**JAPAN QUALITY ASSURANCE ORGANIZATION**
21-25, KINUTA 1-CHOME, SETAGAYA-KU, TOKYO 157-8573 JAPAN
PHONE (03) 3416-0111, TELEX 242-2531 JQA J FAX (03) 3416-9691



# *EMI TEST REPORT*

| | |
|---|---|
| JQA APPLICATION NO. | : 400-10583 |
| Model No. | : PCG-441L |
| Type of Equipment | : Notebook Personal Computer |
| Regulations Applied | : CFR 47 FCC Rules and Regulations Part 15 |
| FCC ID | : N/A(Declaration of Conformity) |
| Applicant | : Sony Electronics Inc. |
| Address | : 680 Kinderkamack Road, Oradell NJ 07649 U.S.A |
| Manufacturer | : Sony Corporation |
| Address | : 6-7-35 Kitashinagawa, Shinagawa-ku, Tokyo 141-0001, Japan |
| **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.



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

**NVLAP Lab. Code : 200189-0**

# TABLE OF CONTENTS

# 1. DOCUMENTATION

## 1.1 TEST REGULATION

FCC Rules and Regulations Part 15 Subpart A and B (June 23, 1989) Class B Digital Device.

**Test procedure**

AC power line conducted emission and radiated emission 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 ).

FCC filing No. : 31040/SIT 1300F2

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, 2002)



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

| | | |
|---|---|---|
| 1) | Type of Equipment | : Notebook Personal Computer |
| 2) | Product Type | : Prototype |
| 3) | Category | : Class B Digital Device |
| 4) | EUT Authorization | : Declaration of Conformity |
| 5) | FCC ID | : N/A |
| 6) | Trade Name | : SONY |
| 7) | Model No. | : PCG-441L |
| 8) | Fundamental Frequency Generated/Operated In the EUT | : 2.483GHz, 800.0MHz, 650.0MHz, 550.0MHz, 100.0MHz, 48.0MHz, 33.0MHz, 25.0MHz, 24.576MHz 20.0MHz, 16.0MHz, 14.318MHz, 10.0MHz, 32.768kHz |
| 9) | Highest Frequency Used in the EUT | : 2.483GHz |
| 10) | Serial No. | : - |
| 11) | Date of Manufacture | : - |
| 12) | Power Rating | : 16VDC |

The EUT was operated with the AC adaptor (Model:PCGA-16V3, Input:100-240VAC 50/60Hz, Output:16.0VDC 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

_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_ - Shielded Enclosure
___ - Anechoic Chamber No. 2 (portable Type)

**Used test instruments :**

| | Type | Model No. | Manufacturer | Serial No. | Last Cal. | Interval |
|---|---|---|---|---|---|---|
| _x_ - | Test Receiver | ESH-2 | Rohde & Schwarz | 880370/016 | Jun. 2001 | 1 Year |
| ___ - | Test Receiver | ESH-3 | Rohde & Schwarz | 881460/035 | May. 2001 | 1 Year |
| ___ - | Test Receiver | ESHS 10 | Rohde & Schwarz | 835871/004 | May. 2001 | 1 Year |
| _x_ - | LISN(for Peripheral) | KNW-407 | Kyoritsu Electrical | 8-833-6 | Apr. 2001 | 1 Year |
| _x_ - | LISN(for EUT) | KNW-407 | Kyoritsu Electrical | 8-855-2 | Apr. 2001 | 1 Year |
| ___ - | LISN | KNW-407 | Kyoritsu Electrical | 8-757-1 | Apr. 2001 | 1 Year |
| _x_ - | RF Cable | 3D-2W | Fujikura | 155-21-006E0 | Apr. 2001 | 1 Year |
| ___ - | RF Cable | 3D-2W | Fujikura | 155-21-007E0 | Apr. 2001 | 1 Year |
| _x_ - | 50ohm Termination | - | SUHNER | 154-06-501E0 | Jan. 2001 | 1 Year |
| ___ - | 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

___ - Anechoic Chamber No. 2 (3 meters)
_x_ - Anechoic Chamber No. 3 (3 meters)

**Validation of Site Attenuation :**

1) Last Confirmed Date : March, 2001
2) Interval : 1 year

**Used test instruments :**

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

### 1.3.3 The measurement of the Radiated Emission(Above 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

___ - Anechoic Chamber No. 2 (3 meters)
_x_ - Anechoic Chamber No. 3 (3 meters)

**Validation of Site Attenuation :**

1) Last Confirmed Date : March, 2001
2) Interval : 1 year

**Used test instruments :**

| | Type | Model No. | Manufacturer | Serial No. | Last Cal. | Interval |
|---|---|---|---|---|---|---|
| ___ - | Spectrum Analyzer | 8563E | Hewlett Packard | 3221A00201 | May. 2001 | 1 Year |
| ___ - | Spectrum Analyzer | 8560E | Hewlett Packard | 3240A00189 | May. 2001 | 1 Year |
| ___ - | Spectrum Analyzer | 8566B | Hewlett Packard | 2140A01091 | Apr. 2001 | 1 Year |
| ___ - | RF Pre-selector | 85685A | Hewlett Packard | 2648A00522 | Apr. 2001 | 1 Year |
| _x_ - | Spectrum Analyzer | 8566B | Hewlett Packard | 2747A05855 | May. 2001 | 1 Year |
| _x_ - | RF Pre-selector | 85685A | Hewlett Packard | 2091A00933 | May. 2001 | 1 Year |
| _x_ - | Log-Periodic Antenna | HL 025 | Rohde & Schwarz | 340182/015 | Nov. 2001 | 1 Year |
| _x_ - | RF Cable | S 04272B | Suhner | 155-21-011 | May. 2001 | 1 Year |
| ___ - | RF Amplifier | DBP-0102N5334272B | DBS Microwave Inc. | 012 | Jun. 2001 | 1 Year |
| _x_ - | RF Amplifier | WJ-6882-814 | Watkins-Johnson | 0414 | May. 2001 | 1 Year |
| _x_ - | RF Amplifier | WJ-5315-556 | Watkins-Johnson | 106 | May. 2001 | 1 Year |
| _x_ - | RF Amplifier | WJ-5320-307 | Watkins-Johnson | 645 | May. 2001 | 1 Year |



**Setting of the spectrum analyzer :**

Resolution Bandwidth : 1 MHz
Video Bandwidth : 10 Hz
Sweep Time : 5 sec.
Scale : Linear

## 1.4 EUT MODIFICATION / Deviation from Standard

### 1.4.1 EUT MODIFICATION

_x_ - 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:

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

## 1.5 TEST RESULTS / UNCERTAINTY

**AC Power Line Conducted Emission** **x - Applicable** **___- NOT Applicable**

**The requirements are** **x - PASSED** **___- NOT PASSED**

| | | | |
|---|---|---|---|
| Min. Limit Margin | 7.2 dB | at | 0.71 MHz |
| Max. Limit Exceeding | dB | at | MHz |

Uncertainty of Measurement Results
+/- 2.4 dB (level of confidence:95%)

**Remarks :**

**Radiated Emission** **x - Applicable** **___- NOT Applicable**

**The requirements are** **x - PASSED** **___- NOT PASSED**

| | | | |
|---|---|---|---|
| Min. Limit Margin | 1.5 dB | at | 98.3 MHz |
| Antenna height Position | 2.0 m | | |
| EUT Position (CW) | 50 degree | | |
| Max. Limit Exceeding | dB | at | MHz |
| Antenna height Position | m | | |
| EUT Position (CW) | degree | | |

Uncertainty of Measurement Results
Biconical Antenna +/- 3.8 dB (level of confidence:95%)
Log-Periodic Antenna +/- 4.7 dB (level of confidence:95%)

**Remarks:** Measurement result affect by uncertainty.

## 1.6 SUMMARY

**General Remarks :**

The EUT was tested according to the requirements of FCC Rules and Regulations Part 15 Subpart A and B (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 26, 2001

End of testing : November 26, 2001



**- JAPAN QUALITY ASSURANCE ORGANIZATION -**

Approved by:

Masaaki Takahashi
Senior Manager
JQA EMC Engineering Dept.

Issued by:

Masanori Takahashi
Assistant Manager
JQA EMC Engineering Dept.

**RESPONSIBLE PARTY ( FCC Part 2 §2.909 )**

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

Responsible Party : Sony Electronics Inc. Product Safety & Compliance
680 Kinderkamack Road, Oradell NJ 07649 U.S.A

Contact Person : Mr. Julio Posse
( Manager )

Signatory

Date :

## 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) | Notebook Personal Computer | Sony Corporation | PCG-441L | N/A(DoC) | - |
| B | AC Adapter | Sony Corporation | PCGA-16V3 | N/A | - |
| C | Battery | Sony Corporation | PCGA-BP2S/HI | N/A | - |
| D | Memory Stick Driver | Sony Corporation | - | N/A | - |

Note 1. This Notebook Personal Computer was operated with the AC adapter(above symbol "B" Input:120VAC 60Hz, Output:16.0VDC by Sony Corporation).

**The measurement was carried out with the following support equipment connected :**

| Symbol | Item | Manufacturer | Model No. | FCC ID | Serial No. |
|---|---|---|---|---|---|
| E | Headphone | Sony Corporation | MDR-E837LP | None | - |
| F | Microphone | Sony Corporation | ECM717 | None | - |
| G | Display Adapter | Sony Corporation | PCGA-DA1S | None | - |
| H | CRT Display | Sony Corporation | CPD-G200 | None(DoC) | 2700819 |
| I | Memory Stick PC Card Adapter | Sony Corporation | MSAC-PC1 | None | 9H004446 |
| J | i.LINK CD-RW/DVD-ROM Drive | Sony Corporation | PCGA-CRWD1 | None(DoC) | 284824001100094 |
| K | USB Floppy Disk Drive | Sony Corporation | PCGA-UFD5 | None(DoC) | 1418555211001356 |

**Type of Cable :**

| Symbol | Description | Identification (Manufacturer etc.) | Connector Shielded YES / NO | Cable Shielded YES / NO | Ferrite Core | Length (m) |
|---|---|---|---|---|---|---|
| 1 | AC Power Cable (for EUT) | Sony Corporation | NO | NO | NO | 0.8 |
| 2 | DC Power Cable (for EUT) | Sony Corporation | NO | NO | NO | 2.0 |
| 3 | Accessory Cable | Sony Corporation | YES | YES | NO | 0.8 |
| 4 | Headphone Cable | Sony Corporation | NO | NO | NO | 1.0 |
| 5 | Microphone Cabl | Sony Corporation | NO | NO | NO | 1.0 |
| 6 | USB FDD Cable | Sony Corporation | YES | YES | NO | 0.15 |
| 7 | VGA Monitor Cable | Sony Corporation | YES | YES | YES | 1.0 |
| 8 | AC Power Cable (for CRT) | Sony Corporation | NO | YES | NO | 1.8 |
| 9 | Ether Cable | - | NO | NO | NO | 0.5 |
| 10 | Telephone Cable | - | NO | NO | NO | 1.5 |

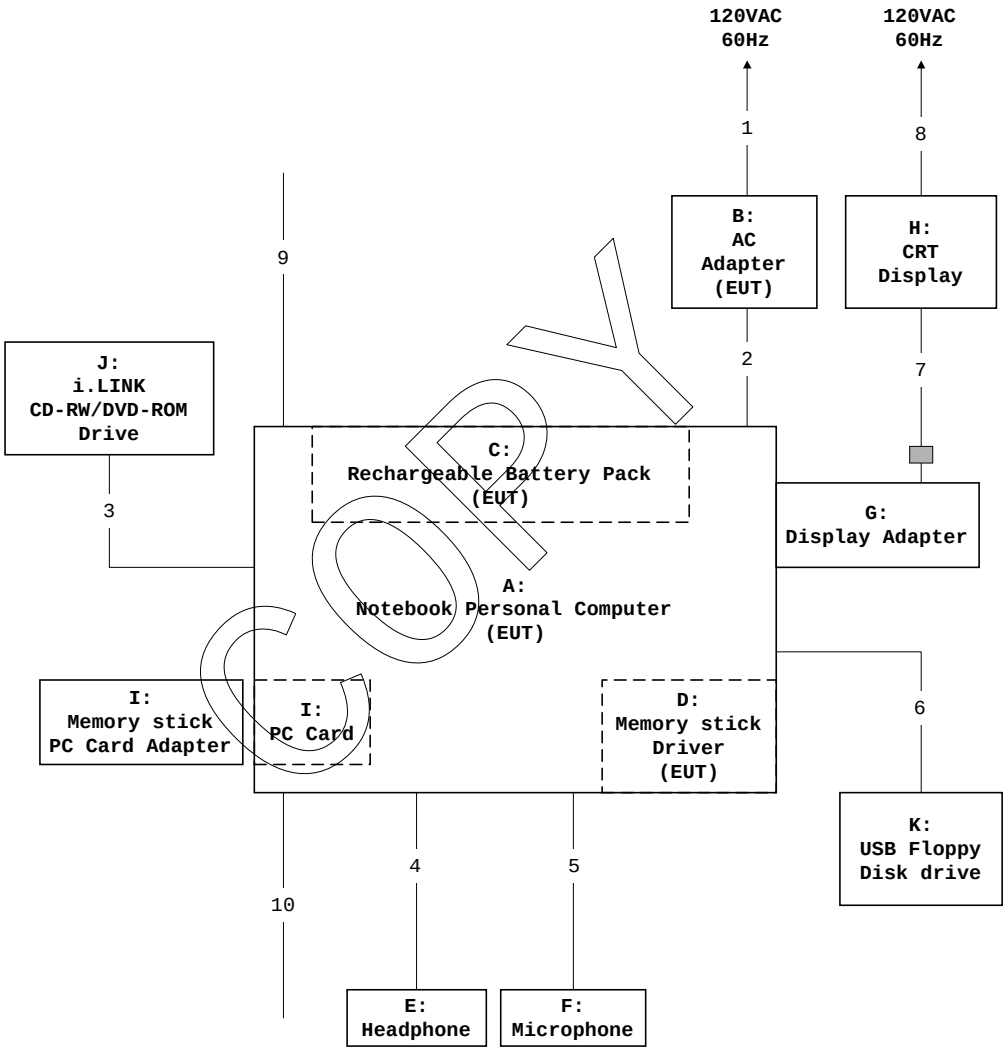


### 1.7.2 Operating condition

Power supply Voltage : 120VAC, 60Hz (for AC Adapter)
The tests have been carried out the following running mode.

1) LCD display (Note PC)displays “H” characters.
2) CD-RW/DVD-ROM drive: Read.
3) Floppy disk drive: Read / Write.
4) HDD: Read / Write.
5) CRT display displays “H” characters.
6) Memorystick PC Card Adapter: Read / Write.

## 1.8 EUT ARRANGEMENT (DRAWINGS)




: Ferrite core

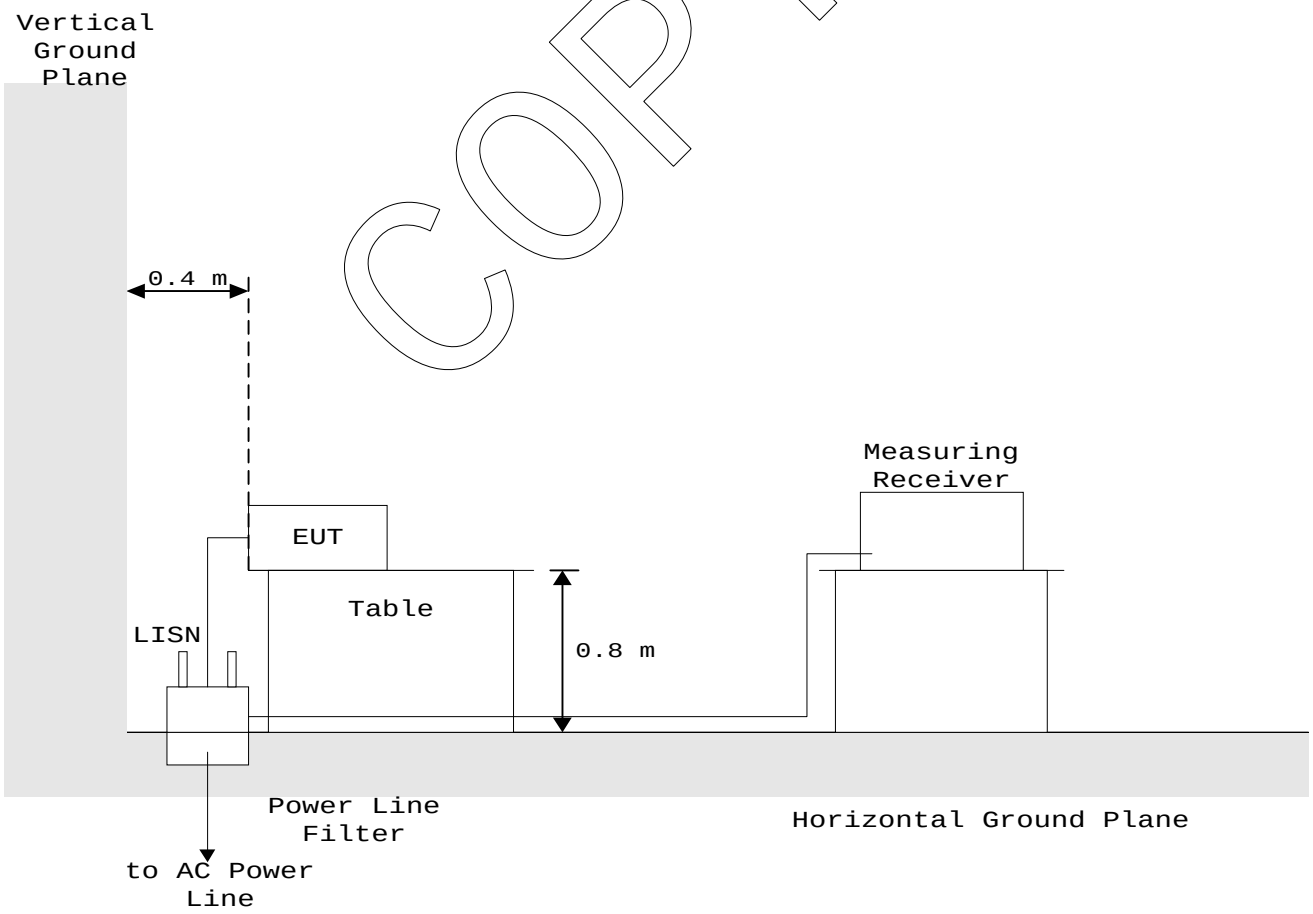
## 1.9 PRELIMINARY TEST AND TEST-SETUP (DRAWINGS)

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

According to description of ANSI C63.4-1992 sec.7.2.3, the AC power line preliminary conducted emissions measurement 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 -**

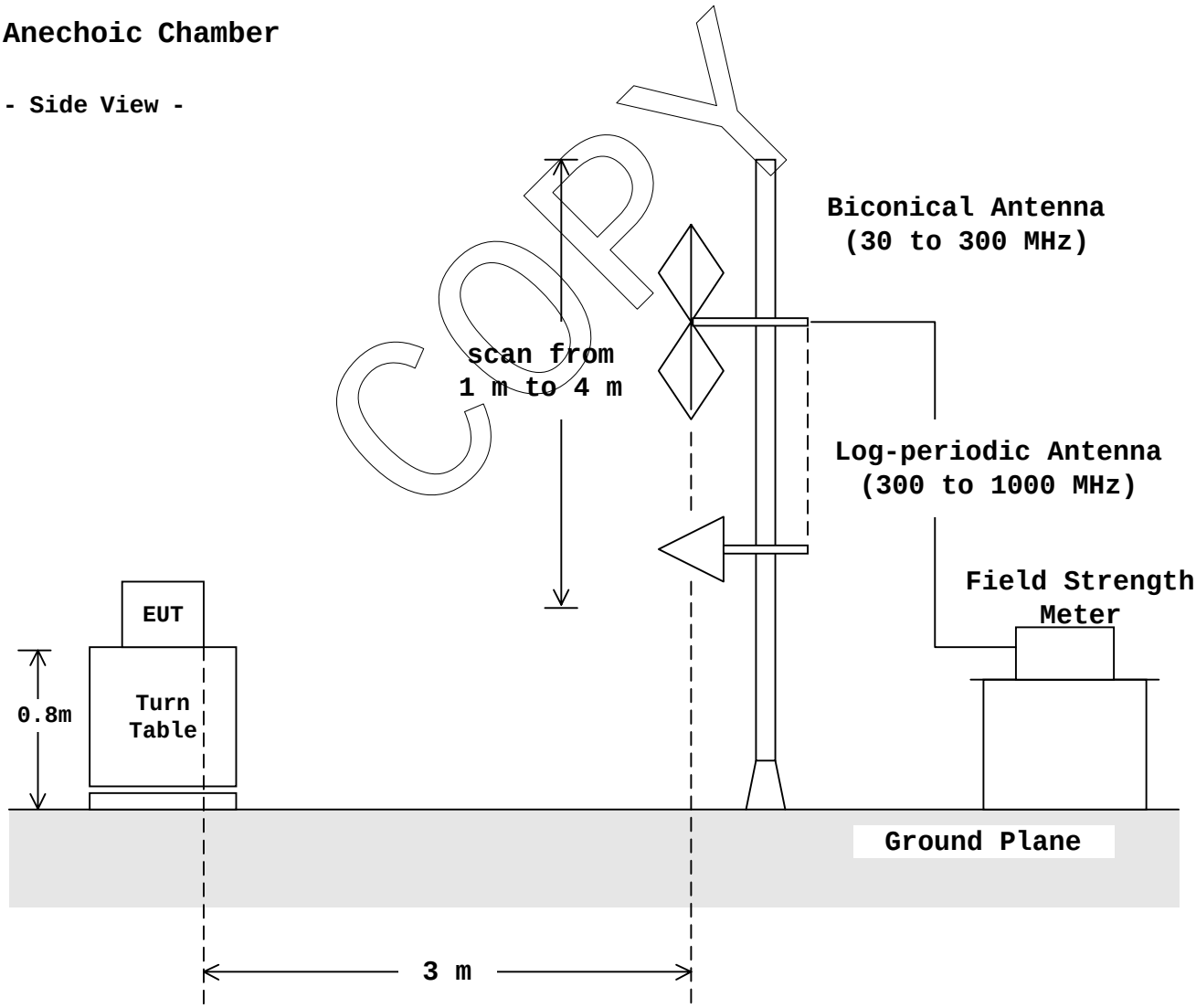


**1.9.2 Radiated Emission ( 30 MHz – 1000 MHz) :**

According to description of ANSI C63.4-1992 sec.8.3.1.1, 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 -**



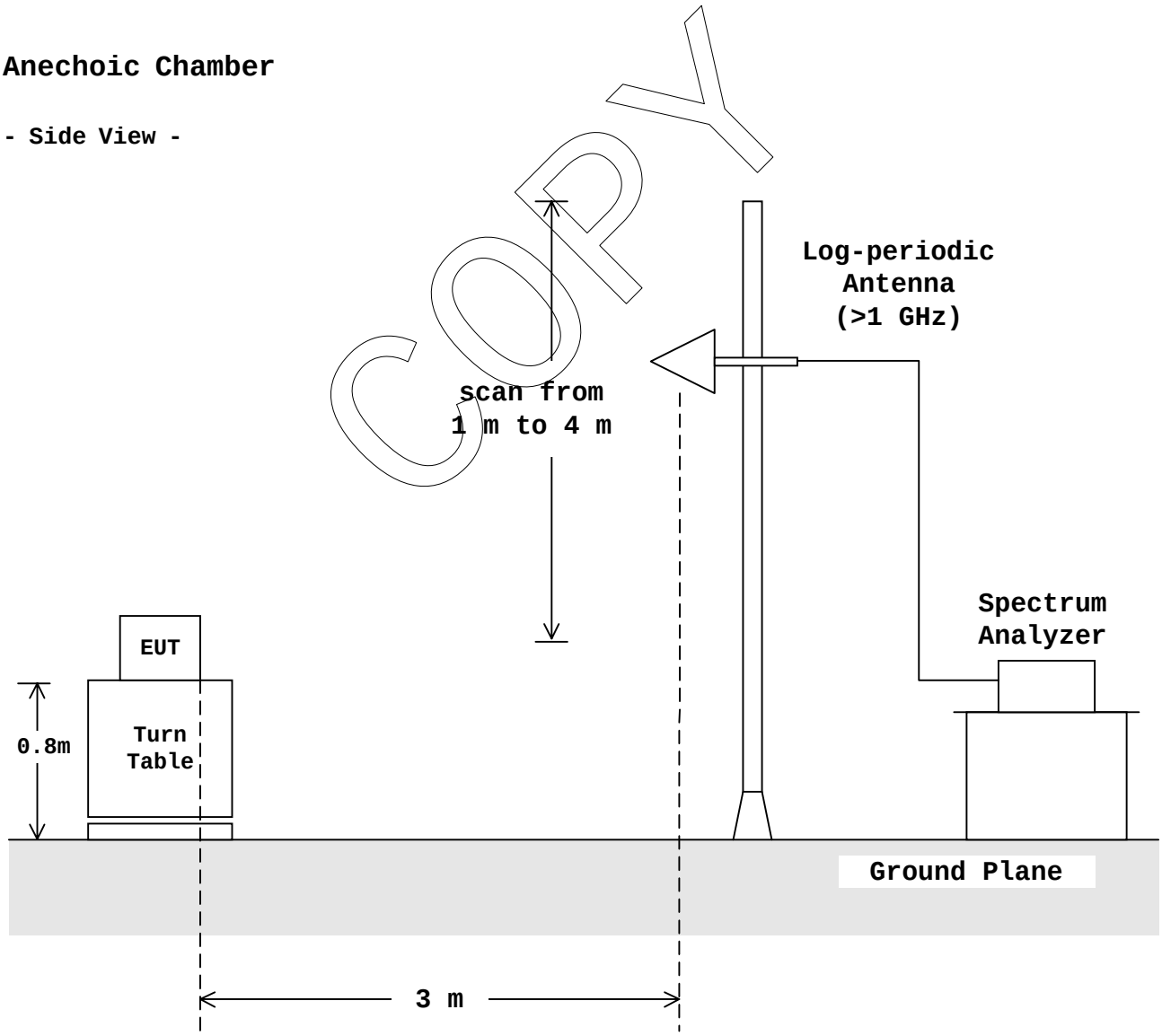
### 1.9.3 Radiated Emission (Above 1 GHz) :

According to description of ANSI C63.4-1992 sec.8.3.1.1, 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 -**





## 1.10 TEST ARRANGEMENT (PHOTOGRAPHS)

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

Photograph present configuration with maximum emission

**- Front View -**




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

Photograph present configuration with maximum emission

**– Left-side View –**




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

Photograph present configuration with maximum emission

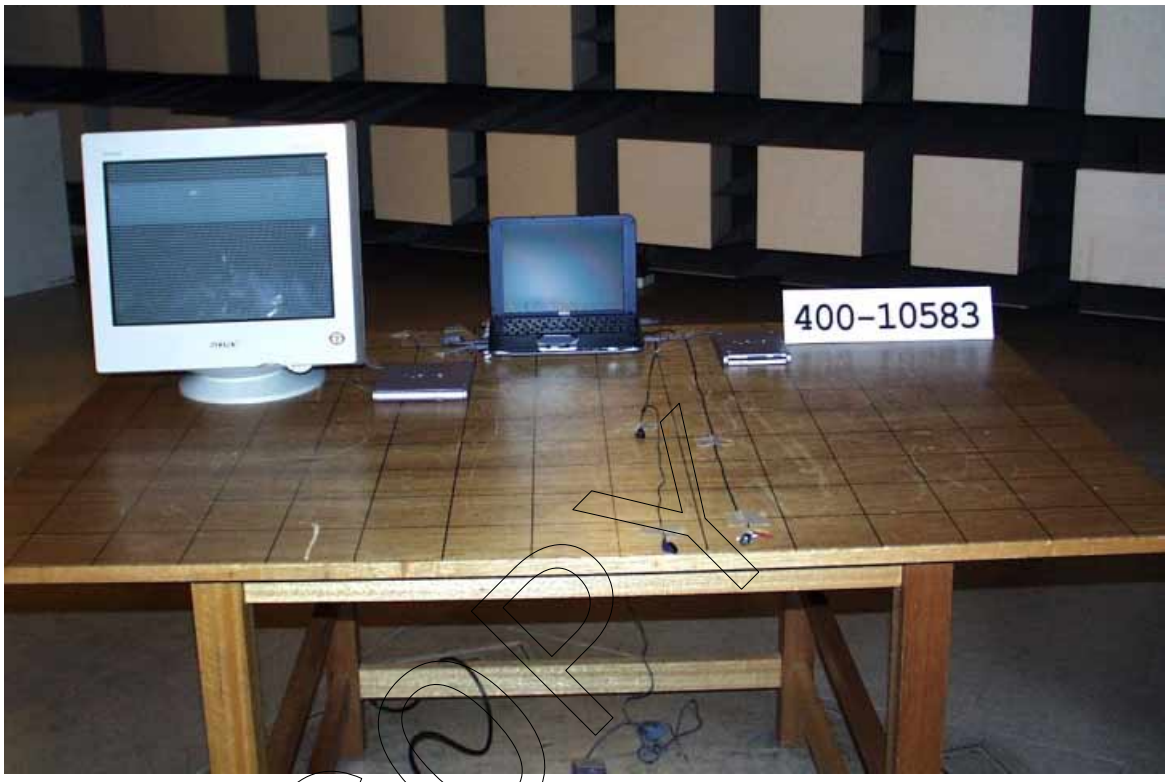
**- Right-side View –**



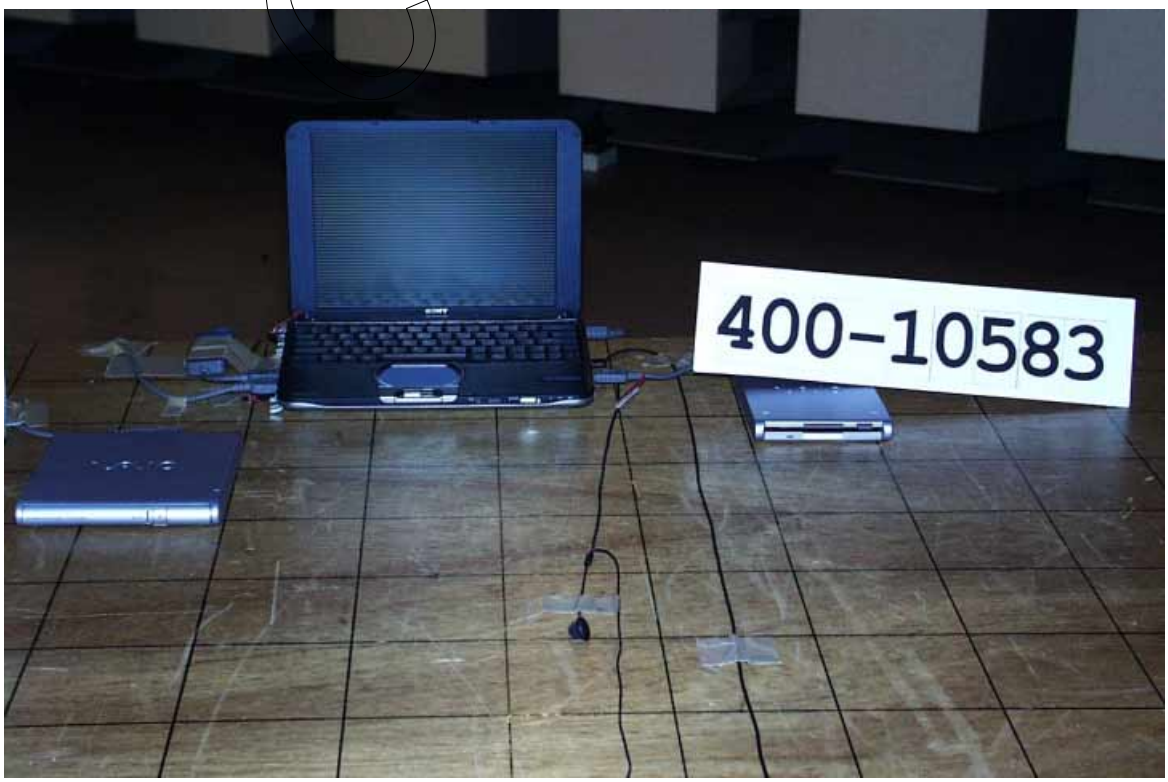

**PHOTOGRAPHS OF EUT CONFIGURATION FOR RADIATED EMISSIONS MEASUREMENT**

Photograph present configuration with maximum emission

**- Front View -**



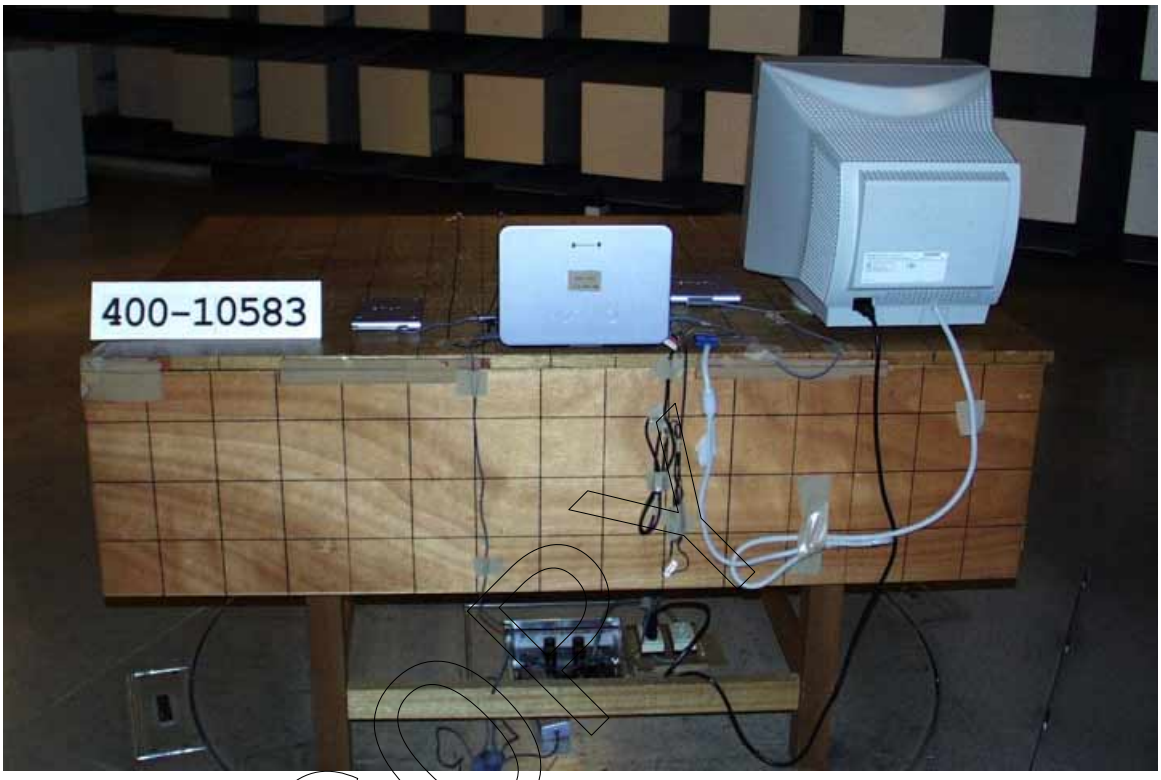


**PHOTOGRAPHS OF EUT CONFIGURATION FOR RADIATED EMISSIONS MEASUREMENT**

Photograph present configuration with maximum emission

**- Rear View –**






**PHOTOGRAPHS OF EUT CONFIGURATION FOR RADIATED EMISSIONS MEASUREMENT**

Photograph present configuration with maximum emission

**- Rear View –**




# 2. TEST DATA

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

Date November 26, 2001
Temp. 20 °C Humi. 36 %

| Frequency (MHz) | LISN Factor (dB) | Meter Reading (dBuV) V-A Q.P | V-A AVE | V-B Q.P | V-B AVE | Limits (dBuV) Q.P | Limits (dBuV) AVE | Emission Level (dBuV) Q.P | Emission Level (dBuV) AVE | Margins (dB) Q.P | Margins (dB) AVE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.45 | 0.2 | 27.0 | - | 28.5 | - | 48.0 | - | 28.7 | - | 19.3 | - |
| 0.71 | 0.2 | 35.0 | - | 40.6 | - | 48.0 | - | 40.8 | - | 7.2 | - |
| 1.05 | 0.2 | 25.7 | - | 31.8 | - | 48.0 | - | 32.0 | - | 16.0 | - |
| 1.33 | 0.2 | 30.0 | - | 35.2 | - | 48.0 | - | 35.4 | - | 12.6 | - |
| 2.07 | 0.2 | 29.4 | - | 34.0 | - | 48.0 | - | 34.2 | - | 13.8 | - |
| 3.03 | 0.2 | 27.5 | - | 30.5 | - | 48.0 | - | 30.7 | - | 17.3 | - |
| 5.43 | 0.2 | 29.5 | - | 32.0 | - | 48.0 | - | 32.2 | - | 15.8 | - |
| 8.68 | 0.2 | 25.5 | - | 28.5 | - | 48.0 | - | 28.7 | - | 19.3 | - |
| 10.00 | 0.2 | 16.4 | - | 20.5 | - | 48.0 | - | 20.7 | - | 27.3 | - |
| 13.01 | 0.3 | 34.8 | - | 33.2 | - | 48.0 | - | 35.1 | - | 12.9 | - |
| 15.00 | 0.3 | 13.0 | - | 15.0 | - | 48.0 | - | 15.3 | - | 32.7 | - |
| 18.84 | 0.4 | 14.8 | - | 17.0 | - | 48.0 | - | 17.4 | - | 30.6 | - |
| 22.88 | 0.5 | 16.0 | - | 18.5 | - | 48.0 | - | 19.0 | - | 29.0 | - |
| 24.58 | 0.5 | 19.2 | - | 19.0 | - | 48.0 | - | 19.7 | - | 28.3 | - |
| 25.97 | 0.5 | 16.0 | - | 16.0 | - | 48.0 | - | 16.5 | - | 31.5 | - |
| 29.28 | 0.6 | 11.8 | - | 13.0 | - | 48.0 | - | 13.6 | - | 34.4 | - |



Notes : 1) The spectrum was checked from 0.45 MHz to 30 MHz.
2) The cable loss is included in the LISN factor.

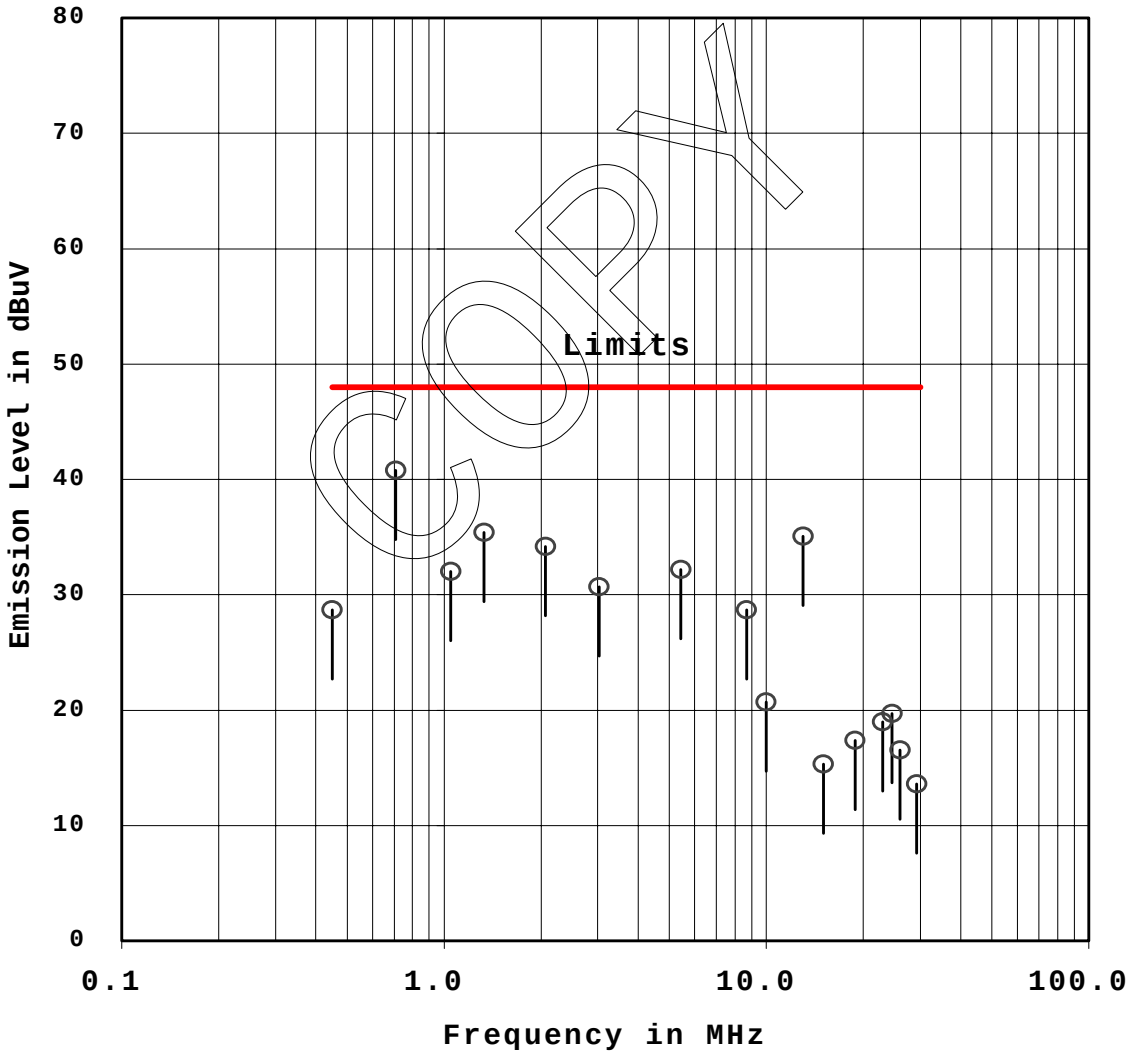
3) The symbol of "<"means "or less".
4) The symbol of ">"means "or greater".
5) The symbol of "-"means "Not applicable".
6) V-A : One end & Ground V-B : The other end & Ground
7) Q.P : Quasi-peak AVE : Average
8) Asample calculation was made at 0.45 (MHz).
Lf + Mr =0.2 + 28.5 = 28.7(dBuV)
Lf = LISN Factor
Mr = Meter Reading

Tested by : T. Ishii
Takashi Ishii
Testing Engineer

## AC POWER LINE CONDUCTED EMISSION MEASUREMENT

Model No. : PCG-441L

Standard : CFR 47 FCC Rules Part 15 o Quasi-peak
Category : Class B x Average



## 2.2 Radiated Emissions Measurement( 30 MHz – 1000 MHz )

Date : November 26, 2001
Temp. : 20 °C Humi. : 48 %

| Frequency (MHz) | Antenna Factor (dB) | Meter Reading (dBuV) Horiz. | Meter Reading (dBuV) Vert. | Limits (dBuV/m) | Emission Levels (dBuV/m) Horiz. | Emission Levels (dBuV/m) Vert. | Margins (dB) Horiz. | Margins (dB) Vert. |
|---|---|---|---|---|---|---|---|---|
| 36.9 | 14.9 | 4.9 | 17.3 | 40.0 | 19.8 | 32.2 | 20.2 | 7.8 |
| 45.5 | 13.1 | 3.1 | 17.9 | 40.0 | 16.2 | 31.0 | 23.8 | 9.0 |
| 66.2 | 6.7 | 22.5 | 12.0 | 40.0 | 29.2 | 18.7 | 10.8 | 21.3 |
| 84.5 | 8.5 | 12.4 | 19.9 | 40.0 | 20.9 | 28.4 | 19.1 | 11.6 |
| 98.3 | 10.9 | 26.1 | 31.1 | 43.5 | 37.0 | 42.0 | 6.5 | 1.5 |
| 114.0 | 12.9 | 19.6 | 11.8 | 43.5 | 32.5 | 24.7 | 11.0 | 18.8 |
| 145.4 | 15.6 | 21.6 | 18.7 | 43.5 | 37.2 | 34.3 | 6.3 | 9.2 |
| 196.6 | 17.8 | 21.0 | 14.7 | 43.5 | 38.8 | 32.5 | 4.7 | 11.0 |
| 247.2 | 19.5 | 16.7 | 8.2 | 46.0 | 36.2 | 27.7 | 9.8 | 18.3 |
| 273.0 | 20.2 | 15.5 | 7.9 | 46.0 | 35.7 | 28.1 | 10.3 | 17.9 |
| 312.1 | 18.2 | 19.1 | 11.7 | 46.0 | 37.3 | 29.9 | 8.8 | 16.2 |
| 351.8 | 18.3 | 14.6 | 13.5 | 46.0 | 32.9 | 31.8 | 13.1 | 14.2 |
| 444.5 | 20.0 | 15.9 | 14.8 | 46.0 | 35.9 | 34.8 | 10.1 | 11.2 |
| 550.3 | 22.4 | 11.5 | 11.9 | 46.0 | 33.9 | 34.3 | 12.1 | 11.7 |
| 695.6 | 24.5 | 6.7 | 6.2 | 46.0 | 31.2 | 30.7 | 14.9 | 15.4 |
| 801.2 | 25.6 | 4.0 | 1.8 | 46.0 | 29.6 | 27.4 | 16.4 | 18.6 |
| 901.3 | 26.8 | 7.1 | 3.7 | 46.0 | 33.9 | 30.5 | 12.1 | 15.5 |



Notes : 1) The spectrum was checked from 30 MHz to 1000 MHz.

2) The cable loss is included in the antenna factor.
3) The symbol of "<"means "or less".
4) The symbol of ">"means "or greater".
5) Asample calculation was made at 36.9 (MHz).
Af + Mr =14.9 + 17.3 = 32.2 (dBuV/m)
Af = Antenna Factor
Mr = Meter Reading

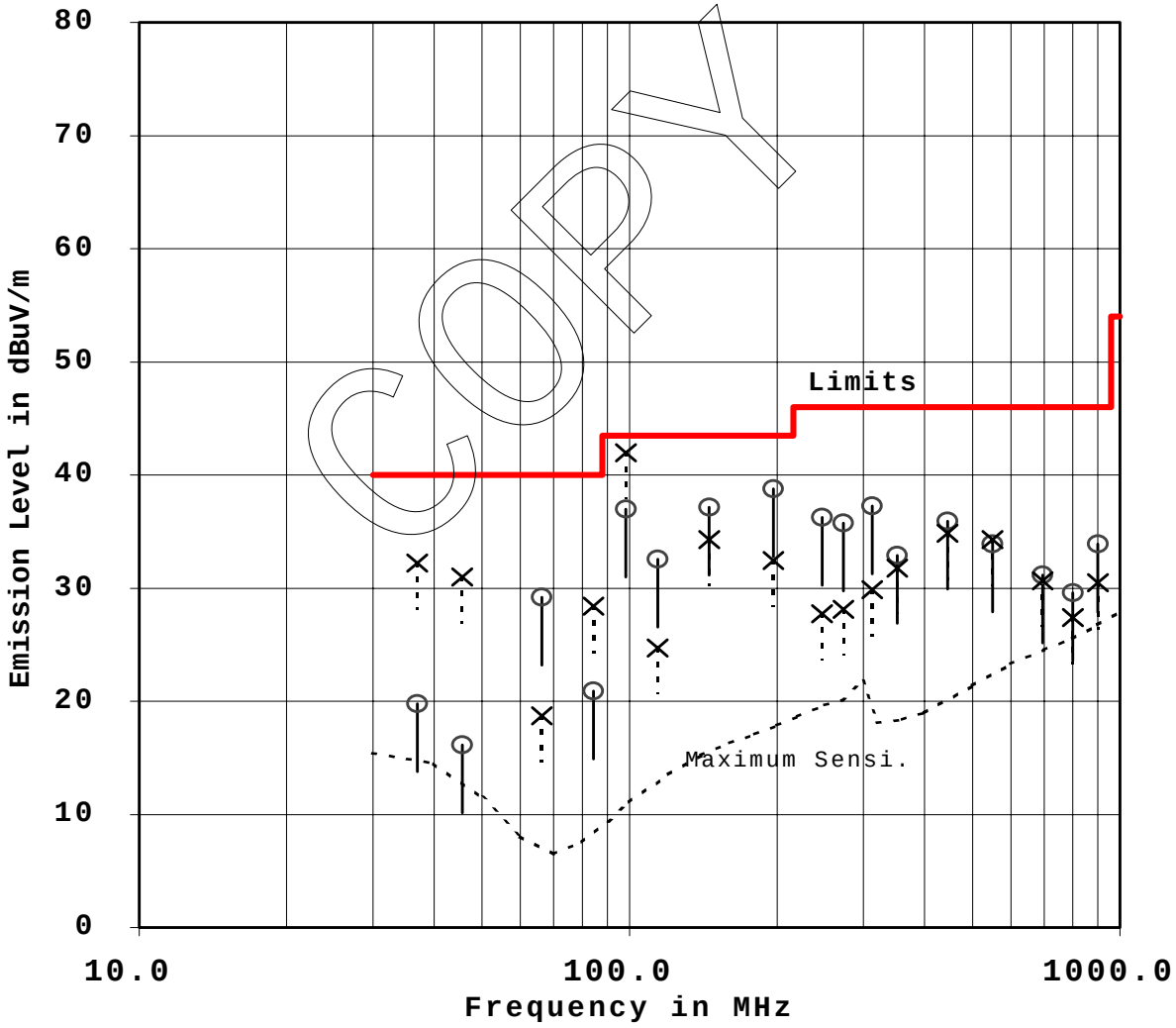
Tested by : T. Ishii
Takashi Ishii
Testing Engineer

# RADIATED EMISSION MEASUREMENT

Model No. : PCG-441L

Standard : CFR 47 FCC Rules Part 15
Category : Class B

O Horizontal
× Vertical



## 2.3 Radiated Emissions Measurement( Above 1 GHz )

Date : November 26, 2001
Temp. : 20 °C Humi. 48 %

| Frequency (GHz) | Amp. Gain (dB) | Antenna Factor (dB) | Meter Reading (dBuV) Horiz. | Meter Reading (dBuV) Vert. | Limits (dBuV/m) | Emission Levels (dBuV/m) Horiz. | Emission Levels (dBuV/m) Vert. | Margins (dB) Horiz. | Margins (dB) Vert. |
|---|---|---|---|---|---|---|---|---|---|
| 1.0015 | 0 | 24.1 | < 6.0 | < 6.0 | 54.0 | < 30.1 | < 30.1 | > 23.9 | > 23.9 |
| 1.1016 | 0 | 25.3 | 11.3 | 10.1 | 54.0 | 36.6 | 35.4 | 17.4 | 18.6 |
| 1.2362 | 0 | 26.6 | < 6.0 | < 6.0 | 54.0 | < 32.6 | < 32.6 | > 21.4 | > 21.4 |
| 1.3762 | 0 | 27.8 | < 6.0 | < 6.0 | 54.0 | < 33.8 | < 33.8 | > 20.2 | > 20.2 |
| 1.5000 | 0 | 28.9 | < 6.0 | < 6.0 | 54.0 | < 34.9 | < 34.9 | > 19.1 | > 19.1 |
| 2.0000 | 0 | 31.9 | < 6.0 | < 6.0 | 54.0 | < 37.9 | < 37.9 | > 16.1 | > 16.1 |
| 3.0000 | 45.9 | 36.4 | < 40.0 | < 40.0 | 54.0 | < 30.5 | < 30.5 | > 23.5 | > 23.5 |
| 4.0000 | 45.5 | 39.5 | < 40.0 | < 40.0 | 54.0 | < 34.0 | < 34.0 | > 20.0 | > 20.0 |
| 5.0000 | 45.8 | 42.1 | < 40.0 | < 40.0 | 54.0 | < 36.3 | < 36.3 | > 17.7 | > 17.7 |
| 6.0000 | 45.9 | 44.6 | < 40.0 | < 40.0 | 54.0 | < 38.7 | < 38.7 | > 15.3 | > 15.3 |
| 8.0000 | 45.2 | 47.7 | < 40.0 | < 40.0 | 54.0 | < 42.5 | < 42.5 | > 11.5 | > 11.5 |
| 10.0000 | 40.7 | 49.9 | < 35.0 | < 35.0 | 54.0 | < 44.2 | < 44.2 | > 9.8 | > 9.8 |
| 12.5000 | 38.9 | 52.6 | < 34.0 | < 34.0 | 54.0 | < 47.7 | < 47.7 | > 6.3 | > 6.3 |



Notes : 1) The spectrum was checked from 1.0 GHz to 12.5 GHz.
2) The cable loss is included in the antenna factor.
3) The symbol of "<"means "or less".
4) The symbol of ">"means "or greater".
5) Asample calculation was made at 1.00151 (GHz).

Af + Mr - Ag =24.1 + 6 - 0 = 30.1 (dBuV/m)
Ag = Amp. Gain
Af = Antenna Factor
Mr = Meter Reading

6) Measuring Instrument Setting :
Detector function : Peak
Resolution Bandwidth : 1 MHz
Video Bandwidth : 10 Hz

Tested by : T. Ishii
Takashi Ishii
Testing Engineer

# RADIATED EMISSION MEASUREMENT

Model No. : PCG-441L

Standard : CFR 47 FCC Rules Part 15
Category : Class B

O Horizontal
× Vertical