

MEASUREMENT REPORT

CLASS B DIGITAL DEVICE

Model No.: KX-FM280

FCC I/D : ACJKM7KX-FM280

KME

KME EMC SAGA SITE

April 21, 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,
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REPORT OF MEASUREMENT ON DIGITAL DEVICE

KME APPLICATION NO.: **SS98480**

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.
SEVENTH DIVISION
1-62, 4-CHOME, MINOSHIMA
HAKATA-KU, FUKUOKA, 812-8531 JAPAN
3. Description of Device: **Multi Function Plan Paper Facsimile**
 - a) Type of EUT : Desk-top Type
 - b) Category : Class B Digital Device
 - c) FCC I/D : ACJKM7KX-FM280
 - d) Trade Name : Panasonic
 - e) Model No. : **KX-FM280**
 - f) Serial No. : ---
 - g) Date of Manufacture : April, 1998
 - h) Power Supply : 120VAC 60Hz
4. Date of Measurement : April, 16, 17, 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): 72.03 MHz (V) 7.4dB (at page 2)
119.99 MHz (V) 7.4dB (at page 2)
Worst Margin(Conducted Emission): 0.47 MHz 4.4dB (at page 4)

April 21, 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. 8
- 2) Operating Condition : Idling, Receiving, Transmitting, Copying, Scanning, Printing, Receiving Into P.C., Transmitting from P.C., TAM Recording
- 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

DATE: April 16, 1998

2) Detector Function : QP

Temp.: 33 °C Humi.: 63 %

EMISSION FREQUENCY (MHz)	ANTENNA POLARITY (H,V)	METER READING at 3 m (dB μ V)	ANTENNA FACTOR AND PREAMPGAIN (dB)	EMISSION LEVEL at 3 m		FCC LIMIT at 3m (μ V/m)
				(dB μ V/m)	(μ V/m)	
36.00	V	58.0	-25.6	32.4	41.7	100
36.00	H	51.0	-25.6	25.4	18.7	100
72.03	V	52.1	-19.5	32.6	42.7	100
72.03	H	45.4	-19.5	25.9	19.8	100
98.20	V	48.2	-16.9	31.3	36.8	150
98.20	H	50.9	-16.9	34.0	50.2	150
119.99	V	51.0	-14.9	36.1	63.9	150
119.99	H	46.5	-14.9	31.6	38.1	150
168.02	V	45.4	-11.3	34.1	50.7	150
168.02	H	44.7	-11.3	33.4	46.8	150
180.00	V	42.8	-10.4	32.4	41.7	150
180.00	H	45.5	-10.4	35.1	56.9	150
215.04	V	39.4	-8.2	31.2	36.4	150
215.04	H	44.3	-8.2	36.1	63.9	150
268.81	V	39.0	-6.0	33.0	44.7	200
268.81	H	43.6	-6.0	37.6	75.9	200
284.72	V	27.6	-4.9	22.7	13.7	200
284.72	H	42.5	-4.9	37.6	75.9	200
312.00	V	33.0	-3.7	29.3	29.2	200
312.00	H	43.2	-3.7	39.5	94.5	200
432.01	V	33.0	0.3	33.3	46.3	200
432.01	H	36.0	0.3	36.3	65.4	200
750.00	H/V	22.9	8.6	31.5	37.6	200
820.00	H	27.5	9.7	37.2	72.5	200
820.00	V	25.5	9.7	35.2	57.6	200

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

2) Sample of calculation at 36.00 MHz

$$58.0 \text{ (dB } \mu \text{V)} - 25.6 \text{ (dB } \mu \text{V/m)} = 32.4 \text{ (dB } \mu \text{V/m)}$$

$$32.4 / 20 = 1.620 / 20$$

$$10 = 10 = 41.7 \text{ (} \mu \text{V/m)}$$

Certified by : Y. Matsuda

Y. Matsuda

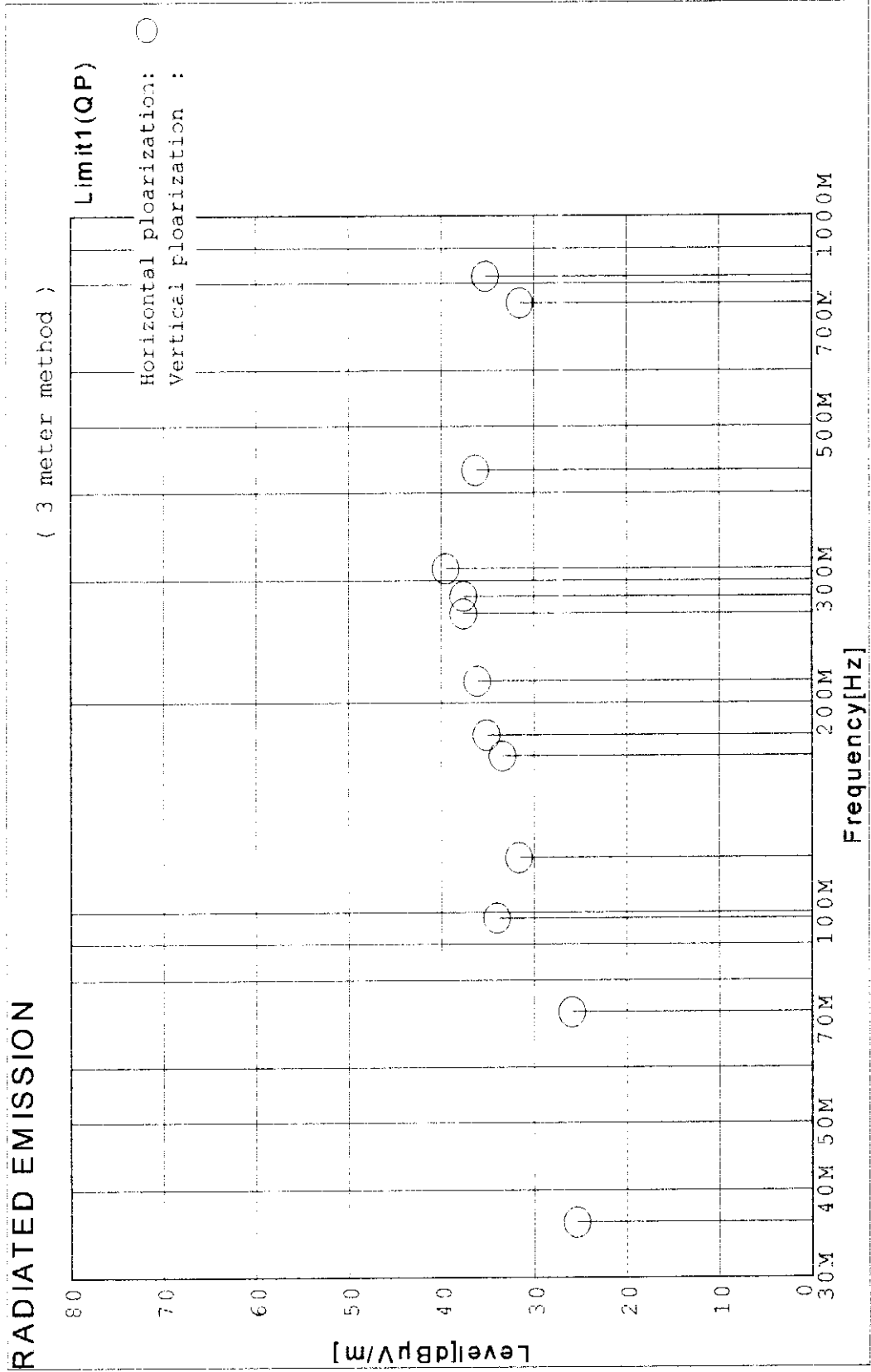


KME APPLICATION No. SS98480

Model No. KX-FM280

Sheet 3 of 11 Sheets

RADIATED EMISSION MEASUREMENTS



2. AC POWERLINE CONDUCTED MEASUREMENTS

[Test Site : Shielded Room]

*** TEST CONDITION OF INSTRUMENT**

EUT Warm-up Time : 30 minutes

- 1) Resolution Bandwidth : 9 kHz
- 2) Detector Function : QP

DATE : April 17, 1998
 Temp.: 24 °C Humi.: 45 %

	EMISSION FREQUENCY (MHz)	METER READING (dB μ V)	LISN FACTOR (dB)	EMISSION LEVEL		F C C LIMIT (μ V)
				(dB μ V)	(μ V)	
Va	0.47	42.4	-0.1	42.3	130.4	250
	1.88	36.6	0.0	36.6	67.7	250
	2.47	36.8	0.1	36.9	70.0	250
	5.65	40.0	0.1	40.1	101.2	250
	15.20	36.6	0.5	37.1	71.7	250
	15.91	40.0	0.6	40.6	107.2	250
	23.99	32.4	0.9	33.3	46.3	250
	28.64	41.3	1.1	42.4	131.9	250
Vb	0.47	43.6	-0.1	43.5	149.7	250
	1.88	34.3	0.0	34.3	51.9	250
	2.47	33.6	0.1	33.7	48.5	250
	5.65	40.0	0.1	40.1	101.2	250
	15.20	38.3	0.5	38.8	87.1	250
	15.91	40.9	0.6	41.5	118.9	250
	23.99	32.6	0.9	33.5	47.4	250
	28.64	41.0	1.1	42.1	127.4	250

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

2) Sample of calculation at 0.47 MHz

$$42.4 \text{ (dB } \mu \text{ V)} - 0.1 \text{ (dB } \mu \text{ V)} = 42.3 \text{ (dB } \mu \text{ V)}$$

$$42.3 / 20 = 2.115$$

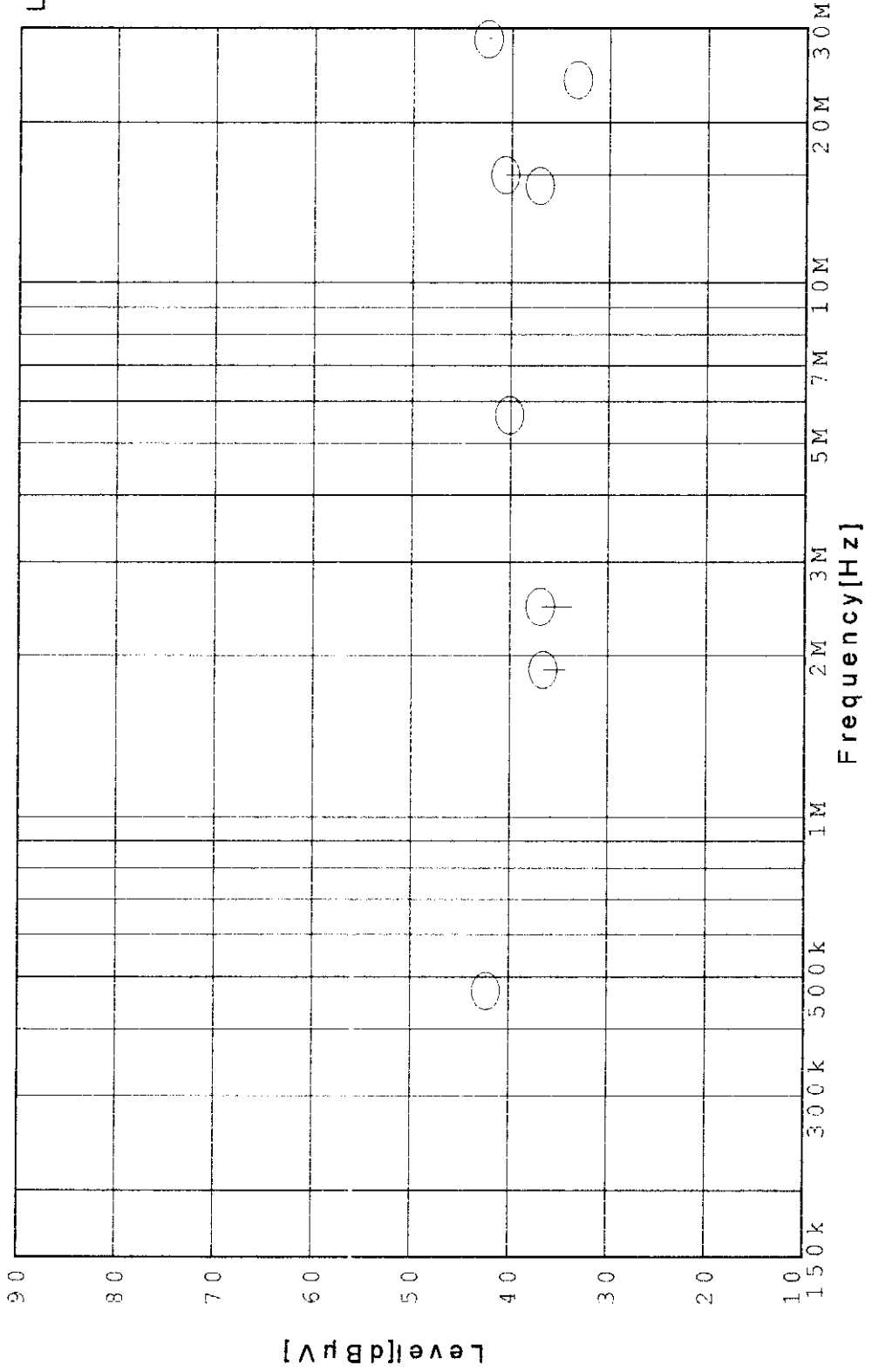
$$2.115 \times 10 = 21.15$$

$$21.15 \times 6 = 126.9 \approx 130.4 \text{ (} \mu \text{ V)}$$

Certified by : Y. Matsuda *Y. Matsuda*

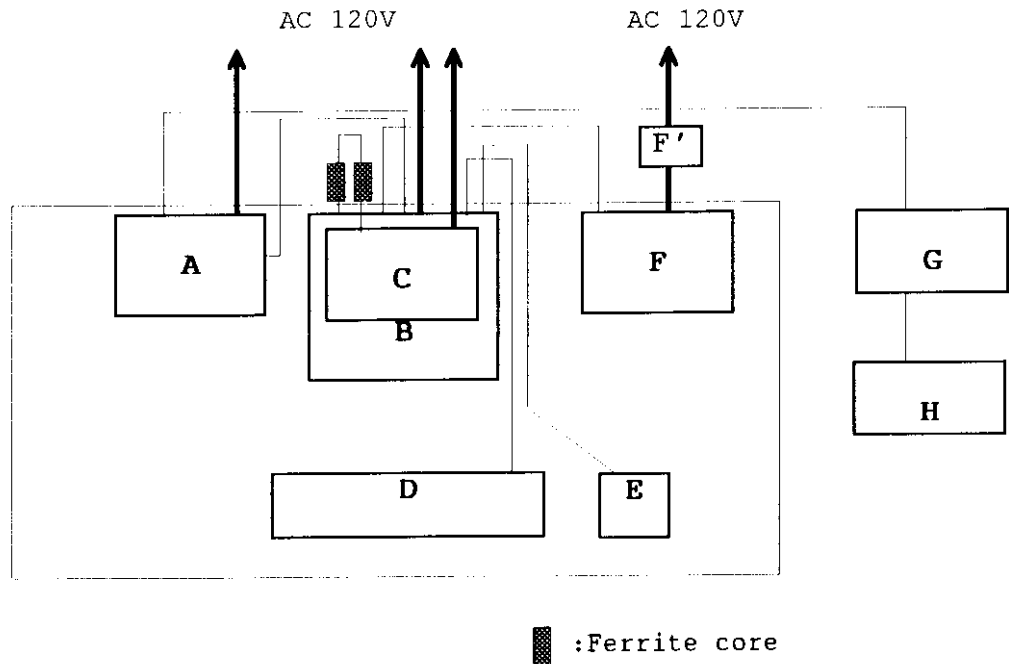
KME APPLICATION No. SS98460
Model No. KX-FM280

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
A	Multi Function Plan Paper Facsimile	KX-FM280 [Panasonic]	---	ACJKM7KX-FM280
B	Personal Computer	PROLINEA4/100 [Compaq]	7428HKE40126	CNT75MBF7LM
C	Display	PCXBV-YW [digital]	1K61901128	BEJCS581
D	Keyboard	RT6674TJP [Compaq]	51442247	AQ6ZG-RT687XT
E	Mouse	MUS4J [Compaq]	1D767AN03669	KH2MUSJC
F	Printer	K10152 [CANNON]	XAM53361	AZDK10152
F'	AC Adapter for Printer	AD-300 [CANNON]	---	---

[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	---

[2-2] TYPE OF INTERFACE CABLES

[Main Frame]	[Peripheral]	(Length)	Number
E U T (A) (KX-FM280)	----- Telephone Line Simulator (G) Plastic Hoods, Unshielded Flat Cable	10.0 m	1
E U T (A) (KX-FM280)	----- Personal Computer (B) Plastic Hoods, Unshielded Circular Cable	1.5 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	----- Printer (F) Plastic Hoods, Shielded Circular Cable	1.5 m	1
Personal (B) Computer	----- Keyboard (D) Plastic Hoods, Unshielded Curl Cable	1.0 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

[2-3] Arrangement of the Interface Cables

Refer to the photographs.

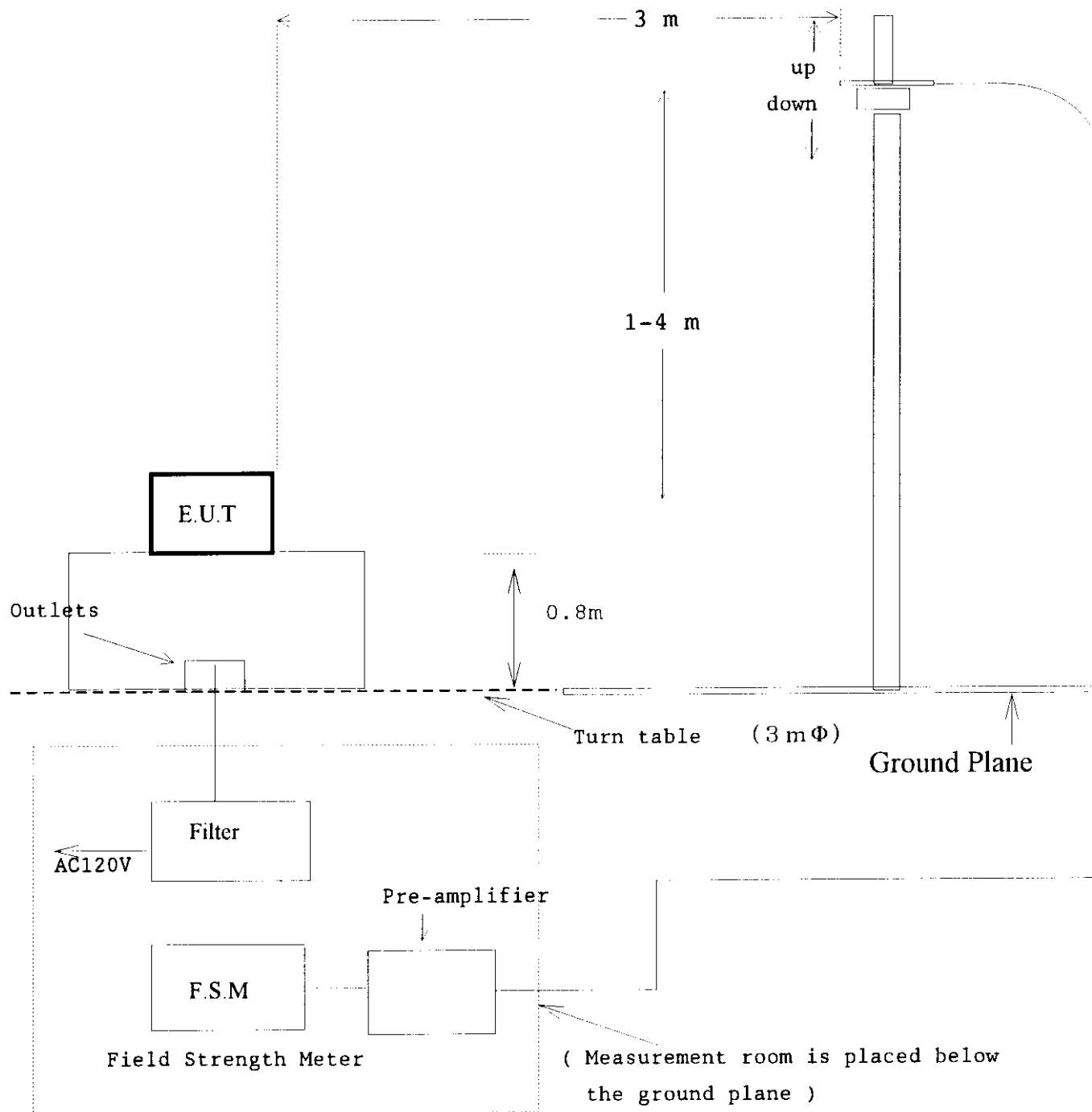
These interface cables were positioned so as to produce the highest maximum at every frequency between 30 MHz and 1000 MHz, being within the manner assumed to be a typical operating condition.

[4] TEST ARRANGEMENT

-- Test setup --

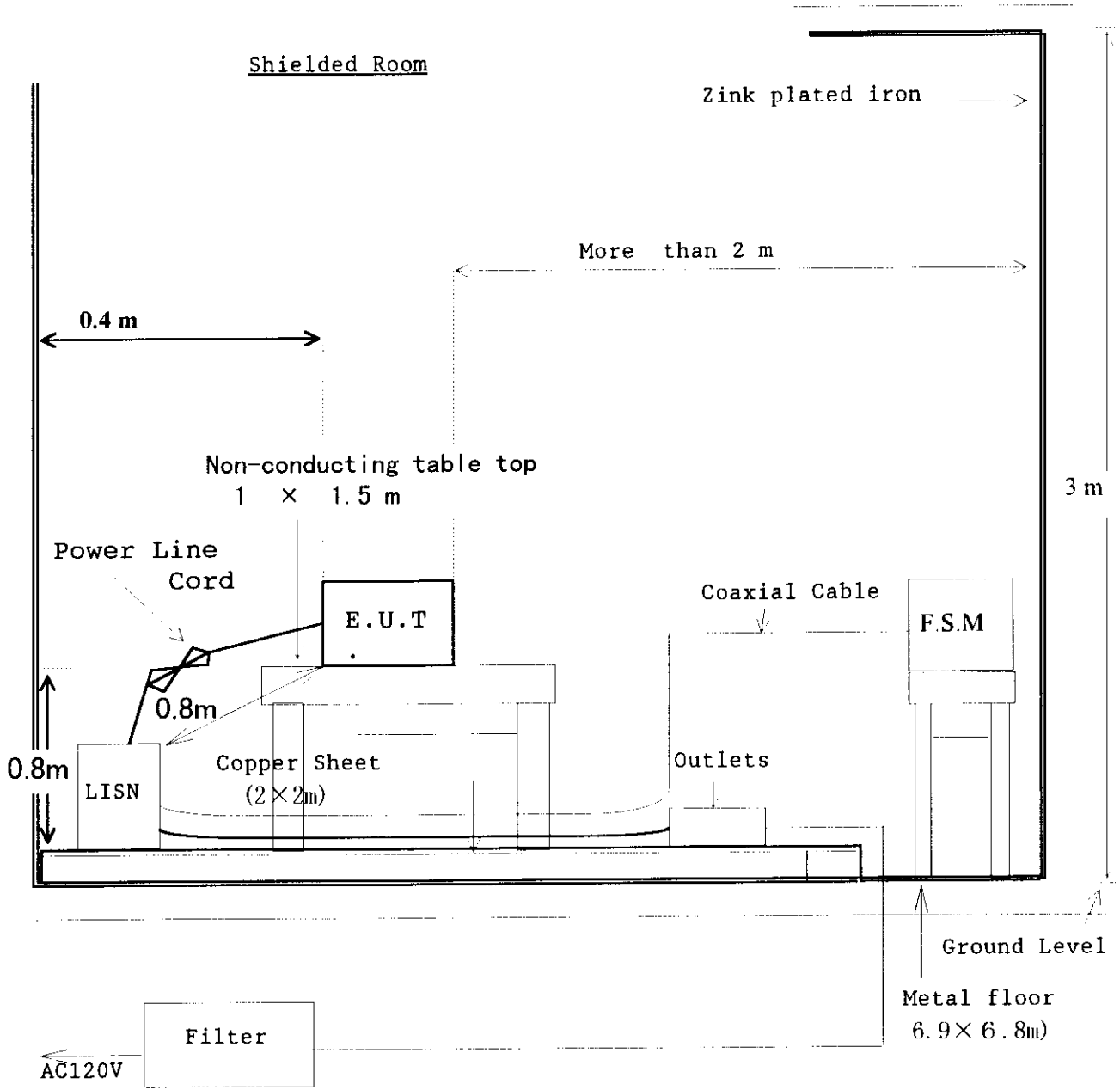
[4-1] RADIATED EMISSION MEASUREMENTS

Open Test Site



-- Test setup --

[4-2] AC POWERLINE CONDUCTED MEASUREMENTS



[5] LIST OF TEST EQUIPMENT

[Measuring Apparatus]	[Model]	[Calibrated Untill]
* Field Strength Meter Rohde & Schwarz 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)	ESH3	Feb. 1999
* Field Strength Meter Rohde & Schwarz Frequency Range : 20 - 1300 MHz Detector Function : CISPR Quasi Peak IF Bandwidth : 120 KHz (20 - 1300 MHz)	ESVP	Feb. 1999
* Pre-amplifier Hewlett Packard Frequency Range : 0.1 - 1300 MHz Gain : 27 +1 dB	8447D	Feb. 1999
* Spectrum Analyzer ADVANTEST Frequency Range : 0.01 - 3600 MHz	TR4135	Feb. 1999
* Line Impedance Kyoritsu Electrical Stabilization Network Works, Ltd. (LISN) (50 μ H/50 Ω)	KNW-407	Feb. 1999
* Dipole Antenna Kyoritsu Electrical Works, Ltd. Tuning Range : 30 - 500 MHz Tuning Range : 500 - 1000 MHz	KBA-511A KBA-611	Jan. 1999 Jan. 1999