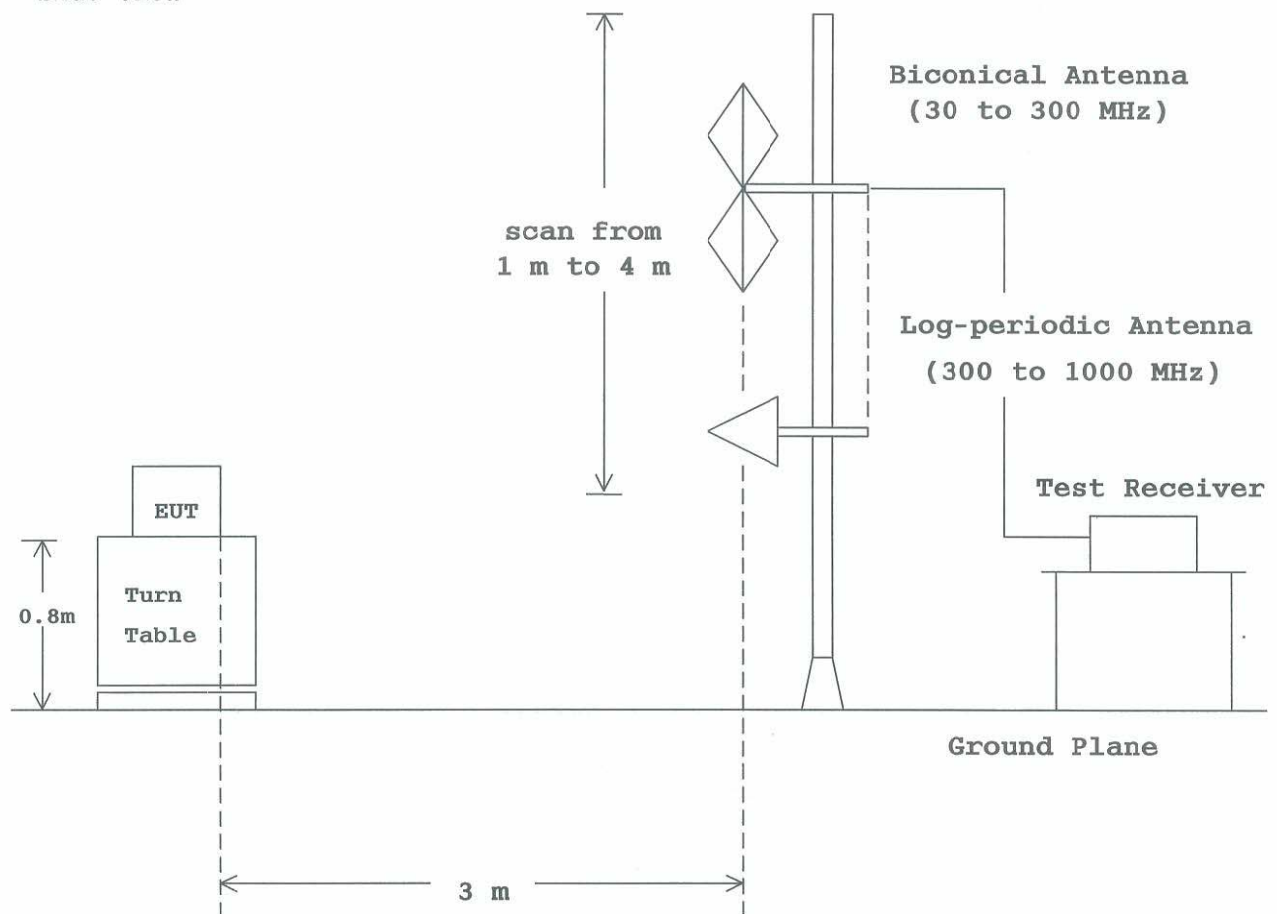


1.9.3 Radiated Emission (30 MHz - 1000 MHz) :

According to description of ANSI C63.4-2003 sec.13.1.4, 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.

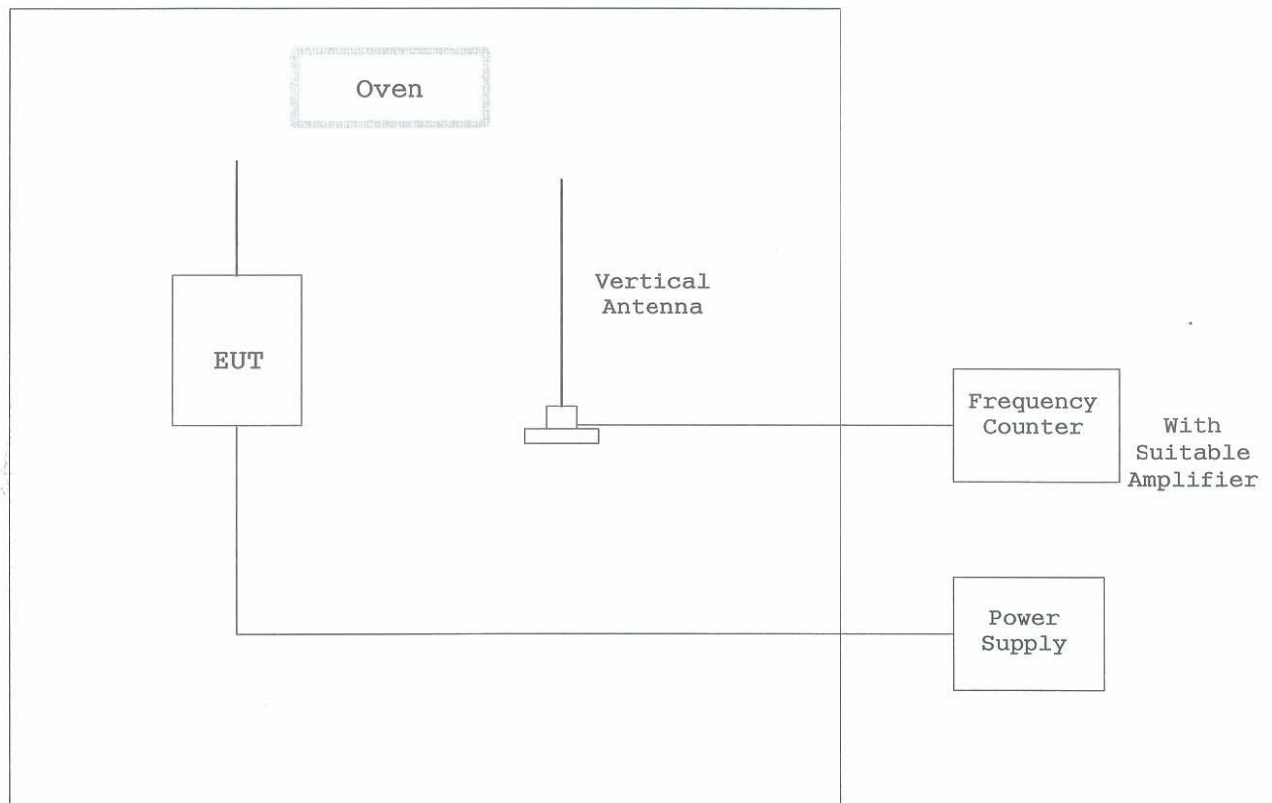
- Side View -



1.9.4 Frequency Stability :

According to description of ANSI C63.4-2003 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°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 $+20^{\circ}\text{C}$.

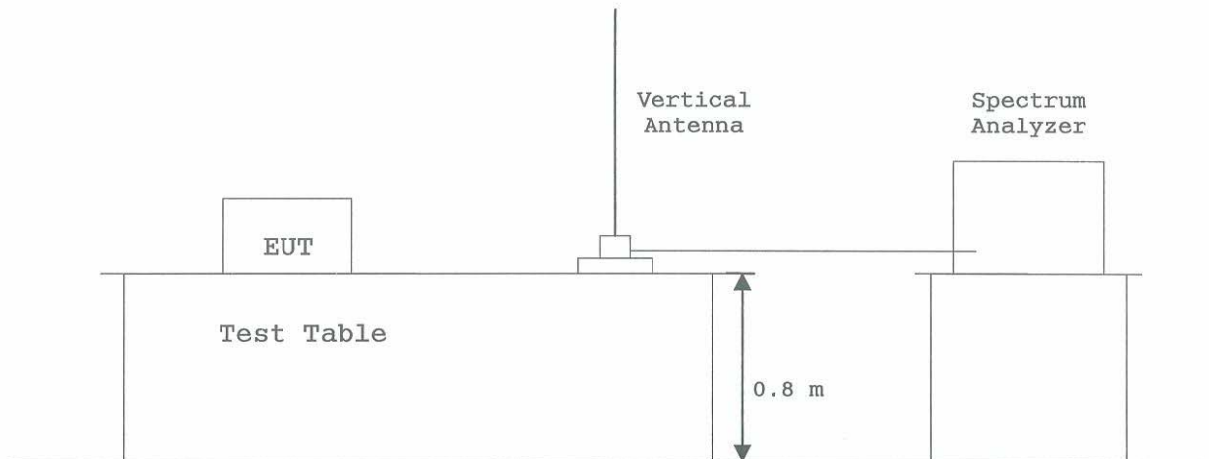
These measurements were carried out after allow sufficient time (approximately 1 hour) for the temperature of the chamber to stabilize.



1.9.6 Occupied Bandwidth :

According to description of ANSI C63.4-2003 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 CONDUCTED EMISSION MEASUREMENT

- Rear View -



- Side View -

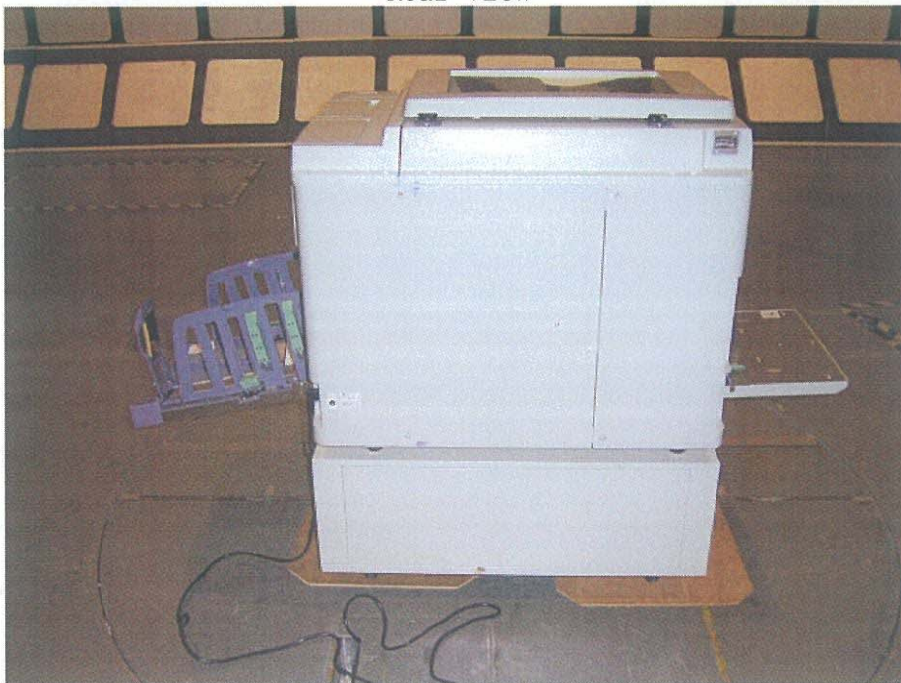


PHOTOGRAPHS OF EUT CONFIGURATION FOR RADIATED EMISSIONS MEASUREMENT
Photograph present configuration with maximum emission

- Front View -

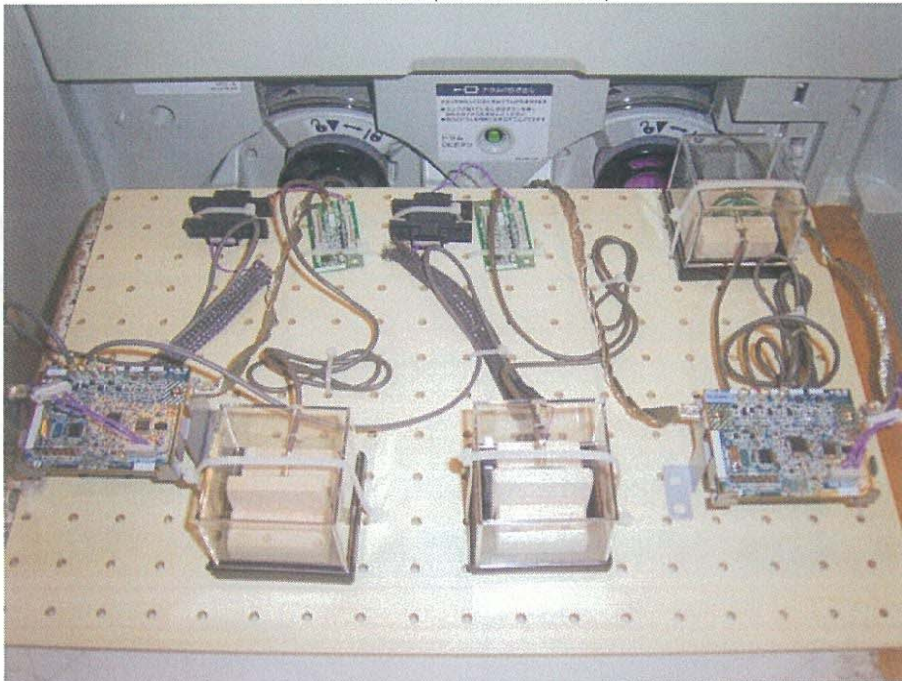


- Rear View -

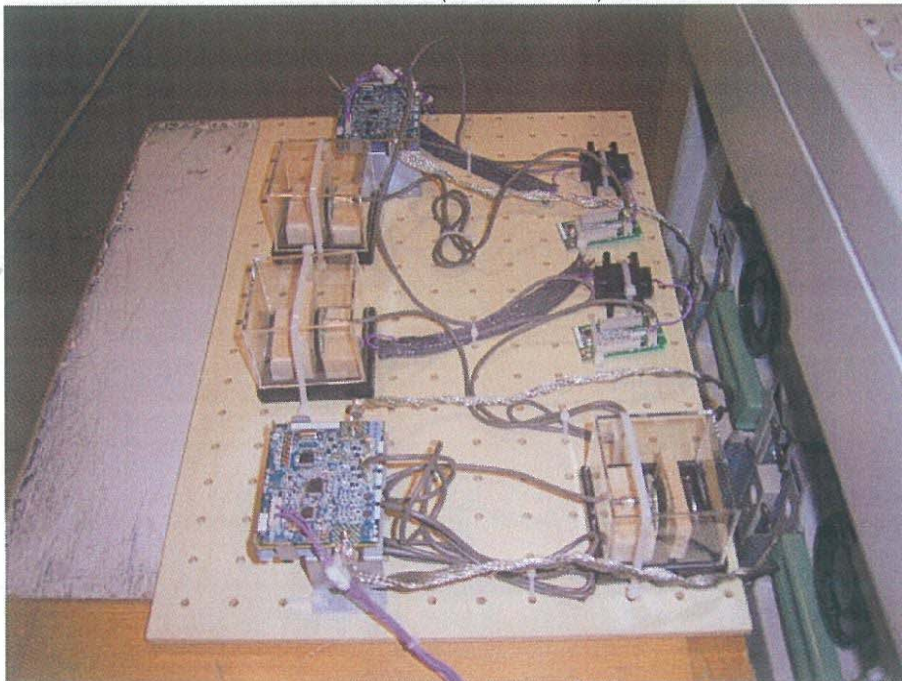


PHOTOGRAPHS OF EUT CONFIGURATION FOR RADIATED EMISSIONS MEASUREMENT
 Photograph present configuration with maximum emission

- EUT Zoom(Front View) -



- EUT Zoom(Side View) -



2. TEST DATA

2.1 AC Power Line Conducted Emission Measurement (0.15 MHz - 30 MHz)

Date : October 26, 2005

Temp.: 18 °C Humi.: 52 %

Operating Condition : TX/ RX
 Operating Frequency : 13.56 MHz

Frequency (MHz)	AMN Factor (dB)	Meter Reading (dBµV)				Limits (dBµV)		Emission Level (dBµV)		Margin (dB)		Comment
		V-A		V-B		Q.P	AVE	Q.P	AVE	Q.P	AVE	
		Q.P	AVE	Q.P	AVE							
0.15	0.1	44.5	-	44.3	-	66.0	56.0	44.6	-	21.4	-	
0.30	0.1	32.9	-	27.0	-	60.2	50.2	33.0	-	27.2	-	
0.47	0.1	31.1	-	31.7	-	56.5	46.5	31.8	-	24.7	-	
0.71	0.1	13.6	-	24.5	-	56.0	46.0	24.6	-	31.4	-	
1.17	0.1	< 10.0	-	15.5	-	56.0	46.0	15.6	-	40.4	-	
3.62	0.1	< 10.0	-	< 10.0	-	56.0	46.0	< 10.1	-	> 45.9	-	
5.34	0.1	< 10.0	-	< 10.0	-	60.0	50.0	< 10.1	-	> 49.9	-	
7.69	0.1	25.8	-	26.3	-	60.0	50.0	26.4	-	33.6	-	
9.81	0.1	31.3	-	33.0	-	60.0	50.0	33.1	-	26.9	-	
13.56	0.3	41.5	-	42.0	-	60.0	50.0	42.3	-	17.7	-	
18.20	0.4	23.2	-	24.7	-	60.0	50.0	25.1	-	34.9	-	
22.48	0.4	14.2	-	14.8	-	60.0	50.0	15.2	-	44.8	-	
27.13	0.5	22.1	-	22.1	-	60.0	50.0	22.6	-	37.4	-	
30.00	0.6	15.3	-	15.6	-	60.0	50.0	16.2	-	43.8	-	

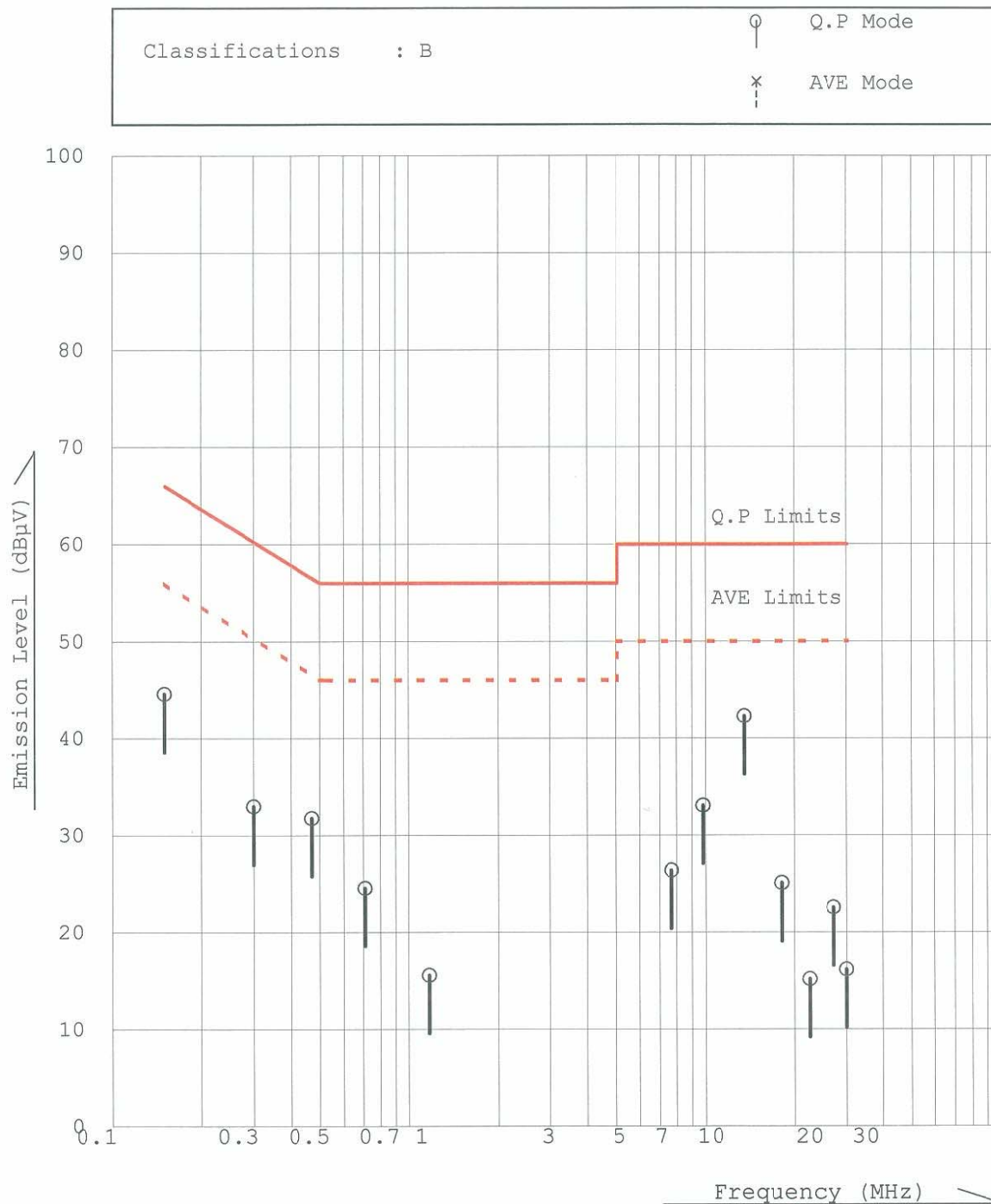
- Notes: 1) Test Location : Anechoic Chamber
 2) The spectrum was checked from 0.15 MHz to 30 MHz
 3) AMN(Artificial Mains Network) factor includes the cable loss for 5 meter.
 4) The symbol of "<" means "or less".
 5) The symbol of ">" means "more than".
 6) The symbol of "-" means "Not applicable".
 7) V-A : One end & Ground V-B : The other end & Ground
 8) Q.P : Quasi-Peak Detector AVE : Average Detector
 9) A sample calculation was made at 0.15 MHz

$$\text{Amn} + \text{Mr} = 0.1 + 44.5 = 44.6 \text{ dB}\mu\text{V}$$

$$\text{Amn} : \text{AMN Factor} \quad \text{Mr} : \text{Meter Reading}$$

 10) Setting of measuring instrument :
 Detector Function : CISPR Quasi-Peak / Average
 IF Bandwidth : 9 kHz / 10 kHz (0.15 MHz - 30 MHz)

AC Power Line Conducted Emission Measurement (0.15 MHz - 30 MHz)



2.2 Radiated Emissions Measurement(9 kHz - 30 MHz)

Date : October 26, 2005
 Temp.: 18 °C Humi.: 52 %

Operating Frequency : 13.56 MHz
 Distance of Measurement : 10 meters

Frequency (MHz)	Meter Reading (dBμV/m)	Field Strength (dBμV/m)
Fundamental		
13.56	31.6	11.6
Harmonic Frequency		
27.13	< 27.0	< 7.0

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

For fundamental, the measured field strength was extrapolated to distance 30 meters, using the formula that field strength varies as the inverse distance square (40 dB per decade of distance).

Calculation :

Fundamental: $31.6 \text{ dB}\mu\text{V/m} - 20\log_{10}((30/10)^2) = 31.6 - 20.0 = 11.6 \text{ dB}\mu\text{V/m}$ at 30 meters
 Limits for fundamental(\$15.225(a)) = $20\log_{10}(15848) = 84.0 \text{ dB}\mu\text{V/m}$
 Harmonic : $27.0 \text{ dB}\mu\text{V/m} - 20\log_{10}((30/10)^2) = 27.0 - 20.0 = 7.0 \text{ dB}\mu\text{V/m}$ at 30 meters
 Limits for (\$15.225(d)) = $20\log_{10}(30) = 29.5 \text{ dB}\mu\text{V/m}$

2.3 Radiated Emissions Measurement(30 MHz - 1 GHz)

Date : October 26, 2005

Temp.: 18 °C Humi.: 52 %

Operating Frequency : 13.56 MHz

Distance of Measurement : 3 meters

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading (dBμV)		Limits (dBμV/m)	Emission Level (dBμV/m)		Margin (dB)		Comment
		Horiz.	Ver.		Horiz.	Ver.	Horiz.	Ver.	
30.0	18.0	< -2.0	10.5	40.0	< 16.0	28.5	> 24.0	11.5	
40.7	15.3	4.5	10.3	40.0	19.8	25.6	20.2	14.4	
54.2	10.6	15.0	20.5	40.0	25.6	31.1	14.4	8.9	
80.4	7.3	23.8	22.3	40.0	31.1	29.6	8.9	10.4	
100.7	11.5	9.1	11.7	43.5	20.6	23.2	22.9	20.3	
176.3	17.5	13.4	13.3	43.5	30.9	30.8	12.6	12.7	
230.5	18.9	17.3	13.3	46.0	36.2	32.2	9.8	13.8	
298.4	21.1	11.3	8.5	46.0	32.4	29.6	13.6	16.4	
433.9	19.2	16.7	14.2	46.0	35.9	33.4	10.1	12.6	
576.0	21.8	6.4	6.8	46.0	28.2	28.6	17.8	17.4	
880.0	26.0	15.2	9.7	46.0	41.2	35.7	4.8	10.3	
1000.0	27.7	< -2.0	< -2.0	54.0	< 25.7	< 25.7	> 28.3	> 28.3	

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 = 18.0 + 10.5 = 28.5 dBμV/m

Af : Antenna Factor Mr : Meter Reading

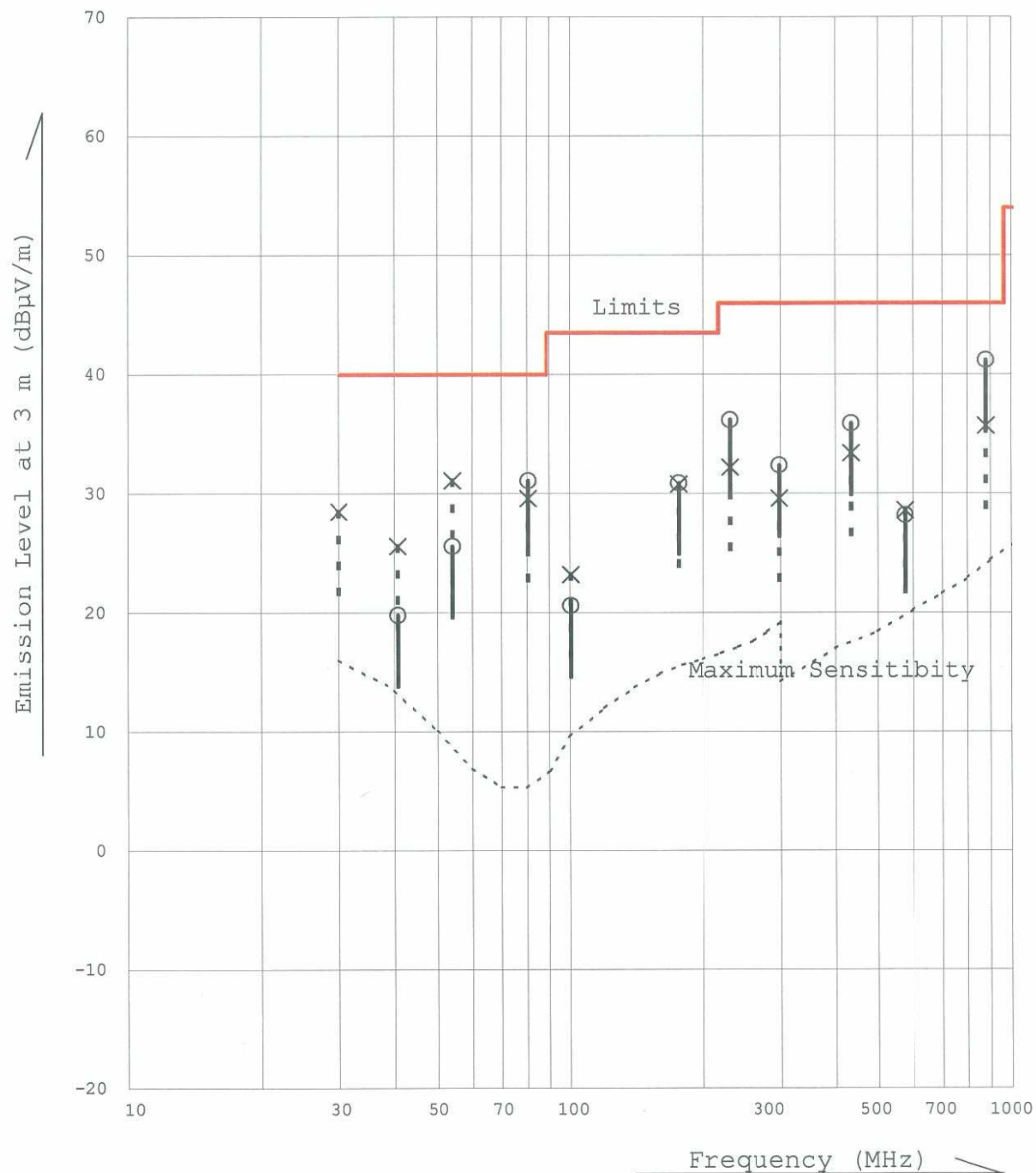
8) Setting of measuring instrument :

Detector Function : CISPR Quasi-Peak

IF Bandwidth : 120 kHz

Radiated Emissions Measurement(30 MHz - 1 GHz)

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



2.4 Radiated Emissions Measurement(Above 1 GHz)

Note : This test was not applicable.

2.5 Frequency Stability Measurement

Note : This test was not tested.

This requirement is covered with the JQA report (File No. 441-50438)

2.6 Occupied Bandwidth Measurement

Date : October 26, 2005
 Temp.: 18 °C Humi.: 52 %

20dB Band width measurement result: 3.51 kHz

