

EMI Test Report No.: TR99-S006I

EMI TEST REPORT

CLASS B
INFORMATION TECHNOLOGY EQUIPMENT (ITE)

Model No. : KX-FLM650

FCC I/D : ACJKM7KX-FLM650

KME

KME EMC TESTING LABORATORY

Issue Date : February 8, 1999

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

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KME EMC TESTING LABORATORY

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EMI TEST REPORT ON ITE

1. Applicant : Kyushu Matsushita Electric Co., Ltd.
1-62, 4-CHOME, MINOSHIMA
HAKATA-KU FUKUOKA, 812-8531 JAPAN
2. Description of Device : Multi Function Plain Paper FAX
 - a) Type of EUT : Desk-top Type
 - b) Category : **CLASS B**
 - c) FCC I/D : **ACJKM7KX-FLM650**
 - d) Trade Name : **Panasonic**
 - e) Model No. : **KX-FLM650**
 - f) Serial No. : ---
 - g) Date of Manufacture : January, 1999
 - h) Power Supply : AC120V 60Hz
3. Date of Receipt and Measurement : February 4, 5 1999
4. Regulations Applied : FCC Rules and Regulations Part 15
Subpart B-Unitentional Radiators.
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.

February 8, 1999

Chikito Kuwano
Quality Manager

C. Kuwano

KME

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

- 1) Configuration of EUT : Refer to the sheet No.6,7
- 2) Operating Condition : Idling, Receiving, Transmitting, Copying,
Scanning, Printing, Receiving into P.C.,
Transmitting from P.C.,MEMO(REC)
- 3) EUT Grounding : Grounded at the plugged of the line cord
- 4) Power Rating : AC120V 60Hz

1-1 RADIATED EMISSION MEASUREMENTS [30M-1GHz][FCC Part 15](CLASS B)

[Test Site : Open Area Test Site]

*** TEST CONDITION OF INSTRUMENT**

EUT Warm-up Time : 30 minutes

- 1) Resolution Bandwidth : 120kHz DATA : February 5, 1999
- 2) Detector Function : QP(30-1000MHz) Temp.: 09 °C Humi.: 65 %

Idling,Receiving,Transmitting,Copying,Scanning,

Printing,Receiving into P.C,Transmitting from P.C.,MEMO(REC) mode

EMISSION FREQUENCY (MHz)	ANTENNA POLARITY (H, V)	METER READING at 3 m (dB μ V)	ANTENNA FACTOR AND PREAMPGAIN (dB/m)	EMISSION LEVEL at 3m (dB μ V/m)	FCC CLASS B LIMIT (dB μ V/m)
48.021	V (Idling)	56.7	-20.3	36.4	40.0
71.847	V (Rece P.C)	54.8	-17.7	37.1	40.0
99.224	V (Idling)	49.7	-15.9	33.8	43.5
119.784	V (Printing)	49.7	-13.4	36.3	43.5
143.711	H (Idling)	48.3	-11.9	36.4	43.5
180.043	V (Copying)	46.1	-9.4	36.7	43.5
195.065	H (Printing)	49.5	-8.7	40.8	43.5
233.868	H (Printing)	41.2	-7.2	34.0	46.0
267.286	V (Printing)	42.8	-5.1	37.7	46.0
280.082	H (Idling)	35.8	-5.0	30.8	46.0
322.605	H (Trance P.C)	46.0	-5.1	40.9	46.0
435.098	V (Printing)	43.0	-0.9	42.1	46.0
668.191	V (Printing)	37.4	5.3	42.7	46.0
801.785	V (Trance P.C)	35.6	7.6	43.2	46.0
870.000	V (Receiving)	25.4	9.3	34.7	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 48.021 MHz
56.7 (dB μ V) -20.3 (dB/m) =36.4 (dB μ V/m)

Reviewed by : M. Horie

M. Horie

1-2 AC POWERLINE CONDUCTED MEASUREMENTS(0.45M-30MHz) [FCC Part15] (CLASS B)

[Test Site : Shielded Room]

*** TEST CONDITION OF INSTRUMENT**

EUT Warm-up Time : 30 minutes

1) Resolution Bandwidth : 9 kHz

DATE : February 04, 1999

2) Detector Function : QP

Temp.: 24 °C Humi.: 45 %

Idling,Receiving,Transmitting,Copying,Scanning,

Printing,Receiving into P.C,Transmitting from P.C.,MEMO(REC) mode

	EMISSION FREQUENCY (MHz)	METER READING (dB μ V)	LISN FACTOR (dB/m)	EMISSION LEVEL	FCC CLASS B LIMIT
				(dB μ V)	(dB μ V)
Va	0.4500	12.8 (Copying)	-0.1	12.7	47.9
	1.0170	27.8 (Printing)	0.0	27.8	47.9
	1.4940	28.6 (Printing)	0.0	28.6	47.9
	2.1030	30.6 (Printing)	0.1	30.7	47.9
	6.1080	30.9 (Copying)	0.2	31.1	47.9
	10.5190	30.0 (Printing)	0.3	30.3	47.9
	16.0150	30.9 (Printing)	0.6	31.5	47.9
	25.1790	29.9 (Copying)	0.9	30.8	47.9
	27.8930	33.4 (Printing)	1.1	34.5	47.9
	30.0000	32.7 (Transmittin	1.1	33.8	47.9
Vb	0.4500	11.2 (Printing)	-0.1	11.1	47.9
	1.0170	24.2 (Scanning)	0.0	24.2	47.9
	1.4940	25.8 (Transmittin	0.0	25.8	47.9
	2.1030	25.5 (Copying)	0.1	25.6	47.9
	6.1080	25.1 (Printing)	0.2	25.3	47.9
	10.5190	29.2 (Receiving)	0.3	29.5	47.9
	16.0150	30.6 (Printing)	0.6	31.2	47.9
	25.1790	28.7 (Copying)	0.9	29.6	47.9
	27.8930	32.2 (Receiving)	1.1	33.3	47.9
	30.0000	31.4 (Idling)	1.1	32.5	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

12.8 (dB μ V) -0.1 (dB/m)= 12.7 (dB μ V)

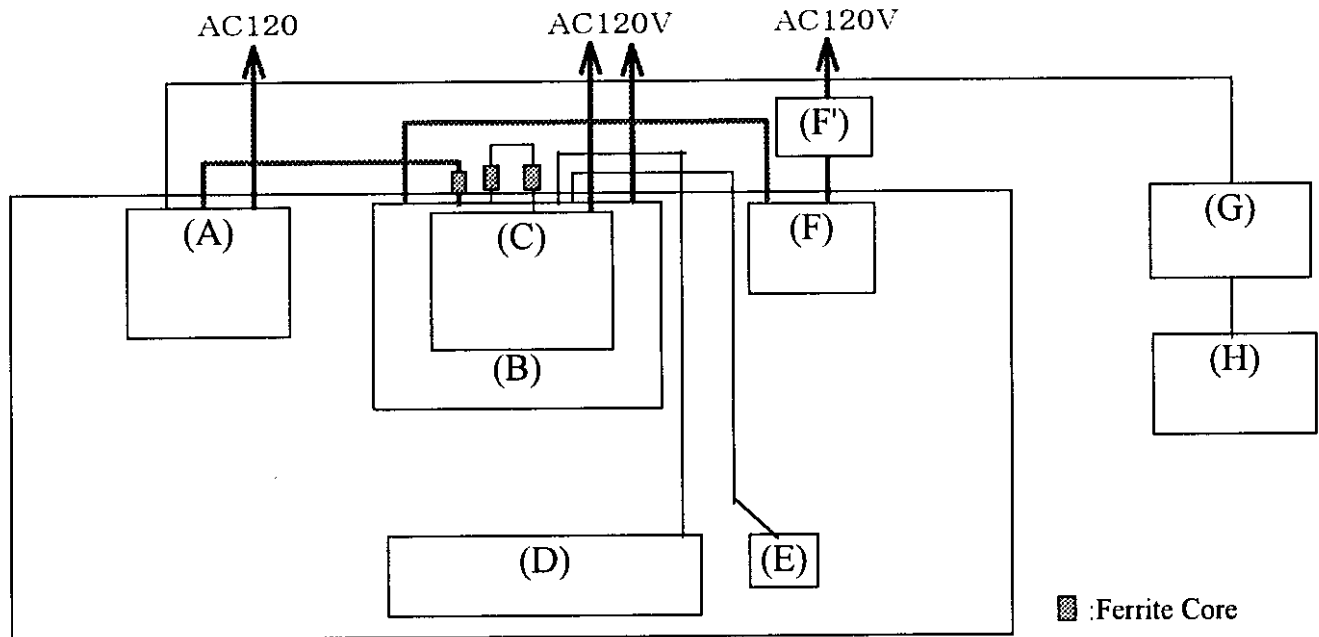
Reviewed by : M. Horie

KME

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

Configuration of EUT

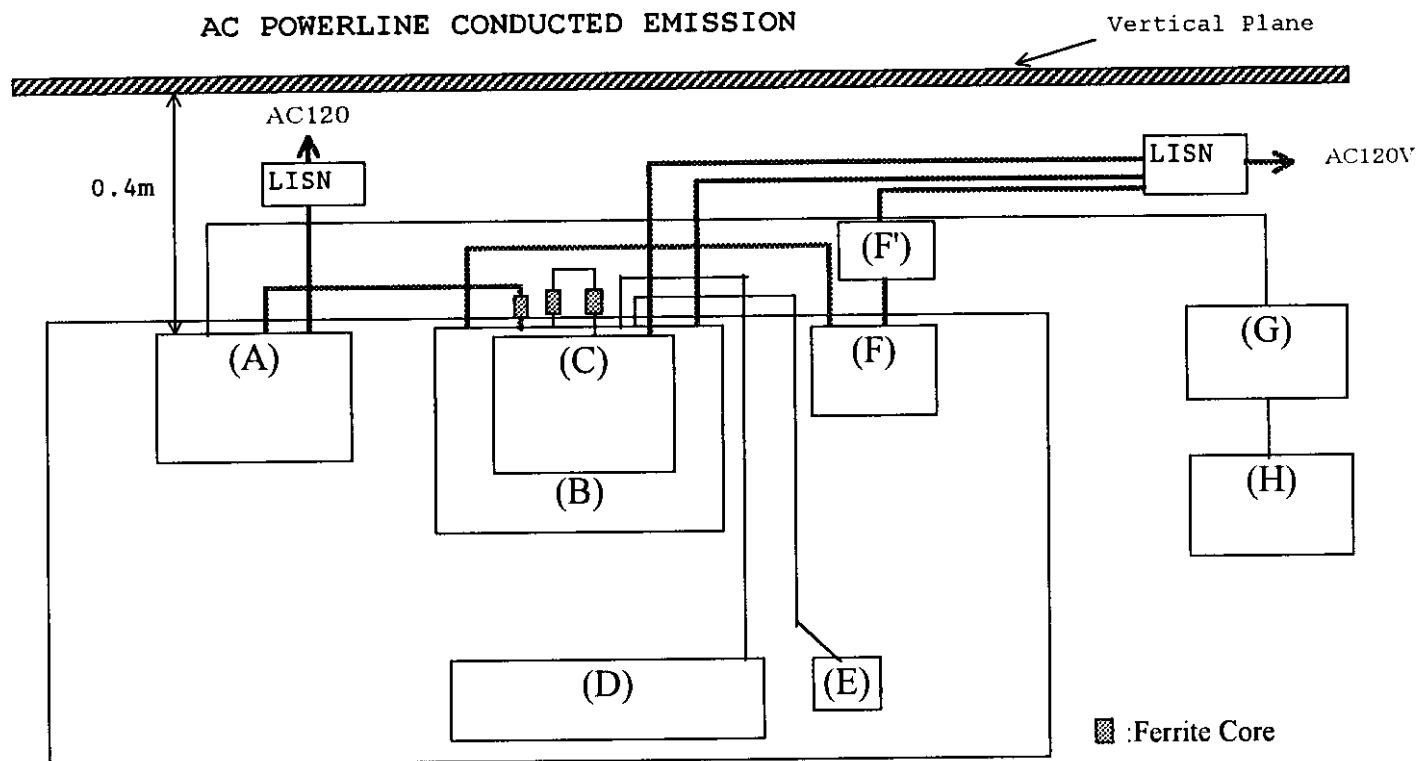
RADIATED EMISSION



		Model No. [Manufacture]	Serial No.	FCC ID
A	Multi Function Plain Paper FAX [EUT]	KX-FLM650 [Panasonic]	---	ACJKM7KX-FLM650
B	Personal Computer	PC3100 6200K L [DEC]	TA808P1031	DOC (Self-Declaration)
C	Display	PCXBV-YW [DEC]	1K63615952	BEJCS581
D	Keyboard	KB-3920 [DEC]	9S80706346	E8HKB-5923
E	Mouse	M-S34 [DEC]	LC80705770	DZL211029
F	MODEM	3715-A1-201 [AT&T]	9124385	DK4F1114VR6
F'	AC Adapter for MODEM	AM-91000A [AT&T]	---	---

[Remotely Located Devices]

		Model No. [Manufacture]	Serial No.	FCC ID
G	Telephone Line Simulator	LS1000 [Digital Design Systems]	---	---
H	Telephone Answering System with Facsimile	KX-F800 [Panasonic]	5AAYA001062	---

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

		Model No. [Manufacture]	Serial No.	FCC ID
A	Multi Function Plain Paper FAX [EUT]	KX-FLM650 [Panasonic]	---	ACJKM7KX-FLM650
B	Personal Computer	PC3100 6200K L [DEC]	TA808P1031	DOC(Self-Declaration)
C	Display	PCXBV-YW [DEC]	1K63615952	BEJCS581
D	Keyboard	KB-3920 [DEC]	9S80706346	E8HKB-5923
E	Mouse	M-S34 [DEC]	LC80705770	DZL211029
F	MODEM	3715-A1-201 [AT&T]	9124385	DK4F1114VR6
F'	AC Adapter for MODEM	AM-91000A [AT&T]	---	---

[Remotely Located Devices]

		Model No. [Manufacture]	Serial No.	FCC ID
G	Telephone Line Simulator	LS1000 [Digital Design Systems]	---	---
H	Telephone Answering System with Facsimile	KX-F800 [Panasonic]	5AAYA001062	---

2-3 Type of Interface Cables

[Main Frame]		[Peripheral]		[Length]	Number
EUT (A) ---- (KX-FLM650)	Telephone Line Simulator(G)	Plastic Hoods, Unshielded Flat Cable	10.0 m	1	
EUT (A) ---- (KX-FLM650)	Personal Computer(B)	Plastic Hoods, Shielded Circular Cable (Ferrite Core at the end of the cable)	2.0 m	1	
Personal(B) ---- Computer	Display(C)	Plastic Hoods, Shielded Circular Cable (Two ferrite Cores at the ends of the cable)	1.7 m	1	
Personal(B) ---- Computer	MODEM(F)	Plastic Hoods, Shielded Circular Cable	1.8 m	1	
Personal(B) ---- Computer	Keyboard(D)	Plastic Hoods, Unshielded Circular Cable	1.8 m	1	
Personal(B) ---- Computer	Mouse(E)	Plastic Hoods, Unshielded Circular Cable	1.8 m	1	
Telephone(G)---- Line Simulator	Telephone Answering System with FAX(H)	Plastic Hoods, Unshielded Flat Cable	2.0 m	1	

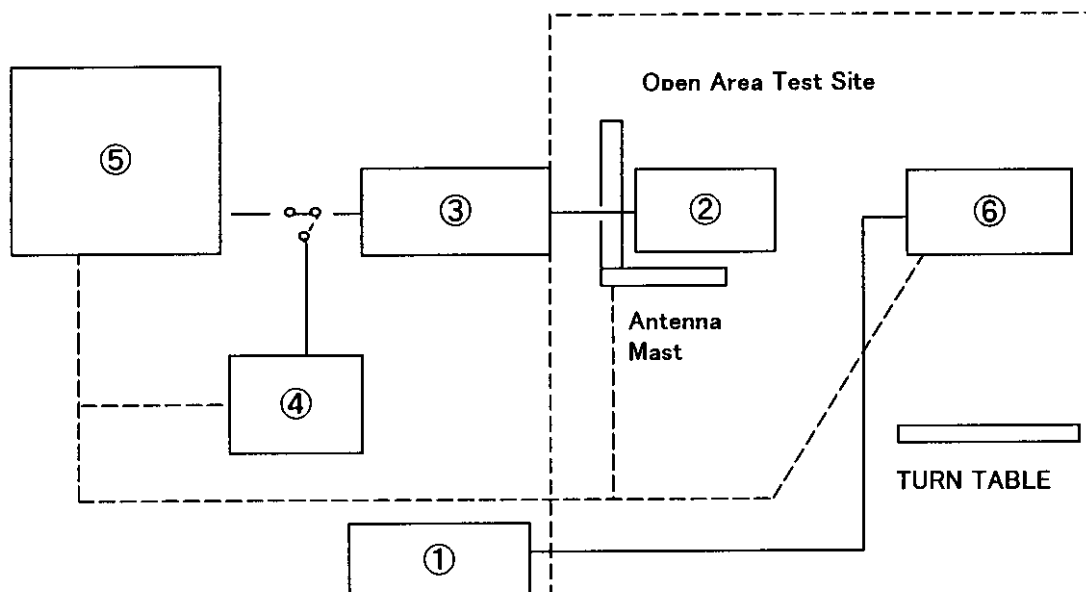
2-4. Arrangement of the Interface Cables

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.

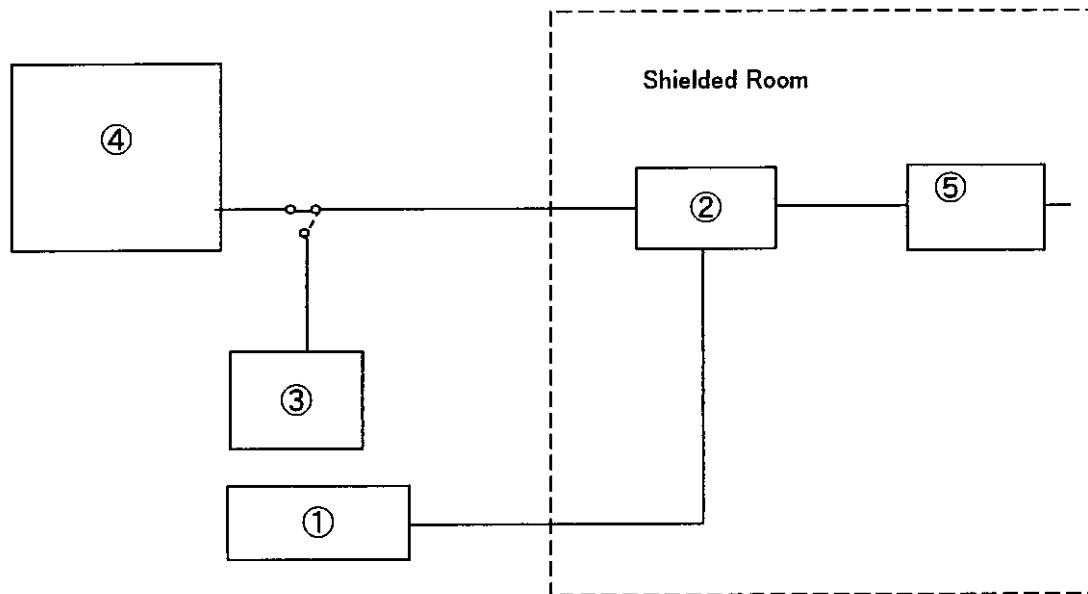
[4] TEST ARRANGEMENT AND LIST OF INSTRUMENTS

4.1 TEST EQUIPMENTS OF RADIATED EMISSION MEASUREMENTS



	Apparatus	Model No. (Manufacture)	Spec.	Calibrated Untill	Serial No.
①	3 or 1 phase AC SUPPLY	ACF-N F-Class (YAHATA DENKI)	50Hz/60Hz MAX 1Φ 264V	---	---
②	Antenna	KBA-511A (KYORITSU) KBA-611 (KYORITSU) KBA522 (KYORITSU)	30 - 500MHz(Dipole) 500 - 1000MHz(Dipole) 25 - 80MHz(Dipole)	Jan.1999 Jan.1999 Oct.1999	--- --- ---
③	Pre-Amplifier	8447D (hp)	0.1-1300MHz	Feb.1999	2443A04523
④	Spectrum Analyzer	TR4135 (Advantest)	0.01~3600MHz	Feb.1999	51730129
⑤	EMI Receiver	ESVS10 (R & S)	20-1300MHz	Feb.1999	844106/014
⑥	Main Unit EUT	KX-FLM650 (ACJKM7KX-FLM650)	---	---	---

4.2 TEST EQUIPMENTS OF CONDUCTED MEASUREMENTS



	Apparatus	Model No. (Manufacture)	Spec.	Calibrated Untill	Serial No.
①	3 or 1 phase AC SUPPLY	FUK-23749-2 (NF)	50Hz/60Hz MAX 1 Φ 264 V	---	---
②	LISN	KNW-407	1 Φ 250 V 15A	Feb.1999	---
③	Spectrum Analyzer	TR4135 (Advantest)	10KHz~3.6GHz	Feb.1999	67800024
④	EMI Receiver	ESHS10 (R&S)	9KHz~30MHz	Feb.1999	845635/003
⑤	Main Unit EUT	KX-FLM650 (ACJKM7KX-FLM650)	---	---	---

[5] ATTACHMENT

5.1 RADIATED EMISSION MEASUREMENTS

[Attachment Sheet No.]

* QP Data ----- Sheet 1 of 2 Sheets
Idling,Receiving,Transmitting,Copying,Scanning,
Printing,Receiving into P.C,Transmitting from P.C.,MEMO(REC) mode
(Horizontal/Vertical, 30-300MHz)

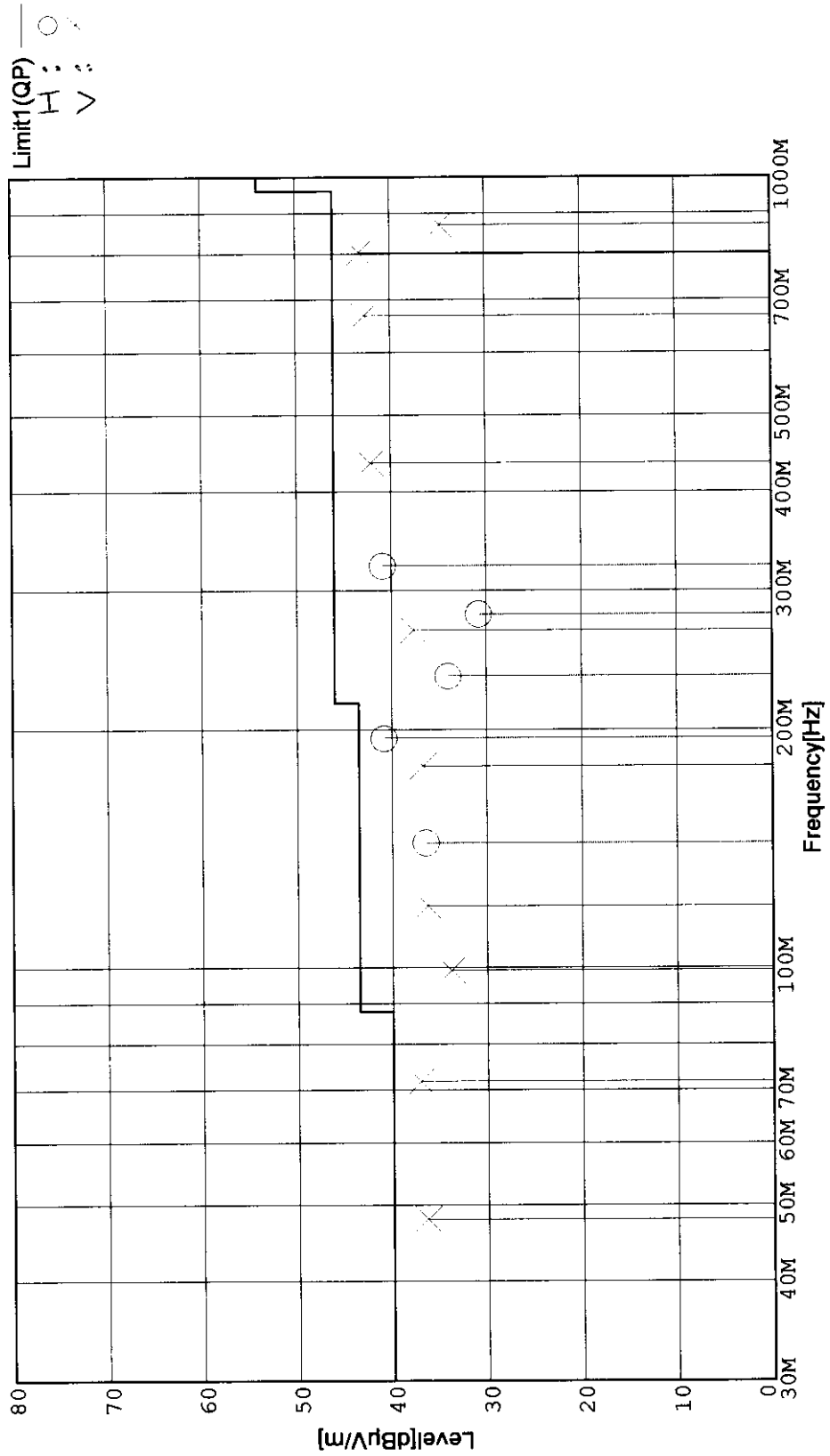
5.2 AC POWERLINE CONDUCTED MEASUREMENTS

* QP Data ----- Sheet 2 of 2 Sheets
Idling,Receiving,Transmitting,Copying,Scanning,
Printing,Receiving into P.C,Transmitting from P.C.,MEMO(REC) mode
(Va/Vb, 0.45-30MHz)

RADIATED EMISSION

Model Name : Multi Function Plain FAX
 Parts No. : KX-FLM650
 Serial No. :
 Detector : QP
 Points : 15
 Limit1: [FCC Part 15] Class B<3m>

Temp. : 9
 Humi.% : 65%
 Comment :
 Date : 1999.2.5
 EMI Receiver(s):



LINE CONDUCTION

Model Name : Multi Function Plain Paper FAX
 Parts No. : KX-FLM650
 Serial No. : ---
 Detector : QP
 Points : 20
 Limit1: [FCC Part15] Class B

Temp. : 24
 Humi.% : 45%
 Comment :
 Date : 1999.2.4
 EMI Receiver(s) :

