readings at 10 m [dB(μV)]		Limits at 300 m [dB(μV/m)]	Results at 300 m [dB(μV/m)]		Margin [dB]	Remarks
			Hori.	Vert.		Hori.	Vert.		
30.0	19.5	0.7	< 0.0	< 0.0	29.3	< - 9.3	< - 9.3	> +38.6	-
33.0	18.4	0.7	< 0.0	< 0.0	29.3	< -10.4	< -10.4	> +39.7	-
52.0	11.8	0.9	< 0.0	< 0.0	29.3	< -16.8	< -16.8	> +46.1	-
68.0	7.8	1.0	< 0.0	< 0.0	29.3	< -20.7	< -20.7	> +50.0	-
79.0	6.6	1.1	< 0.0	< 0.0	29.3	< -21.8	< -21.8	> +51.1	-
81.0	6.6	1.1	< 0.0	1.0	29.3	< -21.8	-20.8	+50.1	-
290.0	18.5	2.3	< 0.0	< 0.0	29.3	< - 8.7	< - 8.7	> +38.0	-
350.0	14.1	2.6	< 0.0	< 0.0	29.3	< -12.8	< -12.8	> +42.1	-
450.0	16.9	3.0	< 0.0	< 0.0	29.3	< - 9.6	< - 9.6	> +38.9	-



NOTES

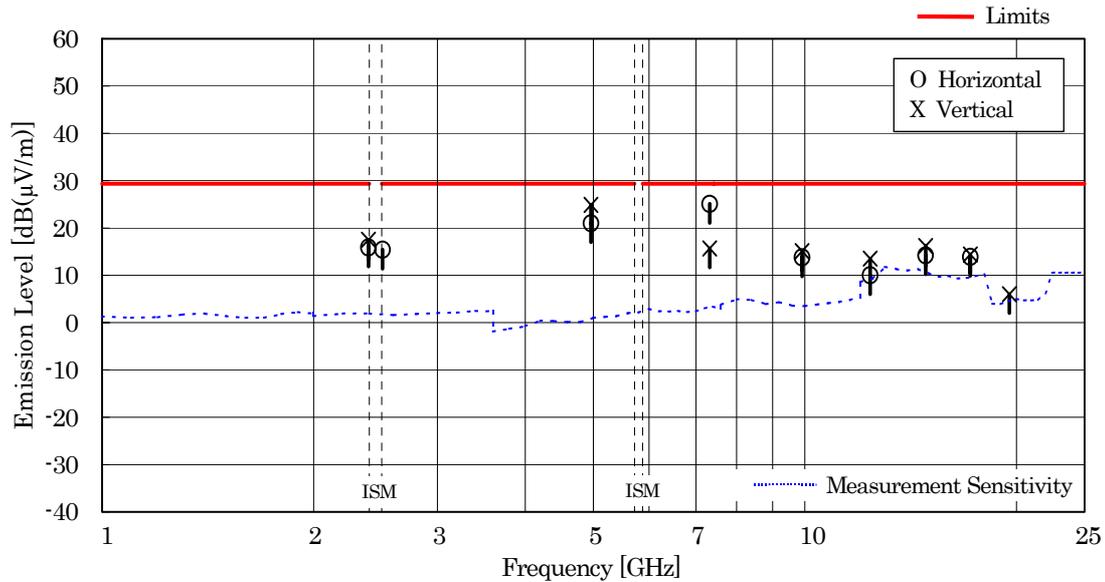
1. Test Distance : 10 m (Specified Distance : 300 m)
2. The spectrum was checked from 30 MHz to 1000 MHz.
3. The symbol of “<” means “or less”.
4. The symbol of “>” means “more than”.
5. Calculated result at 290.0 MHz, as the worst point shown on underline:  
 $\text{Antenna Factor} + \text{Cable Loss} + \text{Meter Reading} = 18.5 + 2.3 + <0.0 = <20.8 \text{ dB}(\mu\text{V}/\text{m})$   
 $\text{Result at 300 m} = -29.5 + <20.8 = <-8.7 \text{ dB}(\mu\text{V}/\text{m}) = <0.4 \mu\text{V}/\text{m}$  (Conversion Factor : 20dB/decade)
6. Test receiver setting(s) : Average 120 kHz

### A.2.3 Radiated Emission above 1 GHz

Test Date: February 17, 2008

Temp.: 20 °C, Humi: 54 %

Frequency [MHz]	Antenna Factor [dB(1/m)]	Corr. Factor [dB]	Meter Readings at 3 m [dB(μV)]		Limits at 300 m [dB(μV/m)]	Results at 300 m [dB(μV/m)]		Margin [dB]	Remarks
			Hori.	Vert.		Hori.	Vert.		
2393.8	21.1	10.8	24.0	25.6	29.3	15.9	17.5	+11.8	-
2506.9	21.1	10.8	23.5	< 20.0	29.3	15.4	< 11.9	+13.9	-
4962.6	36.9	-21.0	45.1	49.0	29.3	21.0	24.9	+ 4.4	-
7322.7	36.9	-19.2	47.4	38.0	29.3	25.1	15.7	+ 4.2	-
9911.5	39.3	-26.1	40.6	41.9	29.3	13.8	15.1	+14.2	-
12387.2	44.5	-25.3	30.8	34.3	29.3	10.0	13.5	+15.8	-
14857.5	45.8	-25.3	33.7	35.7	29.3	14.2	16.2	+13.1	-
17203.7	44.8	-25.4	34.5	35.0	29.3	13.9	14.4	+14.9	-
19553.8	40.6	-25.9	< 30.0	31.3	29.3	< 4.7	6.0	+23.3	-
24585.0	40.5	-20.0	< 30.0	< 30.0	29.3	< 10.5	< 10.5	> +18.8	-



#### NOTES

1. Test Distance : 3 m (Specified Distance : 300 m)
2. The spectrum was checked from 1.0 GHz to 25 GHz (10th harmonic of the operating frequency).
3. The correction factor is shown as follows:
  - Cable Loss + 10dB Pad Attenuator [dB] (1.0 - 3.6GHz)
  - Cable Loss + 20dB Pad Attenuator - Pre-Amplifier Gain [dB] (3.6 - 7.6GHz / 18.0 - 26.5GHz)
  - Cable Loss + 10dB Pad Attenuator - Pre-Amplifier Gain [dB] (7.6 - 18.0GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. Calculated result at 7322.7 MHz, as the worst point shown on underline:
  - Antenna Factor + Correction Factor + Meter Reading = 36.9 + (-19.2) + 47.4 = 65.1 dB(μV/m)
  - Result at 300 m = -40.0 + 65.1 = 25.1 dB(μV/m) = 18.0 μV/m (Conversion Factor : 20dB/decade)
7. Spectrum analyzer setting(s) :
  - Resolution Bandwidth = 1 MHz, Video Bandwidth = 10 Hz, Sweep Time = AUTO

## Appendix B: Test Instruments

### B.1 Power Output

Type	Model	Manufacturer	Assigned C/N	Last Cal.	Interval
Digital Power Meter	2533	YOKOKAWA	08011090	2007/4	1 Year
Stopwatch	S111-5000	SEIKO	Q47097350	2007/2	1 Year
Thermometer	245506	YOKOGAWA	Q47097361	2007/3	1 Year

### B.2 ISM Frequency

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Spectrum Analyzer	E4446A	Agilent	A-39	2007/12	1 Year
Horn Antenna	91889-2	EATON	C-41-2	2007/6	1 Year
Attenuator	54-10	Weinschel	D-82	2008/2	1 Year
RF Cable	SUCOFLEX104	SUHNER	C-40-11	2007/11	1 Year

### B.3 Conducted Powerline

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Test Receiver	ESCI	Rohde & Schwarz	A-42	2007/11	1 Year
AMN (main)	KNW-408	Kyoritsu	D-11	2007/3	1 Year
RF Cable	--	----	H-8	2007/9	1 Year

### B.4 Radiated Emission

#### B.4.1 Radiated Emission 9 kHz – 30 MHz

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Test Receiver	ESCI	Rohde & Schwarz	A-42	2007/11	1 Year
Loop Antenna	HFH2-Z2	Rohde & Schwarz	C-2	2007/8	1 Year
RF Cable	RG213/U	Rohde & Schwarz	H-28	2007/8	1 Year

**B.4.2 Radiated Emission 30 MHz – 1000 MHz**

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Test Receiver	ESVS 10	Rohde & Schwarz	A-5	2007/8	1 Year
Pre-Amplifier	ESV-Z3	Rohde & Schwarz	A-19	2007/11	1 Year
Biconical Antenna	VHA9103/FBAB9177	Schwarzbeck	C-25	2007/8	1 Year
Log-periodic Antenna	UHALP 9108-A1	Schwarzbeck	C-28	2007/8	1 Year
RF Cable	--	----	H-2	2007/8	1 Year

**B.4.3 Radiated Emission above 1 GHz**

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Spectrum Analyzer	E4446A	Agilent	A-39	2007/12	1 Year
Pre-Amplifier	WJ-6882-824	Watkins Johnson	A-21	2007/11	1 Year
Pre-Amplifier	DBL-0618N515	DBS Microwave	A-33	2007/11	1 Year
Pre-Amplifier	ALN-22093545-01	Wise Wave	A-37	2007/3	1 Year
Horn Antenna	91888-2	EATON	C-41-1	2007/6	1 Year
Horn Antenna	91889-2	EATON	C-41-2	2007/6	1 Year
Horn Antenna	94613-1	EATON	C-41-3	2007/6	1 Year
Horn Antenna	91891-2	EATON	C-41-4	2007/6	1 Year
Horn Antenna	CL-107-43	ARNELLAB	C-41-5	2007/6	1 Year
Horn Antenna	3160-09	EMCO	C-48	2007/6	2 Years
Attenuator	54-10	Weinschel	D-82	2008/2	1 Year
Attenuator	54-10	Weinschel	D-83	2008/2	1 Year
RF Cable	SUCOFLEX104	SUHNER	C-40-11	2007/11	1 Year
RF Cable	SUCOFLEX104	SUHNER	C-40-14	2007/11	1 Year
RF Cable	SUCOFLEX102	SUHNER	C-54	2007/3	1 Year
RF Cable	104-18 11N-451x2 2m	SUCOFLEX	C-64	2007/5	1 Year
RF Cable	102EA-40 11K-252 x2 2m	SUCOFLEX	C-69	2007/3	1 Year