

EXHIBIT #2  
Fty control No. : KM698-F002  
FCC ID : ACJ5Z6KX-P1131

TECHNICAL REPORT PURSUANT  
TO  
SUBPART B OF PART 15

- Manufacturer's Name and Address  
Kyushu Matsushita Electric Co.,Ltd.  
1471 Murata-cho, Tosu-shi, Saga 841-8501, Japan
- Trade Name  
Panasonic
- Model Number  
KX-P1131
- List of Additional Model Number / Trade Name  
Not Applicable.
- Block Diagram  
See Exhibit #5
- Operating Instructions  
See Exhibit #6
- Photographs  
See following Exhibits.  
#1-1.Front Appearance  
#1-2. Rear Appearance  
#1-3.Internal View  
#1-4.Pattern View of PWBs

EXHIBIT #4  
Fty control No. : KM698-F002  
FCC ID : ACJ5Z6KX-P1131

**REPORT OF MEASUREMENT  
ON COMPUTING DEVICE  
ISSUED BY KME EMC SITE**

## MEASUREMENT REPORT

CLASS B DIGITAL DEVICE

Model No.: KX-P1131

FCC I/D : ACJ5Z6KX-P1131



KME EMC SAGA SITE

July 1, 1998

Kyushu Matsushita Electric Co., LTD. ( K M E )  
Corporate Quality Assurance Division ( C Q A D )  
KME EMC SAGA SITE

1471 , Murata-cho, Tosu-shi,  
Saga-ken 841-8501, Japan TEL 0942-83-3131

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Kyushu Matsushita Electric Co., Ltd.

KME EMC SAGA SITE

1471, Murata-cho, Tosu-shi,

Saga-ken, 841-8501 JAPAN

TEL 0942-83-3131

FAX 0942-85-1873

REPORT OF MEASUREMENT ON DIGITAL DEVICE

KME APPLICATION NO.: SS98487

1. Applicant : Kyushu Matsushita Electric Co., Ltd.  
1-62, 4-CHOME, MINOSHIMA  
HAKATA-KU, FUKUOKA, 812-8531 JAPAN
2. Manufacturer : Kyushu Matsushita Electric Co., Ltd.  
Saga-Division  
1471, Murata-cho, Tosu-shi,  
Saga-ken, 841-8501 JAPAN
3. Description of Device: Dot Matrix Printer
  - a) Type of EUT : Desk-top Type
  - b) Category : Class B Digital Device
  - c) FCC I/D : ACJ5Z6KX-P1131
  - d) Trade Name : Panasonic
  - e) Model No. : KX-P1131
  - f) Serial No. : 8EMEUA00035
  - g) Date of Manufacture : May, 1998
  - h) Power Supply : 120VAC 60Hz
4. Date of Measurement : June 23, 24 1998
5. Regulations Applied : FCC Rules and Regulations Part 15  
Subpart B - Unintentional Radiators
6. Measurement Procedure: ANSI C63.4-1992
7. Place of Measurement : Kyushu Matsushita Electric Co.,Ltd.  
KME EMC SAGA SITE (31040/SIT/KYUSHU)
8. Measurement Results : The results obtained from the measuring of  
the above-mentioned device are as shown in  
the attached sheets.
9. Summary of Results.  
Test sample complies with FCC Rules and Regulations  
Part 15 Subpart B - Unintentional Radiators (Class B)  
Worst Margin(Radiated Emission): 35.99 MHz (V) 4.3dB (at page 4)  
Worst Margin(Conducted Emission): 16.04 MHz 11.2dB (at page 6)

July 1, 1998

Chikito Kuwano

Deputy Chief manager

*C. Kuwano*

# [ 1 ] TEST RESULT

## \* TEST CONDITION OF EQUIPMENT UNDER TEST (EUT)

- 1) Configuration of EUT : Refer to the sheet No. 12
- 2) Operating Condition : Serial Mode, Parallel Mode
- 3) EUT Grounding : Grounded at the plug end of the line cord
- 4) Power Rating : 120VAC 60Hz

## 1. RADIATED EMISSION MEASUREMENTS [ 30 - 1000 MHz ]

[ Test Site : Open Area Test Site ]

## \* TEST CONDITION OF INSTRUMENT

EUT Warm-up Time : 30 minutes

- 1) Resolution Bandwidth : 120kHz
- 2) Detector Function : QP
- ( 1 - 1 ) Parallel Mode

DATE: June 23, 1998

Temp.: 29 °C Humi.: 73 %

| EMISSION<br>FREQUENCY<br>( MHz ) | ANTENNA<br>POLARITY<br>(H,V) | METER<br>READING<br>at 3 m<br>( dB $\mu$ V ) | ANTENNA<br>FACTOR AND<br>PREAMPGAIN<br>( dB ) | EMISSION<br>LEVEL<br>at 3 m |               | F C C<br>LIMIT<br>at 3m<br>( $\mu$ V/m ) |
|----------------------------------|------------------------------|----------------------------------------------|-----------------------------------------------|-----------------------------|---------------|------------------------------------------|
|                                  |                              |                                              |                                               | (dB $\mu$ V/m)              | ( $\mu$ V/m ) |                                          |
| 84.028                           | V                            | 45.1                                         | -18.3                                         | 26.8                        | 21.9          | 100                                      |
| 84.028                           | H                            | 44.7                                         | -18.3                                         | 26.4                        | 20.9          | 100                                      |
| 92.057                           | V                            | 42.2                                         | -17.5                                         | 24.7                        | 17.2          | 150                                      |
| 92.057                           | H                            | 40.4                                         | -17.5                                         | 22.9                        | 14.0          | 150                                      |
| 128.067                          | V                            | 37.8                                         | -14.4                                         | 23.4                        | 14.8          | 150                                      |
| 128.067                          | H                            | 40.3                                         | -14.4                                         | 25.9                        | 19.8          | 150                                      |
| 156.064                          | V                            | 38.1                                         | -12.2                                         | 25.9                        | 19.8          | 150                                      |
| 156.064                          | H                            | 42.0                                         | -12.2                                         | 29.8                        | 31.0          | 150                                      |
| 188.051                          | V                            | 35.1                                         | -10.0                                         | 25.1                        | 18.0          | 150                                      |
| 188.051                          | H                            | 40.1                                         | -10.0                                         | 30.1                        | 32.0          | 150                                      |
| 204.949                          | V                            | 27.1                                         | -9.0                                          | 18.1                        | 8.1           | 150                                      |
| 204.949                          | H                            | 31.1                                         | -9.0                                          | 22.1                        | 12.8          | 150                                      |
| 300.145                          | V                            | 26.3                                         | -4.1                                          | 22.2                        | 12.9          | 200                                      |
| 300.145                          | H                            | 29.2                                         | -4.1                                          | 25.1                        | 18.0          | 200                                      |
| 348.172                          | V                            | 30.3                                         | -2.5                                          | 27.8                        | 24.6          | 200                                      |
| 348.172                          | H                            | 35.3                                         | -2.5                                          | 32.8                        | 43.7          | 200                                      |
| 504.196                          | V                            | 33.9                                         | 2.6                                           | 36.5                        | 66.9          | 200                                      |
| 504.196                          | H                            | 30.4                                         | 2.6                                           | 33.0                        | 44.7          | 200                                      |
| 547.971                          | V                            | 28.9                                         | 3.5                                           | 32.4                        | 41.7          | 200                                      |
| 547.971                          | H                            | 26.3                                         | 3.5                                           | 29.8                        | 31.0          | 200                                      |

NOTES: 1) The cable loss is included into the antenna factor and pre-amp gain.

2) Sample of calculation at 84.028 MHz

$$\begin{aligned}
 &45.1 \text{ (dB } \mu \text{ V)} - 18.3 \text{ (dB } \mu \text{ V/m)} = 26.8 \text{ (dB } \mu \text{ V/m)} \\
 &26.8 / 20 = 1.340 \\
 &10 = 10 = 21.9 \text{ (} \mu \text{ V/m)}
 \end{aligned}$$

Certified by : Y. Matsuda

*Y. Matsuda*

**KME**

KME APPLICATION No. SS98487

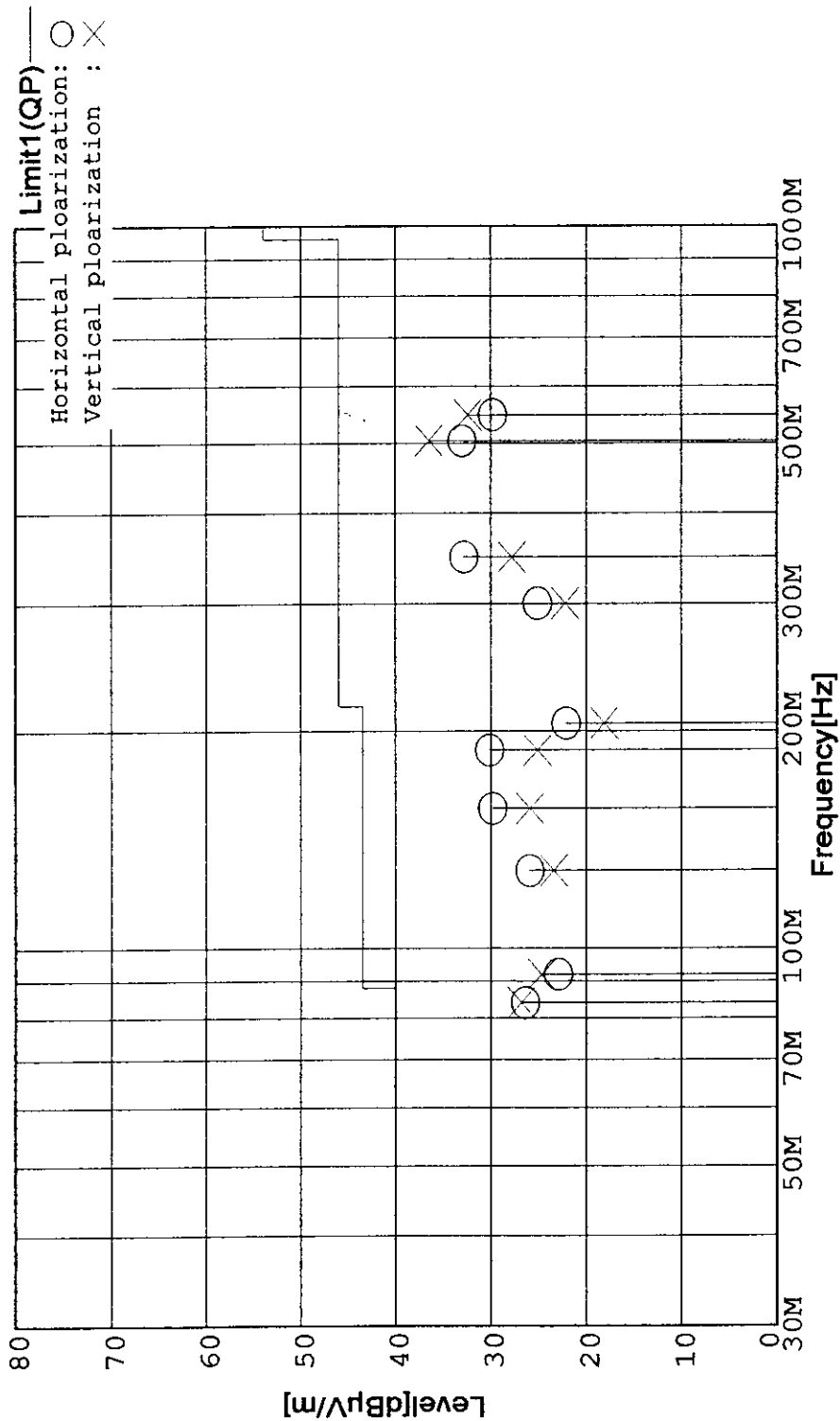
Model No. KX-P1131

Sheet 3 of 15 Sheets

## RADIATED EMISSION MEASUREMENTS

( 3 meter method )

### RADIATED EMISSION



( 1 - 2 ) Serial Mode

| EMISSION<br>FREQUENCY<br>( MHz ) | ANTENNA<br>POLARITY<br>(H,V) | METER<br>READING<br>at 3 m<br>( dB $\mu$ V ) | ANTENNA<br>FACTOR AND<br>PREAMP GAIN<br>( dB ) | EMISSION<br>LEVEL<br>at 3 m |               | F C C<br>LIMIT<br>at 3m<br>( $\mu$ V/m ) |
|----------------------------------|------------------------------|----------------------------------------------|------------------------------------------------|-----------------------------|---------------|------------------------------------------|
|                                  |                              |                                              |                                                | (dB $\mu$ V/m)              | ( $\mu$ V/m ) |                                          |
| 35.994                           | V                            | 61.6                                         | -25.9                                          | 35.7                        | 61.0          | 100                                      |
| 35.994                           | H                            | 56.1                                         | -25.9                                          | 30.2                        | 32.4          | 100                                      |
| 96.022                           | V                            | 53.6                                         | -17.1                                          | 36.5                        | 66.9          | 100                                      |
| 96.022                           | H                            | 49.4                                         | -17.1                                          | 32.3                        | 41.3          | 100                                      |
| 130.764                          | V                            | 44.6                                         | -14.2                                          | 30.4                        | 33.2          | 150                                      |
| 130.764                          | H                            | 46.1                                         | -14.2                                          | 31.9                        | 39.4          | 150                                      |
| 140.070                          | V                            | 44.9                                         | -13.5                                          | 31.4                        | 37.2          | 150                                      |
| 140.070                          | H                            | 39.3                                         | -13.5                                          | 25.8                        | 19.5          | 150                                      |
| 156.428                          | V                            | 40.6                                         | -12.1                                          | 28.5                        | 26.7          | 150                                      |
| 156.428                          | H                            | 43.6                                         | -12.1                                          | 31.5                        | 37.6          | 150                                      |
| 176.041                          | V                            | 35.4                                         | -10.7                                          | 24.7                        | 17.2          | 150                                      |
| 176.041                          | H                            | 41.5                                         | -10.7                                          | 30.8                        | 34.7          | 150                                      |
| 184.102                          | V                            | 38.6                                         | -10.2                                          | 28.4                        | 26.4          | 150                                      |
| 184.102                          | H                            | 40.2                                         | -10.2                                          | 30.0                        | 31.7          | 150                                      |
| 195.063                          | V                            | 35.7                                         | -9.5                                           | 26.2                        | 20.5          | 150                                      |
| 195.063                          | H                            | 37.9                                         | -9.5                                           | 28.4                        | 26.4          | 150                                      |
| 338.000                          | V                            | 27.4                                         | -2.8                                           | 24.6                        | 17.0          | 200                                      |
| 338.000                          | H                            | 30.5                                         | -2.8                                           | 27.7                        | 24.3          | 200                                      |
| 520.238                          | V                            | 31.7                                         | 3.0                                            | 34.7                        | 54.4          | 200                                      |
| 520.238                          | H                            | 26.7                                         | 3.0                                            | 29.7                        | 30.6          | 200                                      |
| 551.000                          | V                            | 21.2                                         | 3.6                                            | 24.8                        | 17.4          | 200                                      |
| 551.000                          | H                            | 21.6                                         | 3.6                                            | 25.2                        | 18.2          | 200                                      |

NOTES : 1) The cable loss is included into the antenna factor and pre-amp gain.

2) Sample of calculation at 35.994 MHz  

$$\begin{aligned} 61.6 \text{ (dB } \mu \text{ V)} - 25.9 \text{ (dB } \mu \text{ V/m)} &= 35.7 \text{ (dB } \mu \text{ V/m)} \\ 35.7 / 20 &= 1.785 \\ 10 &= 10 = 61.0 \text{ (} \mu \text{ V/m)} \end{aligned}$$

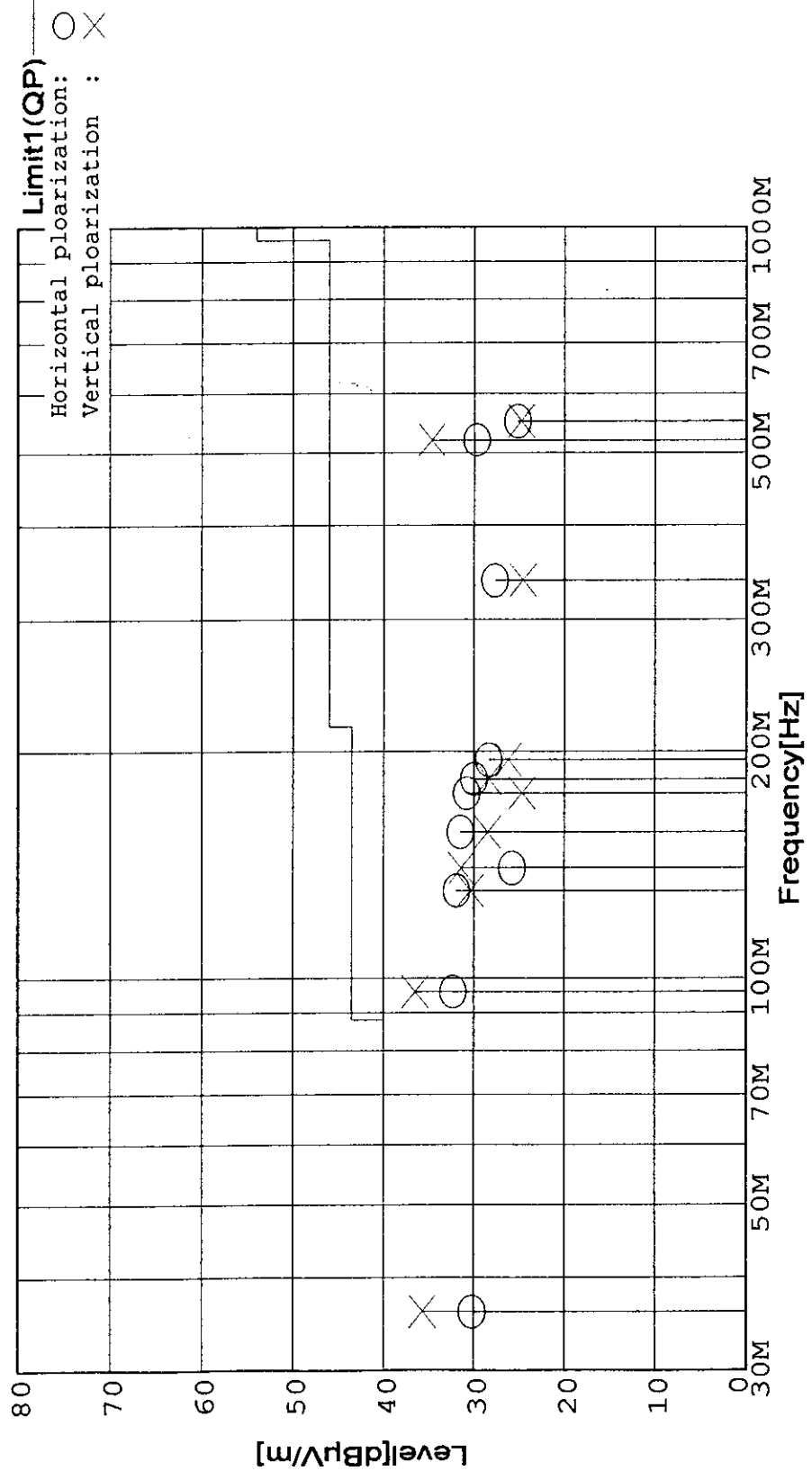
Certified by : Y. Matsuda

*Y. Matsuda*

## RADIATED EMISSION MEASUREMENTS

( 3 meter method )

### RADIATED EMISSION



## 2. AC POWERLINE CONDUCTED MEASUREMENTS

[ Test Site : Shielded Room ]

### \* TEST CONDITION OF INSTRUMENT

EUT Warm-up Time : 30 minutes

1) Resolution Bandwidth : 9 kHz

DATE : June 24, 1998

2) Detector Function : QP

Temp.: 24 °C Humi.: 64 %

( 2 - 1 ) Parallel Mode

|    | EMISSION<br>FREQUENCY<br>( MHz ) | METER<br>READING<br>( dB $\mu$ V ) | LISN<br>FACTOR<br>( dB ) | EMISSION<br>LEVEL |             | F C C<br>LIMIT<br>( $\mu$ V ) |
|----|----------------------------------|------------------------------------|--------------------------|-------------------|-------------|-------------------------------|
|    |                                  |                                    |                          | (dB $\mu$ V)      | ( $\mu$ V ) |                               |
| Va | 0.50                             | 34.5                               | 0.0                      | 34.5              | 53.1        | 250                           |
|    | 1.92                             | 22.3                               | 0.0                      | 22.3              | 13.1        | 250                           |
|    | 6.81                             | 28.3                               | 0.2                      | 28.5              | 26.7        | 250                           |
|    | 16.04                            | 35.7                               | 0.6                      | 36.3              | 65.4        | 250                           |
|    | 20.61                            | 26.6                               | 0.7                      | 27.3              | 23.2        | 250                           |
|    | 27.07                            | 13.5                               | 1.1                      | 14.6              | 5.4         | 250                           |
| Vb | 0.50                             | 33.8                               | 0.0                      | 33.8              | 49.0        | 250                           |
|    | 1.92                             | 22.6                               | 0.0                      | 22.6              | 13.5        | 250                           |
|    | 6.81                             | 30.6                               | 0.2                      | 30.8              | 34.7        | 250                           |
|    | 16.04                            | 36.1                               | 0.6                      | 36.7              | 68.4        | 250                           |
|    | 20.61                            | 31.3                               | 0.7                      | 32.0              | 39.9        | 250                           |
|    | 27.07                            | 29.4                               | 1.1                      | 30.5              | 33.5        | 250                           |

NOTES : 1) LISN factor Includes the cable loss for 2 meter.

2) Sample of calculation at 0.50 MHz  

$$\begin{aligned} 34.5 \text{ (dB } \mu \text{ V)} & \quad 0.0 \text{ (dB } \mu \text{ V)} = 34.5 \text{ (dB } \mu \text{ V)} \\ 34.5 / 20 & \quad 1.725 \\ 10 & = 10 = 53.1 \text{ (} \mu \text{ V)} \end{aligned}$$

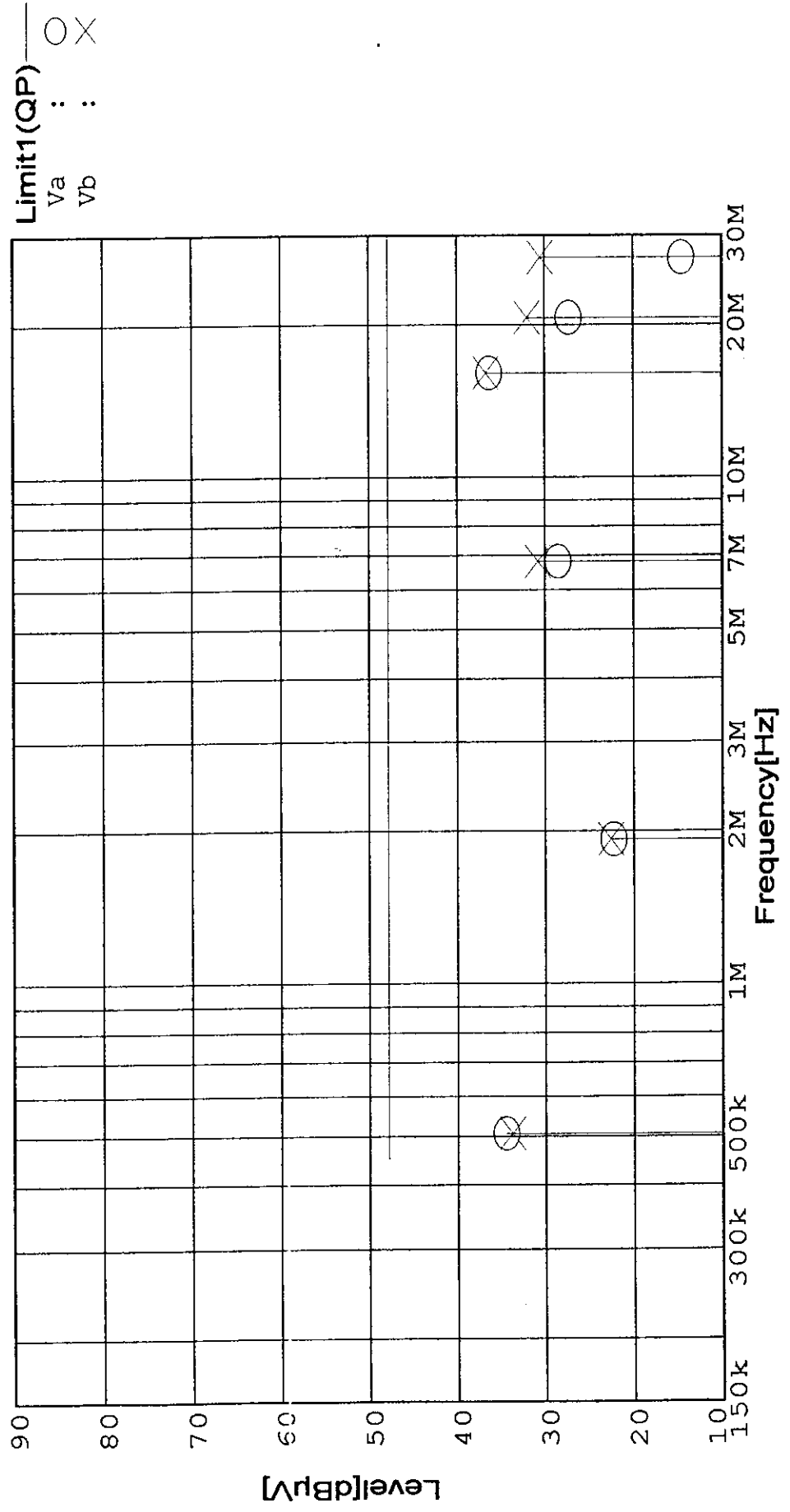
Certified by : Y. Matsuda

*Y. Matsuda*

**KME**

## AC POWERLINE CONDUCTED MEASUREMENTS

### LINE CONDUCTION



( 2 - 2 ) Serial Mode

|    | EMISSION<br>FREQUENCY<br>( MHz ) | METER<br>READING<br>( dB $\mu$ V ) | LISN<br>FACTOR<br>( dB ) | EMISSION<br>LEVEL |             | F C C<br>LIMIT<br>( $\mu$ V ) |
|----|----------------------------------|------------------------------------|--------------------------|-------------------|-------------|-------------------------------|
|    |                                  |                                    |                          | (dB $\mu$ V)      | ( $\mu$ V ) |                               |
| Va | 0.51                             | 35.1                               | 0.0                      | 35.1              | 56.9        | 250                           |
|    | 1.78                             | 25.6                               | 0.0                      | 25.6              | 19.1        | 250                           |
|    | 2.12                             | 26.4                               | 0.1                      | 26.5              | 21.2        | 250                           |
|    | 7.24                             | 23.2                               | 0.2                      | 23.4              | 14.8        | 250                           |
|    | 16.20                            | 23.9                               | 0.6                      | 24.5              | 16.8        | 250                           |
|    | 19.94                            | 26.2                               | 0.7                      | 26.9              | 22.2        | 250                           |
|    | 25.79                            | 31.4                               | 0.9                      | 32.3              | 41.3        | 250                           |
| Vb | 0.51                             | 34.1                               | 0.0                      | 34.1              | 50.7        | 250                           |
|    | 1.78                             | 23.3                               | 0.0                      | 23.3              | 14.7        | 250                           |
|    | 2.12                             | 25.5                               | 0.1                      | 25.6              | 19.1        | 250                           |
|    | 7.24                             | 26.7                               | 0.2                      | 26.9              | 22.2        | 250                           |
|    | 16.20                            | 26.6                               | 0.6                      | 27.2              | 23.0        | 250                           |
|    | 19.94                            | 30.6                               | 0.7                      | 31.3              | 36.8        | 250                           |
|    | 25.79                            | 29.9                               | 0.9                      | 30.8              | 34.7        | 250                           |

NOTES : 1) LISN factor Includes the cable loss for 2 meter.

2) Sample of calculation at 0.51 MHz  

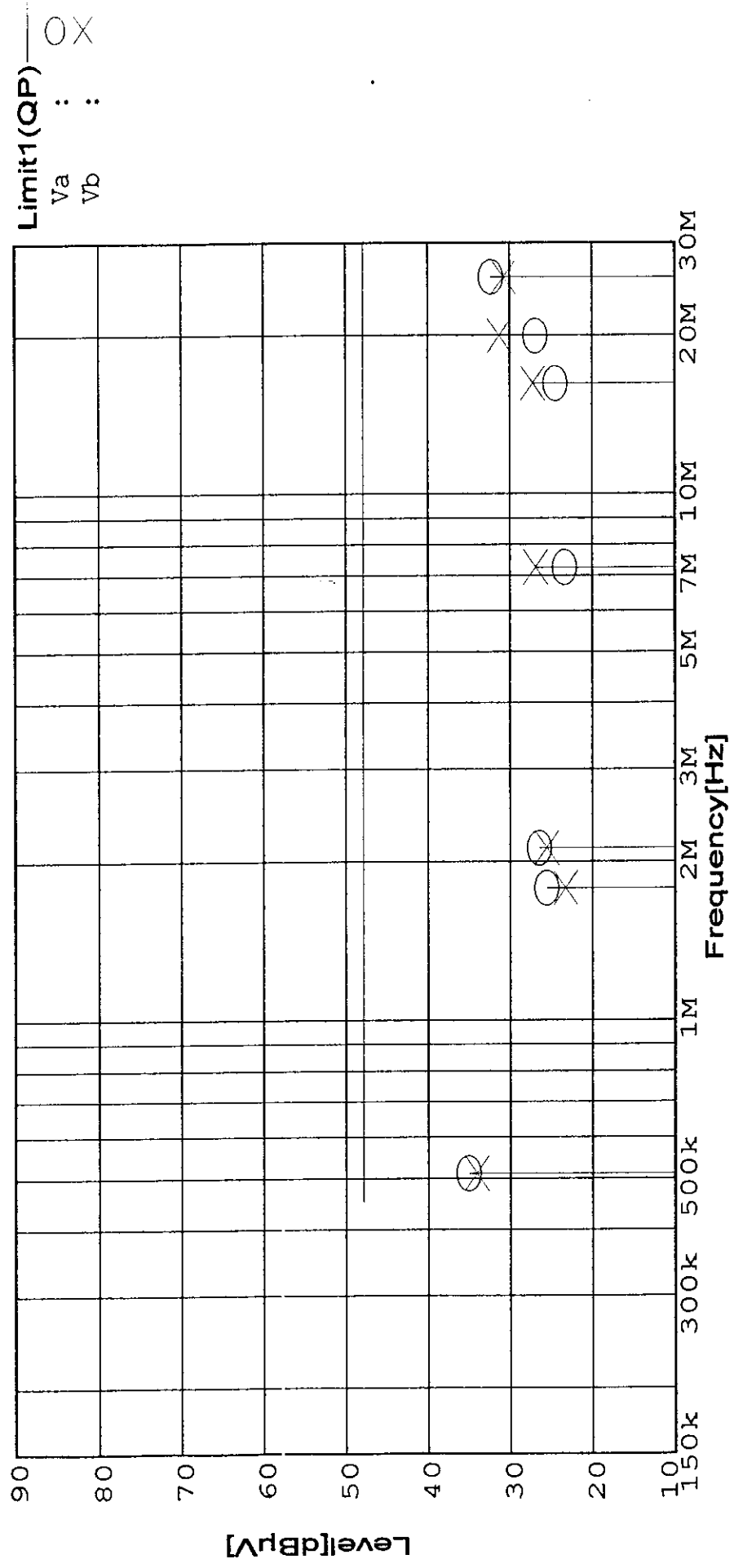
$$\begin{aligned} & 35.1 \text{ (dB } \mu \text{ V)} + 0.0 \text{ (dB } \mu \text{ V)} = 35.1 \text{ (dB } \mu \text{ V)} \\ & 35.1 / 20 = 1.755 \\ & 10^{1.755} = 56.9 \text{ (} \mu \text{ V)} \end{aligned}$$

Certified by : Y. Matsuda

*Y. Matsuda*

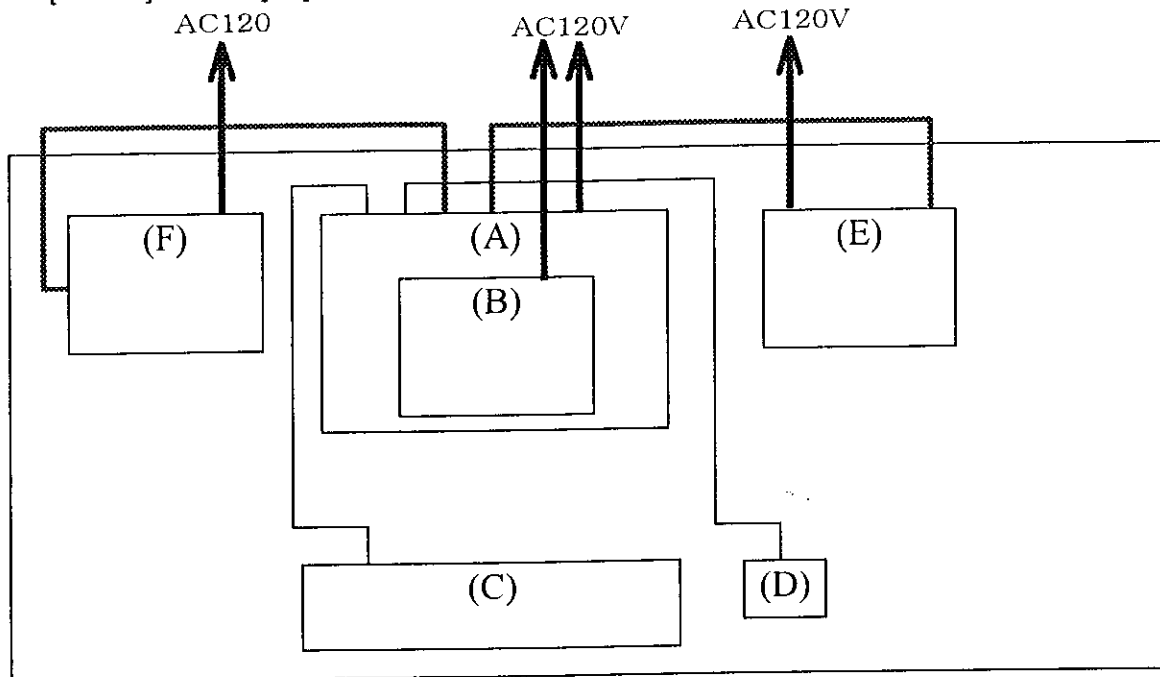
AC POWERLINE CONDUCTED MEASUREMENTS

LINE CONDUCTION



## [ 2 ] TEST CONDITIONS AND CONFIGURATION OF EUT

[ 2-1 ] The equipment under test ( EUT )



|          |                               | Model No. [Manufacture]                           | Serial No.  | FCC ID         |
|----------|-------------------------------|---------------------------------------------------|-------------|----------------|
| <b>A</b> | Personal Computer             | Type 9576<br>[IBM Australia Ltd.]                 | 900A7089576 | AN09576        |
| <b>B</b> | CRT Display                   | C1381i<br>[Matsushita Electric Ind.Co., Ltd]      | KH22333114  | ACJ928KMX-F413 |
| <b>C</b> | Keyboard                      | 1391401<br>[IBM by Lexmark Int'l.inc.]            | ---         | NONE           |
| <b>D</b> | Mouse                         | 33G5430<br>[ IBM ]                                | ---         | DZ33G5430      |
| <b>E</b> | Dot Matrix Printer            | KX-P3200<br>[Kyushu Matsushita Electric Co., Ltd] | 5LMDMA01050 | ACJ5Z6KX-P3200 |
| <b>F</b> | Dot Matrix Printer<br>[ EUT ] | KX-P1131<br>[Kyushu Matsushita Electric Co., Ltd] | 8EMEUA00035 | ACJ5Z6KX-P1131 |

**[ 2-2 ] TYPE OF INTERFACE CABLES**

| [ Main Frame ]                      [ Peripheral ] |                                        | (Length) | Number |
|----------------------------------------------------|----------------------------------------|----------|--------|
| Personal (A) -----                                 | CRT Display (B)                        | 1.8 m    | 1      |
| Computer                                           | Metalic Hoods, Shielded Circular Cable |          |        |
| Personal (A) -----                                 | Keyboard (C)                           | 2.6 m    | 1      |
| Computer                                           | Metalic Hoods, Shielded Curl Cable     |          |        |
| Personal (A) -----                                 | Mouse (D)                              | 2.7 m    | 1      |
| Computer                                           | Metalic Hoods, Shielded Circular Cable |          |        |
| Personal (A) -----                                 | Dot Matrix Printer (E)                 | 2.0 m    | 1      |
| Computer                                           | Metalic Hoods, Shielded Circular Cable |          |        |
| Personal (A) -----                                 | Dot Matrix Printer[EUT] (F)            | 2.0 m    | 1      |
| Computer                                           | Metalic Hoods, Shielded Circular Cable |          |        |

**[ 2-3 ] Arrangement of the Interface Cables**

Refer to the photographs.

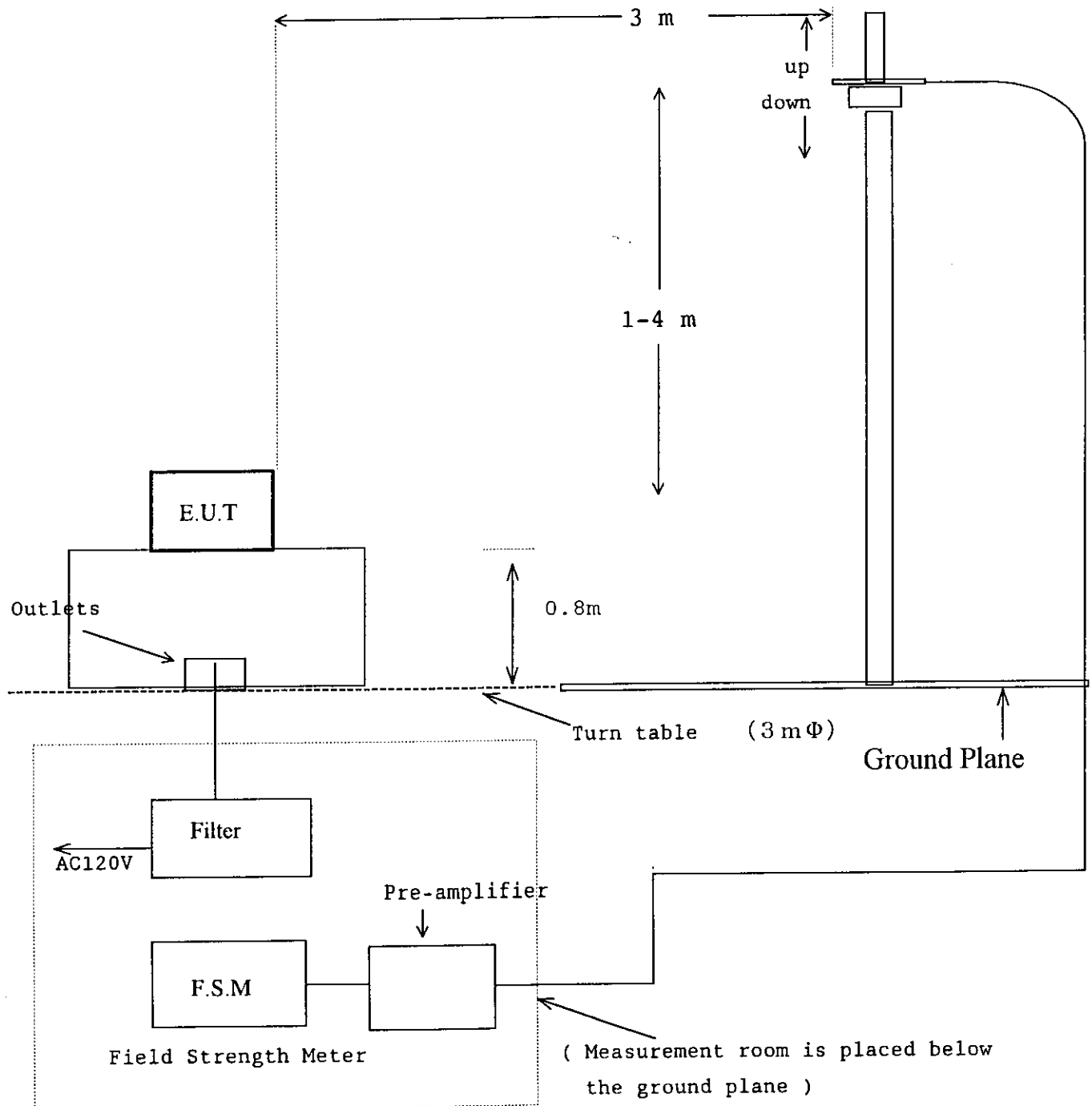
These interface cables were positioned so as to produce the highest maximum at every frequency between 30 MHz and 1000 MHz, being within the manner assumed to be a typical operating condition.

## [ 4 ] TEST ARRANGEMENT

-- Test setup --

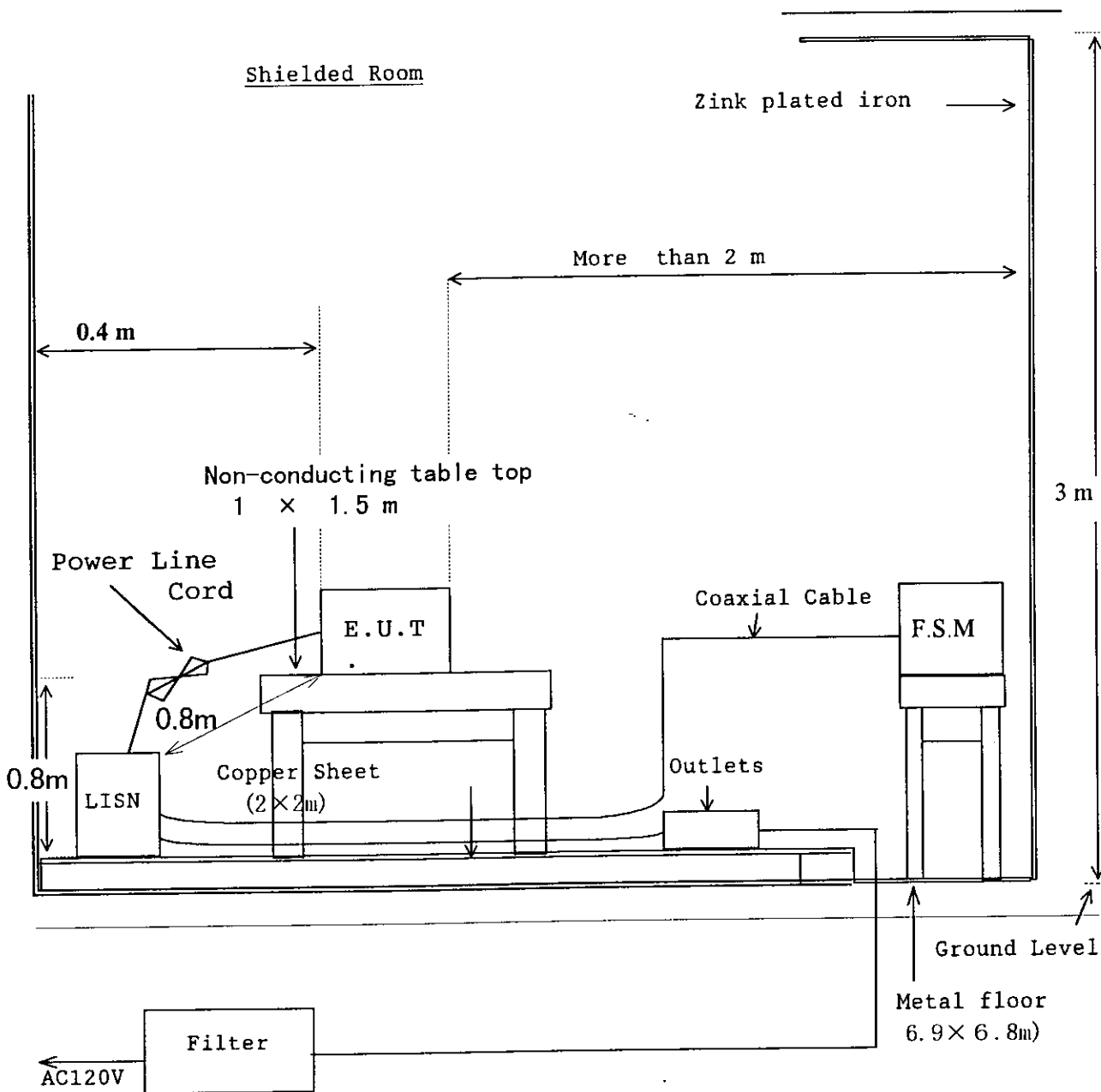
### [ 4-1 ] RADIATED EMISSION MEASUREMENTS

Open Test Site



-- Test setup --

[ 4-2 ] AC POWERLINE CONDUCTED MEASUREMENTS



## [ 5 ] LIST OF TEST EQUIPMENT

| [ Measuring Apparatus ]                                   | [ Model ] | [ Calibrated<br>Untill ] |
|-----------------------------------------------------------|-----------|--------------------------|
| <b>* Field Strength Meter</b> Rohde & Schwarz             | ESH3      | Feb. 1999                |
| Frequency Range : 9 KHz - 30 MHz                          |           |                          |
| Detector Function : CISPR Quasi Peak and Average          |           |                          |
| IF Bandwidth : 200 Hz( 9 -150 KHz ), 9 KHz( 0.15 -30 MHz) |           |                          |
| <b>* Field Strength Meter</b> Rohde & Schwarz             | ESVS-10   | Nov. 1998                |
| Frequency Range : 20 - 1300 MHz                           |           |                          |
| Detector Function : CISPR Quasi Peak                      |           |                          |
| IF Bandwidth : 120 KHz ( 20 - 1300 MHz )                  |           |                          |
| <b>* Pre-amplifier</b> Hewlett Packard                    | 8447D     | Feb. 1999                |
| Frequency Range : 0.1 - 1300 MHz                          |           |                          |
| Gain : 27 $\pm$ 1 dB                                      |           |                          |
| <b>* Spectrum Analyzer</b> ADVANTEST                      | TR4135    | Feb. 1999                |
| Frequency Range : 0.01 - 3600 MHz                         |           |                          |
| <b>* Line Impedance</b> Kyoritsu Electrical               | KNW-407   | Feb. 1999                |
| Stabilization Network Works, Ltd.                         |           |                          |
| (LISN)(50 $\mu$ H/50 $\Omega$ )                           |           |                          |
| <b>* Dipole Antenna</b> Kyoritsu Electrical               |           |                          |
| Works, Ltd.                                               |           |                          |
| Tuning Range : 30 - 500 MHz                               | KBA-511A  | Jan. 1999                |
| Tuning Range : 500 - 1000 MHz                             | KBA-611   | Jan. 1999                |