

Issue Date : April 12, 1999

EMI Test Report No.: TR99-S0010I

## EMI TEST REPORT

INTENTIONAL RADIATOR  
43/49MHz CORDLESS TELEPHONE

INFORMATION TECHNOLOGY EQUIPMENT (ITE)  
Operation with in the bands 43-46MHz

Model No. : KX-TC1040B  
[Cordless Telephone System Base Unit]

FCC I/D : ACJ96NKX-TC1000

# KME

KME EMC TESTING LABORATORY

Issue Date : April 12, 1999

Kyushu Matsushita Electric Co., Ltd. ( K M E )  
Corporate Quality Assurance Division ( C Q A D )

1471 , Murata-cho, Tosu-shi,  
Saga-ken 841-8501, Japan TEL 0942-81-2793

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KME EMC TESTING LABORATORY

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Kyushu Matsushita Electric Co., Ltd.

KME EMC TESTING LABORATORY

1471, Murata-cho, Tosu-shi,

Saga-ken, 841-8501 JAPAN

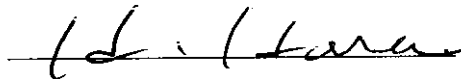
TEL 0942-81-2793

FAX 0942-81-2794

EMI TEST REPORT ON ITE

1. Applicant : Kyushu Matsushita Electric Co., Ltd.  
1-62, 4-Chome, Minoshima  
Hakata-Ku, Fukuoka, 812-8531 Japan
- Manufactuer : Kyushu Matsushita Electric Co., Ltd.  
Fourth Division  
1-62, 4-Chome, Minoshima  
Hakata-Ku, Fukuoka, 812-8531 Japan
2. Description of Device : 43/49MHz Cordless Telephone (43-46MHz)Base Unit  
a)Type of EUT : Desk-top Type  
b)Category : **Intentional Radiator**  
c)FCC I/D : **ACJ96NKX-TC1000**  
d)Trade Name : **Panasonic**  
e)Model No. : **KX-TC1040B**  
f)Serial No. : ---  
g)Date of Manufacture : April, 1999  
h)Power Supply : AC120V 60Hz  
Ac Adaptor[PQLV1](DC 9V, 500mA)
3. Date of Receipt and Measurement : April 8,9 1999
4. Regulations Applied : FCC Rules and Regulations Part 15  
Subpart C-International Radiators(\$15,233(C)&(d))  
(\$15,207(a))
5. Measurement Procedure : ANSI C63.4-1992
6. Place of Measurement : Kyushu Matsushita Electric Co., Ltd.  
KME EMC SAGA SITE
7. Facility Number : (FCC) 31040/SIT/KYUSHU
8. Measurement Results : The results obtained from the measuring of  
the above-mentioned device are as shown in  
the attached sheets.  
This results in this report apply only  
to the sample(s) tested.

April 12, 1999

Hideo Hara  
Quality Manager**KME**

**[1] TEST RESULT****\* TEST CONDITION OF EQUIPMENT UNDER TEST (EUT)**

- 1) Configuration of EUT : Refer to the sheet No.8,9,10,11,12
- 2) Operating Condition : TALK[20Ch]Mode, TALK[7Ch]Mode
- 3) EUT Grounding : Grounded at the plugged of the line cord
- 4) Power Rating : AC120V 60Hz (AC Adaptor = DC9V,500mA)

**1-1 RADIATED EMISSION MEASUREMENTS [30M-1GHz][ FCC Part 15 ](\$15,233(c)&(d))**

[Test Site : Open Area Test Site]

**\* TEST CONDITION OF INSTRUMENT**

EUT Warm-up Time : 30 minutes

- 1) Resolution Bandwidth : 120kHz DATA : April 8, 1999
- 2) Detector Function : QP(30-1000MHz) Temp.: 23 °C Humi.: 52 %

**TALK[20Ch] Mode(46.730MHz)**

| 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/m ) | EMISSION<br>LEVEL<br>at 3m<br>(dB $\mu$ V/m) | FCC<br>CLASS B<br>LIMIT<br>(dB $\mu$ V/m) |
|----------------------------------|---------------------------------|----------------------------------------------|--------------------------------------------------|----------------------------------------------|-------------------------------------------|
| [Fundamental emission]           |                                 |                                              |                                                  |                                              |                                           |
| 46.730                           | v [Average]                     | 72.7                                         | 6.7                                              | 79.4                                         | 80.00                                     |
| 46.730                           | v [ Peak ]                      | 73.3                                         | 6.7                                              | 80.0                                         | 100.00                                    |
| 46.730                           | H [Average]                     | 63.0                                         | 6.7                                              | 69.7                                         | 80.00                                     |
| 46.730                           | H [ Peak ]                      | 63.9                                         | 6.7                                              | 70.6                                         | 100.00                                    |
| [Radiated emission]              |                                 |                                              |                                                  |                                              |                                           |
| 65.808                           | V                               | 48.5                                         | -18.0                                            | 30.5                                         | 40.0                                      |
| 93.482                           | V                               | 32.0                                         | -16.4                                            | 15.6                                         | 43.5                                      |
| 140.627                          | V                               | 38.2                                         | -12.1                                            | 26.1                                         | 43.5                                      |
| 185.681                          | H                               | 38.0                                         | -9.2                                             | 28.8                                         | 43.5                                      |
| 196.619                          | H                               | 49.1                                         | -8.6                                             | 40.5                                         | 43.5                                      |
| 233.687                          | H                               | 37.7                                         | -7.2                                             | 30.5                                         | 46.0                                      |
| 279.898                          | H                               | 29.2                                         | -4.9                                             | 24.3                                         | 46.0                                      |
| 327.701                          | H                               | 36.9                                         | -4.8                                             | 32.1                                         | 46.0                                      |
| 373.877                          | V                               | 32.4                                         | -2.7                                             | 29.7                                         | 46.0                                      |
| 420.531                          | H                               | 35.5                                         | -1.2                                             | 34.3                                         | 46.0                                      |
| 467.265                          | H                               | 31.5                                         | -0.2                                             | 31.3                                         | 46.0                                      |

Tested by : S. Mori

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

- 2) Sample of calculation at 65.808 MHz  
 $48.5 \text{ (dB } \mu \text{ V)} - 18.0 \text{ (dB/m)} = 30.5 \text{ (dB } \mu \text{ V/m)}$

Reviewed by : M. Horie

*M. Horie*

## 1-2 RADIATED EMISSION MEASUREMENTS [30M-1GHz][ FCC Part 15 ](\$15,233(c)&amp;(d))

## TALK[7Ch] Mode(44.120MHz)

| 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/m ) | EMISSION<br>LEVEL<br>at 3m | FCC<br>CLASS B<br>LIMIT |
|----------------------------------|---------------------------------|----------------------------------------------|-------------------------------------------------|----------------------------|-------------------------|
|                                  |                                 |                                              |                                                 | (dB $\mu$ V/m)             | (dB $\mu$ V/m)          |
| [Fundamental emission]           |                                 |                                              |                                                 |                            |                         |
| 44.120                           | v [Average]                     | 72.9                                         | 6.2                                             | 79.1                       | 80.00                   |
| 44.120                           | v [ Peak ]                      | 73.3                                         | 6.2                                             | 79.5                       | 100.00                  |
| 44.120                           | H [Average]                     | 65.5                                         | 6.2                                             | 71.7                       | 80.00                   |
| 44.120                           | H [ Peak ]                      | 65.8                                         | 6.2                                             | 72.0                       | 100.00                  |
| [Radiated emission]              |                                 |                                              |                                                 |                            |                         |
| 65.808                           | V                               | 48.5                                         | -18.0                                           | 30.5                       | 40.0                    |
| 88.245                           | H                               | 34.1                                         | -16.8                                           | 17.3                       | 43.5                    |
| 131.087                          | H                               | 53.6                                         | -12.5                                           | 41.1                       | 43.5                    |
| 176.526                          | H                               | 34.7                                         | -9.8                                            | 24.9                       | 43.5                    |
| 196.619                          | H                               | 49.1                                         | -8.6                                            | 40.5                       | 43.5                    |
| 221.905                          | H                               | 37.0                                         | -7.9                                            | 29.1                       | 43.5                    |
| 264.768                          | H                               | 33.2                                         | -5.3                                            | 27.9                       | 46.0                    |
| 308.887                          | H                               | 29.5                                         | -5.9                                            | 23.6                       | 46.0                    |
| 350.894                          | H                               | 33.3                                         | -3.7                                            | 29.6                       | 46.0                    |
| 397.144                          | H                               | 37.2                                         | -1.7                                            | 35.5                       | 46.0                    |
| 441.284                          | H                               | 32.5                                         | -0.8                                            | 31.7                       | 46.0                    |

Tested by : S. Mori

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

2) Sample of calculation at 65.808 MHz  
 48.5 (dB $\mu$ V) -18.0 (dB/m) =30.5 (dB $\mu$ V/m)

Reviewed by : M. Horie

*M. Horie*

## 1-3 AC POWERLINE CONDUCTED MEASUREMENTS(0.45M-30MHz) [FCC Part15] (\$15,207(a))

[ Test Site : Shielded Room ]

## \* TEST CONDITION OF INSTRUMENT

EUT Warm-up Time : 30 minutes

1) Resolution Bandwidth : 10 kHz

DATE : April 09, 1999

2) Detector Function : QP

Temp.: 24 °C Humi.: 45 %

## TALK[20Ch] Mode(46.730MHz)

|    | EMISSION<br>FREQUENCY<br>( MHz ) | METER<br>READING<br>( dB $\mu$ V ) | LISN<br>FACTOR<br>( dB ) | EMISSION<br>LEVEL | FCC<br>CLASS B<br>LIMIT |
|----|----------------------------------|------------------------------------|--------------------------|-------------------|-------------------------|
|    |                                  |                                    |                          | (dB $\mu$ V)      | (dB $\mu$ V)            |
| Va | 0.4500                           | -4.2                               | -0.1                     | -4.3              | 47.9                    |
|    | 0.4890                           | -4.6                               | -0.1                     | -4.7              | 47.9                    |
|    | 1.0900                           | -16.1                              | 0.0                      | -16.1             | 47.9                    |
|    | 1.7490                           | 2.8                                | 0.0                      | 2.8               | 47.9                    |
|    | 2.0610                           | 18.5                               | 0.1                      | 18.6              | 47.9                    |
|    | 2.4720                           | 20.0                               | 0.1                      | 20.1              | 47.9                    |
|    | 6.1440                           | 9.3                                | 0.2                      | 9.5               | 47.9                    |
|    | 9.9920                           | -5.0                               | 0.3                      | -4.7              | 47.9                    |
|    | 19.9850                          | -5.1                               | 0.7                      | -4.4              | 47.9                    |
|    | 29.9810                          | 20.2                               | 1.1                      | 21.3              | 47.9                    |
| Vb | 0.4500                           | -1.2                               | -0.1                     | -1.3              | 47.9                    |
|    | 0.4890                           | -2.9                               | -0.1                     | -3.0              | 47.9                    |
|    | 1.0900                           | -10.5                              | 0.0                      | -10.5             | 47.9                    |
|    | 1.7490                           | 7.3                                | 0.0                      | 7.3               | 47.9                    |
|    | 2.0610                           | 20.3                               | 0.1                      | 20.4              | 47.9                    |
|    | 2.4720                           | 21.6                               | 0.1                      | 21.7              | 47.9                    |
|    | 6.1440                           | 12.6                               | 0.2                      | 12.8              | 47.9                    |
|    | 9.9920                           | -0.6                               | 0.3                      | -0.3              | 47.9                    |
|    | 19.9850                          | 3.0                                | 0.7                      | 3.7               | 47.9                    |
|    | 29.9810                          | 22.3                               | 1.1                      | 23.4              | 47.9                    |

Tested by : S. Mori

NOTES:1) LISN factor includes the cable loss for 5 meter.

2) Sample of calculation at 0.4500 MHz  
 -4.2 (dB  $\mu$  V) -0.1 (dB) = -4.3 (dB  $\mu$  V)

Reviewed by : M. Horie

*M. Horie***KME**

## 1-4 AC POWERLINE CONDUCTED MEASUREMENTS(0.45M-30MHz) [FCC Part15] (\$15,207(a))

## TALK[7Ch] Mode(44.120MHz)

|    | EMISSION<br>FREQUENCY<br>( MHz ) | METER<br>READING<br>( dB $\mu$ V ) | LISN<br>FACTOR<br>( dB ) | EMISSION<br>LEVEL | FCC<br>CLASS B<br>LIMIT |
|----|----------------------------------|------------------------------------|--------------------------|-------------------|-------------------------|
|    |                                  |                                    |                          | (dB $\mu$ V)      | (dB $\mu$ V)            |
| Va | 0.4500                           | 1.0                                | -0.1                     | 0.9               | 47.9                    |
|    | 0.5890                           | -9.9                               | 0.0                      | -9.9              | 47.9                    |
|    | 1.0900                           | -15.8                              | 0.0                      | -15.8             | 47.9                    |
|    | 1.7490                           | 3.3                                | 0.0                      | 3.3               | 47.9                    |
|    | 2.0960                           | 5.9                                | 0.1                      | 6.0               | 47.9                    |
|    | 2.6760                           | 15.5                               | 0.1                      | 15.6              | 47.9                    |
|    | 12.0000                          | -8.1                               | 0.4                      | -7.7              | 47.9                    |
|    | 21.0000                          | -7.4                               | 0.8                      | -6.6              | 47.9                    |
|    | 29.9900                          | 7.5                                | 1.1                      | 8.6               | 47.9                    |
| Vb | 0.4500                           | -1.4                               | -0.1                     | -1.5              | 47.9                    |
|    | 0.5890                           | -8.3                               | 0.0                      | -8.3              | 47.9                    |
|    | 1.0900                           | -14.4                              | 0.0                      | -14.4             | 47.9                    |
|    | 1.7490                           | 4.6                                | 0.0                      | 4.6               | 47.9                    |
|    | 2.0960                           | 5.2                                | 0.1                      | 5.3               | 47.9                    |
|    | 2.6760                           | 9.4                                | 0.1                      | 9.5               | 47.9                    |
|    | 12.0000                          | -13.0                              | 0.4                      | -12.6             | 47.9                    |
|    | 21.0000                          | -16.2                              | 0.8                      | -15.4             | 47.9                    |
|    | 29.9900                          | 9.7                                | 1.1                      | 10.8              | 47.9                    |

Tested by : S. Mori

NOTES:1) LISN factor includes the cable loss for 5 meter.

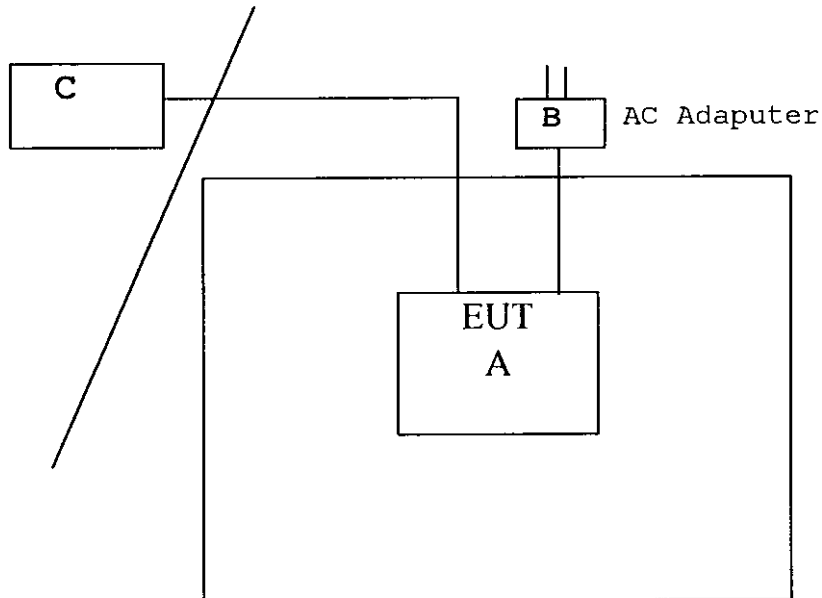
2) Sample of calculation at 0.4500 MHz  
 1.0 (dB  $\mu$  V) -0.1 (dB)= 0.9 (dB  $\mu$  V)

Reviewed by : M. Horie *M. Horie*

**[2]DESCRIPTION OF THE TEST EQUIPMENT****2-1 The equipment under test (EUT)**

Configuration of EUT

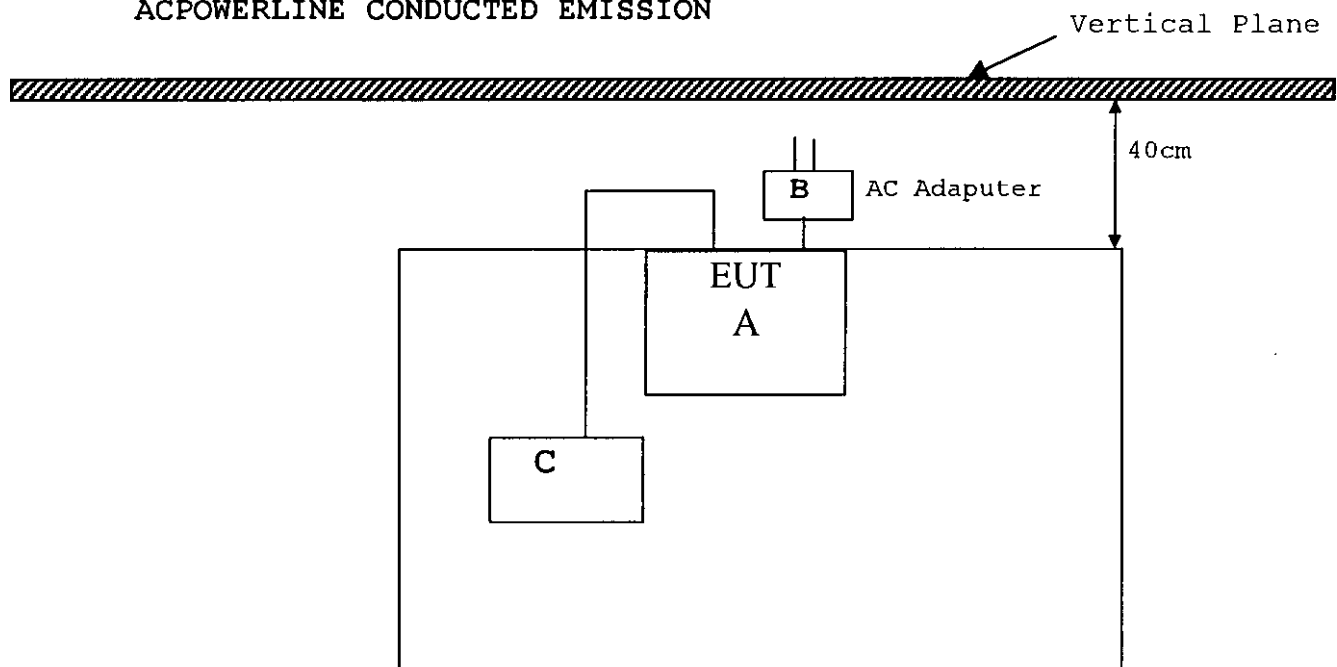
RADIATED EMISSION



|   |                    | Model No. [Manufacture] | Serial No. | FCC ID          |
|---|--------------------|-------------------------|------------|-----------------|
| A | Cordless Telephone | KX-TC1040B              | ---        | ACJ96NKX-TC1000 |
| B | AC Adaputor        | PQLV1                   | ---        | ---             |

**[Remotely Located Devices]**

|   |                    | Model No. [Manufacture]                                                 | Serial No. | FCC ID |
|---|--------------------|-------------------------------------------------------------------------|------------|--------|
| C | TEL Line Simulator | Loop Simulator<br>[Mfr'd by Kyushu<br>Matsushita Electric<br>Co., Ltd.] | ---        | ---    |

**[2]DESCRIPTION OF THE TEST EQUIPMENT****2-2 The equipment under test (EUT)****ACPOWERLINE CONDUCTED EMISSION**

|          |                    | Model No. [Manufacture] | Serial No. | FCC ID          |
|----------|--------------------|-------------------------|------------|-----------------|
| <b>A</b> | Cordless Telephone | KX-TC1040B              | ---        | ACJ96NKX-TC1000 |
| <b>B</b> | AC Adapter         | PQLV1                   | ---        | ---             |

**[Remotely Located Devices]**

|          |                    | Model No. [Manufacture]                                                 | Serial No. | FCC ID |
|----------|--------------------|-------------------------------------------------------------------------|------------|--------|
| <b>C</b> | TEL Line Simulator | Loop Simulator<br>[Mfr'd by Kyushu<br>Matsushita Electric<br>Co., Ltd.] | ---        | ---    |

2-3 Type of Interface Cables

| [ Main Frame ]   | [ Peripheral ]   | [Length] | Number |
|------------------|------------------|----------|--------|
| TEL Cord(A) ---- | Unshielded Cable | 2.1 m    | 1      |

2-3.1 Arrangement of the Interface Cables

Refer to the photographs.

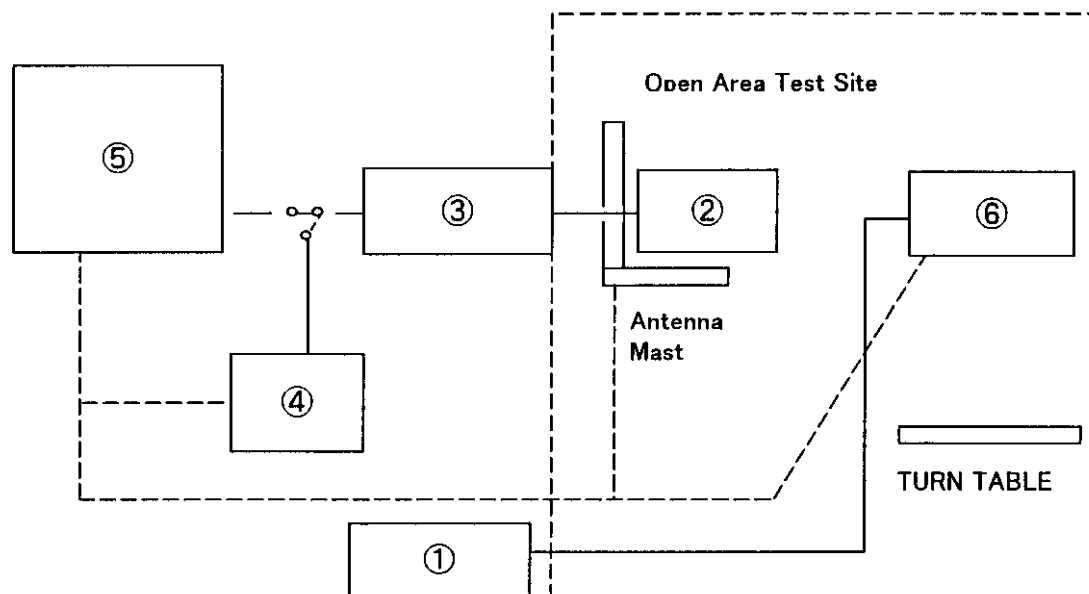
These interface cables were positioned so as to produce the highest maximum at every frequency between 30 MHz and 1000 MHz, being within the manner assumed to be a typical operating condition.

2-3.2 Test Operation Condition of KX-TC1040B

TALK mode ----- Both the Transmittor and the Receiver are working.

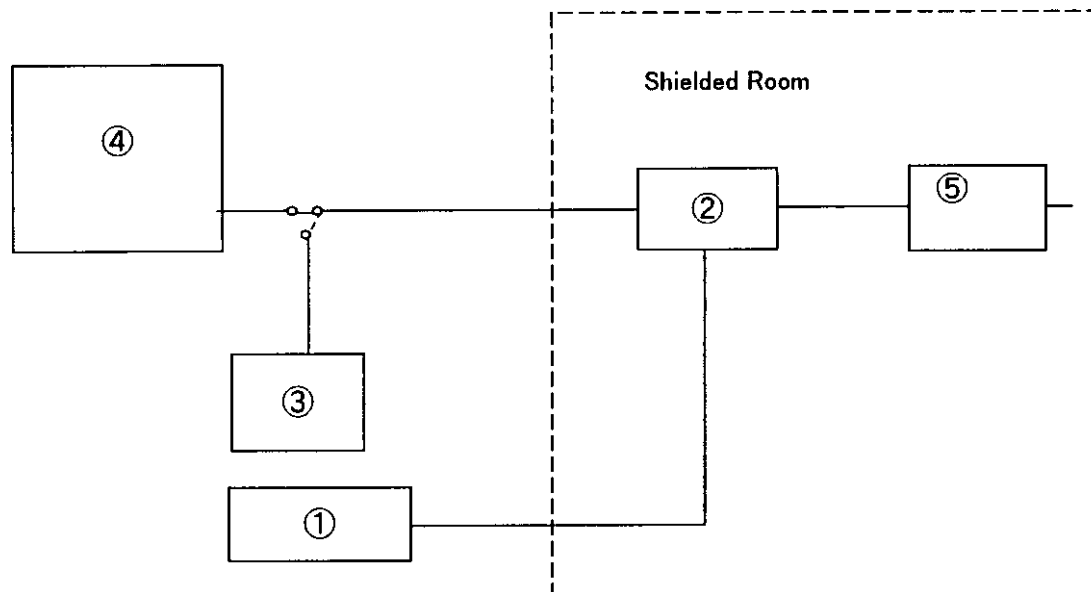
## [4] TEST ARANGEMENT AND LIST OF INSTRUMENTS

## 4.1 TEST EQUIPMENTS OF RADIATED EMISSION MEASUREMENTS



|   | Apparatus                 | Model No.<br>(Manufacture)                                              | Spec.                                                           | Calibrated<br>Untill             | Serial No.        |
|---|---------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------|-------------------|
| ① | 3 or 1 phase<br>AC SUPPLY | ACF-N F-Class<br>(YAHATA DENKI)                                         | 50Hz/60Hz<br>MAX<br>1Φ 264V                                     | ---                              | ---               |
| ② | Antenna                   | KBA-511A<br>(KYORITSU)<br>KBA-611<br>(KYORITSU)<br>KBA522<br>(KYORITSU) | 30-500MHz (Dipole)<br>500-1000MHz (Dipole)<br>25-80MHz (Dipole) | Jan.2000<br>Jan.2000<br>Oct.1999 | ---<br>---<br>--- |
| ③ | Pre-Amplifier             | 8447D<br>(hp)                                                           | 0.1-1300MHz                                                     | Feb.1999                         | 2443A04523        |
| ④ | Spectrum<br>Analyzer      | TR4135<br>(Advantest)                                                   | 0.01~3600MHz                                                    | Feb.1999                         | 51730129          |
| ⑤ | EMI Receiver              | ESVS10<br>(R & S)                                                       | 20-1300MHz                                                      | Feb.1999                         | 844106/014        |
| ⑥ | Main Unit<br>EUT          | KX-TC1040B                                                              | ---                                                             | ---                              | ---               |

## 4.2 TEST EQUIPMENTS OF CONDUCTED MEASUREMENTS



|   | Apparatus                 | Model No.<br>(Manufacture) | Spec.                        | Calibrated<br>Untill | Serial No. |
|---|---------------------------|----------------------------|------------------------------|----------------------|------------|
| ① | 3 or 1 phase<br>AC SUPPLY | FUK-23749-2<br>(NF)        | 50Hz/60Hz<br>MAX<br>1Φ 264 V | ---                  | ---        |
| ② | LISN                      | KNW-407                    | 1Φ 250 V<br>15A              | Feb.1999             | ---        |
| ③ | Spectrum<br>Analyzer      | TR4135<br>(Advantest)      | 10KHz~3.6GHz                 | Feb.1999             | 67800024   |
| ④ | EMI Receiver              | ESHS10<br>(R&S)            | 9KHz~30MHz                   | Feb.1999             | 845635/003 |
| ⑤ | Main Unit<br>EUT          | KX-TC1040B                 | ---                          | ---                  | ---        |

**[5] ATTACHMENT****5.1 RADIATED EMISSION MEASUREMENTS**

[Attachment Sheet No.]

- \* QP Data ----- Sheet 1 of 4 Sheets  
TALK[20Ch] mode(46.730MHz)  
(Horizontal/Vertical, 30-300MHz)
- \* QP Data ----- Sheet 2 of 4 Sheets  
TALK[7Ch] mode(44.120MHz)  
(Horizontal/Vertical, 30-300MHz)

**5.2 AC POWERLINE CONDUCTED MEASUREMENTS**

- \* QP Data ----- Sheet 3 of 4 Sheets  
TALK[20Ch] mode(46.730MHz)  
(Va/Vb, 0.45-30MHz)
- \* QP Data ----- Sheet 4 of 4 Sheets  
TALK[7Ch] mode(44.120MHz)  
(Va/Vb, 0.45-30MHz)

# RADIATED EMISSION

Model Name : 43/49MHz Cordless Telephone

Parts No. : KX-TC1040B

Serial No. : --

Detector : QP

Points : 11

Limit1: [FCC Part 15] Class B<3m>

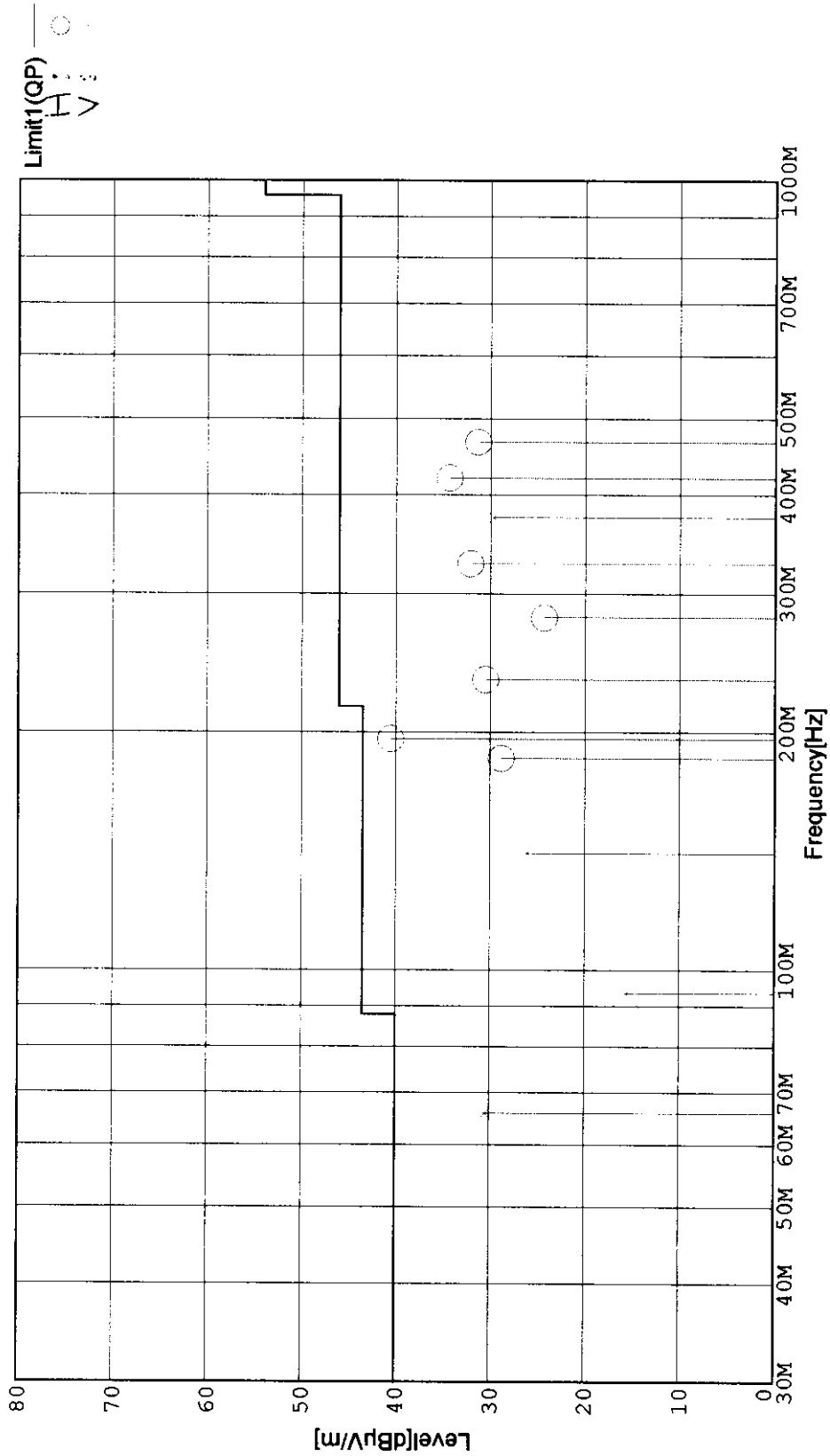
Temp. : 23

Humi.% : 52%

Comment : TALK[20Ch]Mode(46.730MHz)

Date : 1999.4.8

EMI Receiver(s) :



Limit1(QP)

H: V:

RADIATED EMISSION

Model Name : 43/49MHz Cordless Telephone

Parts No. : KX-TC1040B

Serial No. : —

Detector : QP

Points : 11

Temp. : 23

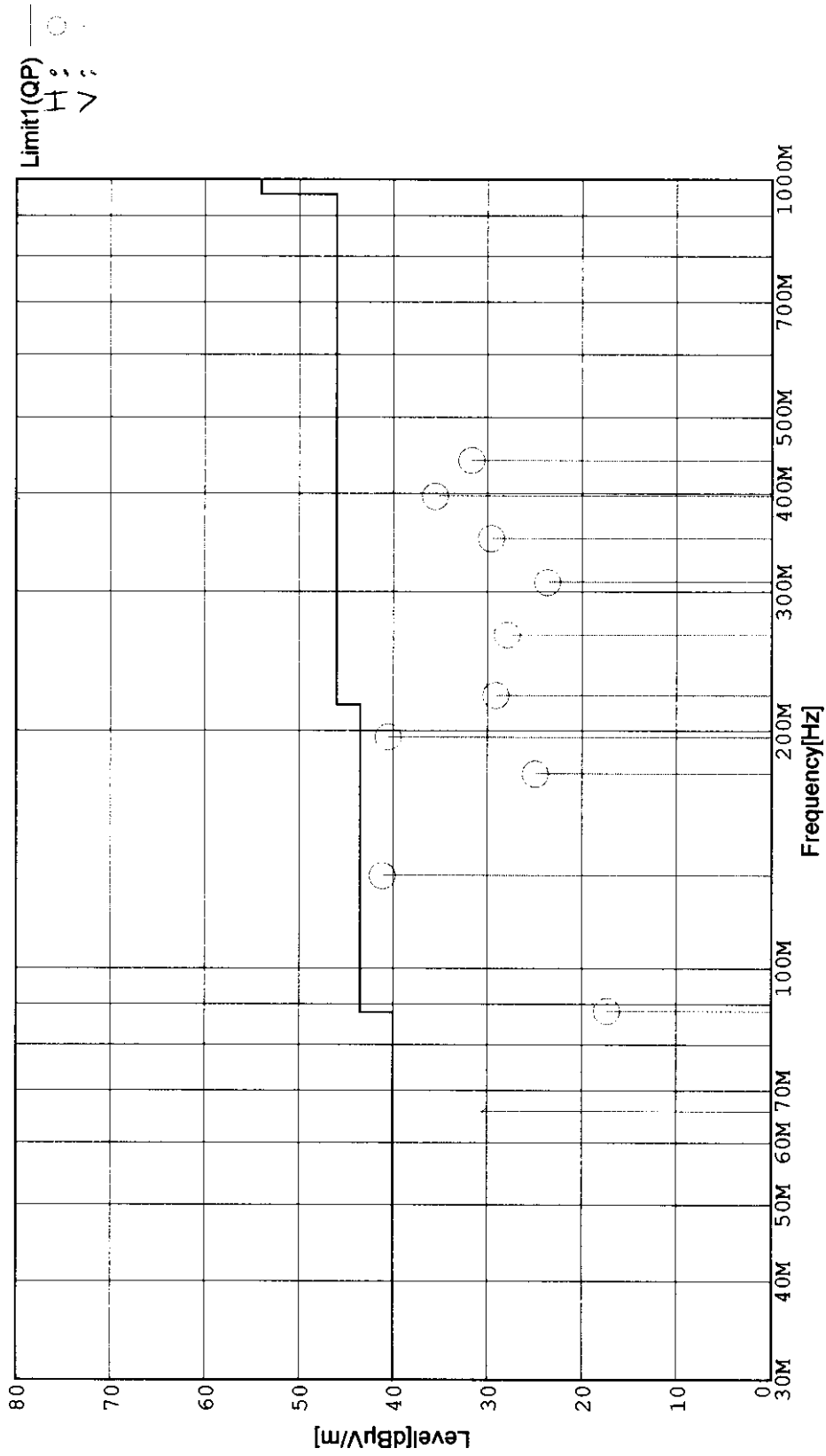
Humi.% : 52%

Comment : TALK[7Ch]Mode(44.120MHz)

Date : 1999.4.8

EMI Receiver(s) :

Limit1: [FCC Part 15] Class B<3m>



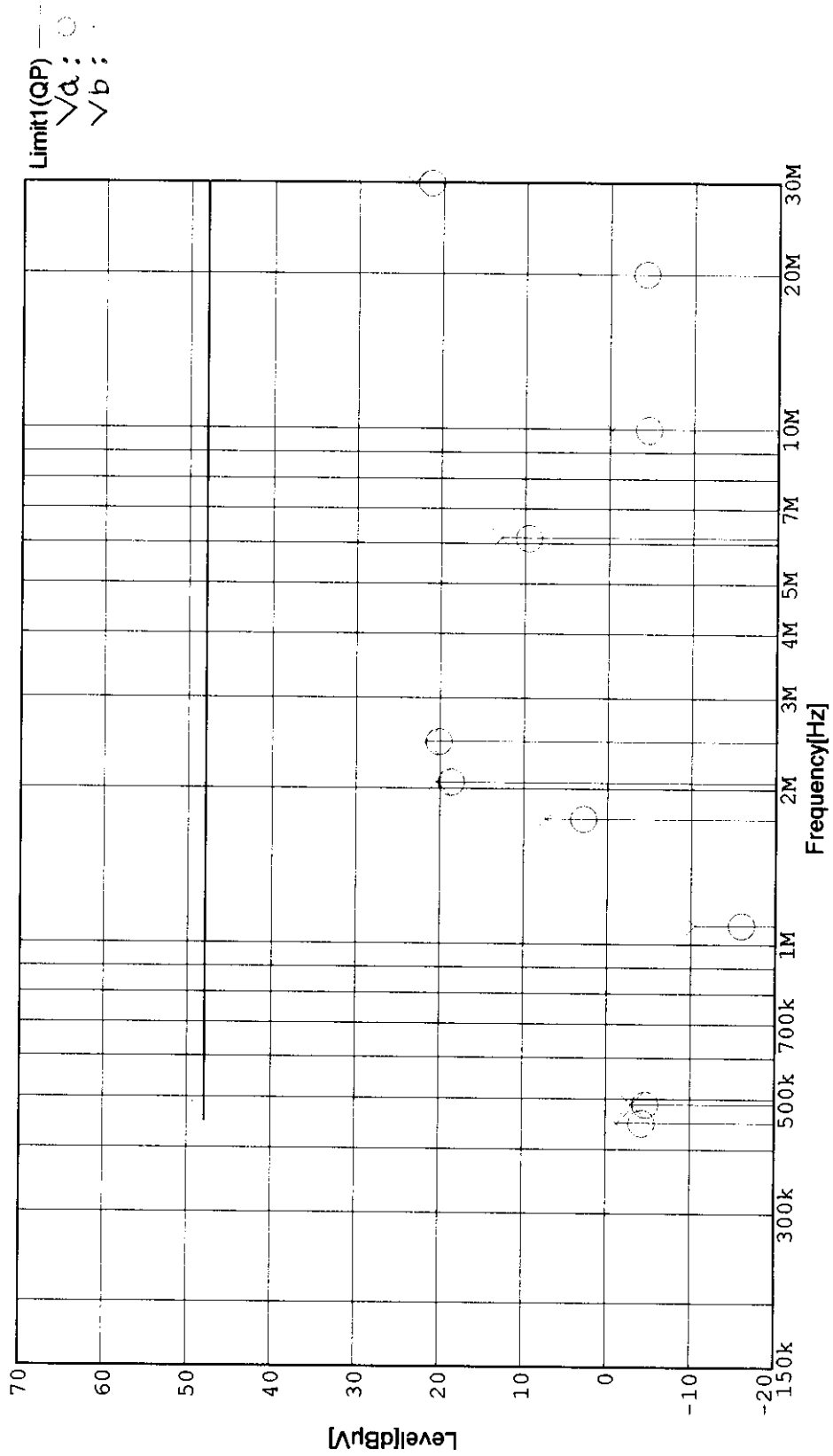
Limit1(QP)

H :  
V :  
○ :

**LINE CONDUCTION**

Model Name : 43/49MHz Cordless Telephone  
 Parts No. : KX-TC1040B  
 Serial No. : --  
 Detector : QP  
 Points : 20  
 Limit1: [FCC Part15] Class B

Temp. : 24  
 Humi.% : 45%  
 Comment : TALK[20Ch]Mode(46.730MHz)  
 Date : 1999.4.9  
 EMI Receiver(s) :



# LINE CONDUCTION

Model Name : 43/49MHz Cordless Telephone  
 Parts No. : KX-TC1040B  
 Serial No. : ---  
 Detector : QP  
 Points : 18  
 Limit1: [FCC Part15] Class B

Temp. : 24  
 Humi.% : 45%  
 Comment : TALK[7Ch]Mode(44.120MHz)  
 Date : 1999.4.9  
 EMI Receiver(s) :

