

(EMI)

TEST REPORT

REPORT NUMBER : TR 99-S0020I

APPLICANT : KYUSHU MATSUSHITA ELECTRIC CO.,LTD
PRINTER DIVISION

MODEL NUMBER : KX-P3196

REGULATION : FCC Rules and Regulations Part 15
Subpart B-Unitentional Radiators

ISSUE DATE : November 10,1999

Kyushu Matsushita Electric
EMC Testing Laboratory

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KME

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SECTION 1. EMI TEST REPORT ON EUT**APPLICANT INFORMATION**

Company	: Kyushu Matsushita Electric Co., Ltd.
	Printer Division
Address	: 1471 Murata-cho, Tosu, Saga, 841-8501 Japan
Telephone number	: TEL 0942-81-2793 (+81-42-81-2793)
Fax number	: FAX 0942-81-2794 (+81-42-81-2794)

DESCRIPTION OF TEST ITEM

Kind of equipment	: DOT MATRIX PRINTER
Condition of equipment	: Pre-Production
Type	: Desk-top Type
Trademark	: Panasonic
FCC ID	: ACJ5Z6KX-P3196
Model number	: KX-P3196
Serial number	: 9FMFGB02256
Power Supply	: AC 120V 60Hz

TEST PERFORMED

Location	: Kyushu Matsushita Electric EMC Testing Laboratory Open Area Test Site (FCC File No.:90754)
Address	: 1471 Murata-cho,Tosu, Saga, 841-8501 Japan
Receipt date	: June 1999
Test date	: October 21, 1999
Regulation	: FCC Rules and Regulations Part 15 Class B
Test procedure	: ANSI C63.4-1992

SECTION 2. TEST CERTIFICATION**1. Measurement Results**

The results obtained from The measuring of the above-mentioned device are as shown in the attached sheets. The results in this report apply only to the sample(s) tested.

2. Summary of results

Test sample complies with FCC Rules and Regulations
Part 15 Subpart B-Unintentional Radiators(class B).
Worst Margin (Radiated Emission)--86.270MHz (V) 5.8dB (at page 5)
Worst Margin(Conducted Emission)--0.5620MHz 6.0dB (at page 8)

3. These test results are traceable to the National and International Standards.**4. Measurement Uncertainty, at time of test, and at least 95% Confidence, was estimated to be as follows:**

Radiated Emission Measurement :
5.46dB(3m)(30-300MHz)
4.76dB(3m)(300-1GHz)

Conducted Emission Measurement:
2.40dB(0.09 - 1MHz)
2.63dB(1-30MHz)

Issue Date : November 10, 1999

Certifying Manager

: 

SECTION 3. TEST RESULT

3.1 Radiated Emission

The measurement was conducted the worst emissions condition.

(See Sheet Page5,6)

3.2 Conducted Emission

The measurement was conducted the worst emissions condition.

(See Sheet Page7,8)

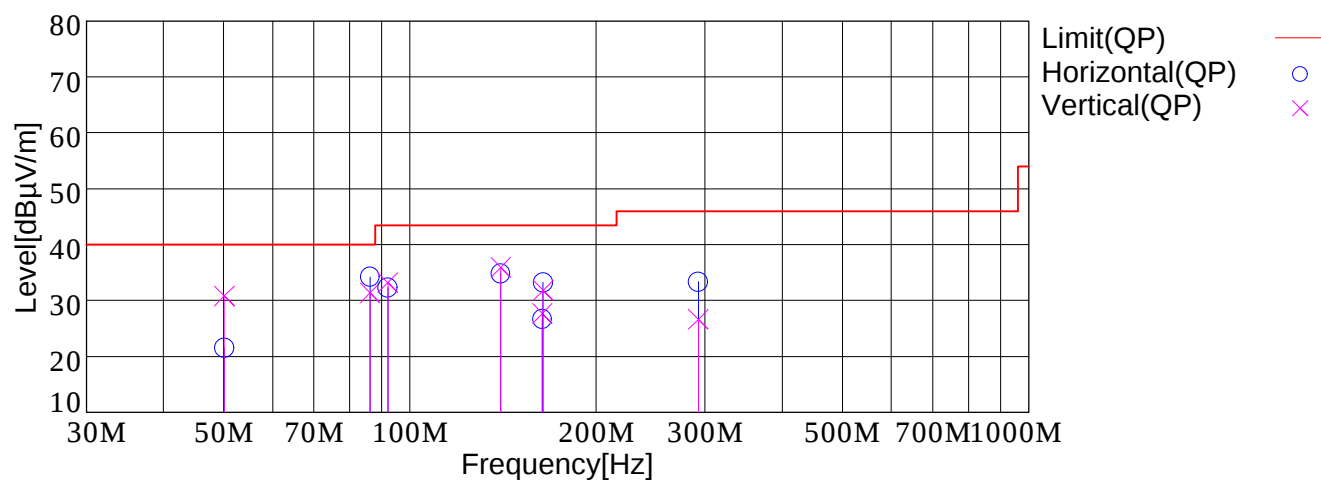
Tested by = H.Sugiyama

Reviewed by : M.Horie 

RADIATED EMISSION

			Test condition of instrument	
			Date	: 1999/10/21 9:02
Model Name	: Dot Matrix Printer	Temperature	: 29deg	
model No.	: KX-P3196	Humidity	: 71%	
Serial No.	: 9FMFGB02256	EUT Warm-up Time	: 30minutes	
Operator	: H.SUGIYAMA	Distance	: 3m	
Points	: 14	Test Mode	: Serial Mode	
Detector	: QP	Comment	: AC 120V 60Hz	
RBW	: 120KHz			

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



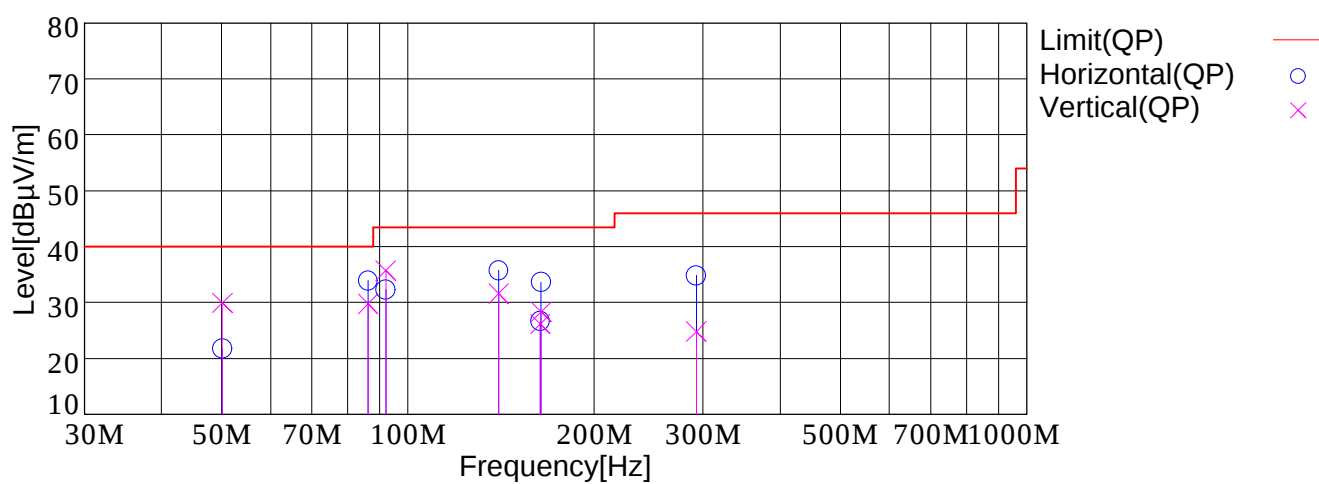
Frequency [MHz]	Meter Reading (QP) [dBμV]	Ant. Type	Antenna Factor [dB/m]	Cable & Preamp [dB]	Level(QP) [dBμV/m]	Angle[°]	Height [cm]	Pola.	Limit [dBμV/m]	Margin [dB]
50.147	41.4	DP	5.8	-25.7	21.5	20	300	Hori.	40.0	18.5
50.147	50.7	DP	5.8	-25.7	30.8	5	120	Vert.	40.0	9.2
86.270	51.6	DP	7.9	-25.3	34.2	170	365	Hori.	40.0	5.8
86.270	48.8	DP	7.9	-25.3	31.4	160	120	Vert.	40.0	8.6
92.177	49.2	DP	8.4	-25.3	32.3	155	330	Hori.	43.5	11.2
92.177	50.1	DP	8.4	-25.3	33.2	20	105	Vert.	43.5	10.3
140.233	47.7	DP	11.9	-24.8	34.8	11	280	Hori.	43.5	8.7
140.233	48.8	DP	11.9	-24.8	35.9	2	120	Vert.	43.5	7.6
163.700	37.8	DP	13.5	-24.6	26.7	330	375	Hori.	43.5	16.8
163.700	38.8	DP	13.5	-24.6	27.7	275	120	Vert.	43.5	15.8
164.218	44.2	DP	13.6	-24.6	33.2	20	250	Hori.	43.5	10.3
164.218	42.8	DP	13.6	-24.6	31.8	350	115	Vert.	43.5	11.7
292.389	39.0	DP	17.6	-23.3	33.3	20	320	Hori.	46.0	12.7
292.389	32.3	DP	17.6	-23.3	26.6	355	105	Vert.	46.0	19.4

DP: Dipole

RADIATED EMISSION

		Test condition of instrument	
		Date	: 1999/10/21
Model Name	: Dot Matrix Printer	Temperature	: 29deg
model No.	: KX-P3196	Humidity	: 71%
Serial No.	: 9FMFGB02256	EUT Warm-up Time	: 30minutes
Operator	: H.SUGIYAMA	Distance	: 3m
Points	: 14	Test Mode	: Parallel Mode
Detector	: QP	Comment	: AC 120V 60Hz
RBW	: 120KHz		

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



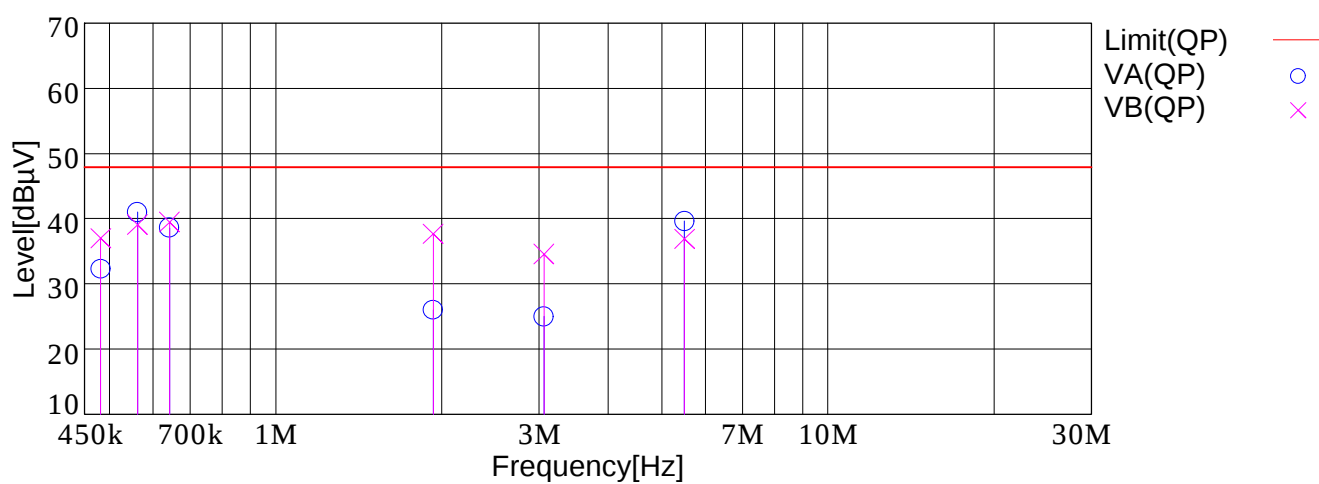
Frequency [MHz]	Meter Reading (QP) [dBμV]	Ant. Type	Antenna Factor [dB/m]	Cable & Preamplifier [dB]	Level(QP) [dBμV/m]	Angle[°]	Height [cm]	Pola.	Limit [dBμV/m]	Margin [dB]
50.147	41.6	DP	5.8	-25.7	21.7	15	320	Hori.	40.0	18.3
50.147	49.8	DP	5.8	-25.7	29.9	20	105	Vert.	40.0	10.1
86.270	51.3	DP	7.9	-25.3	33.9	355	320	Hori.	40.0	6.1
86.270	47.2	DP	7.9	-25.3	29.8	25	115	Vert.	40.0	10.2
92.177	49.2	DP	8.4	-25.3	32.3	355	365	Hori.	43.5	11.2
92.177	52.6	DP	8.4	-25.3	35.7	160	115	Vert.	43.5	7.8
140.233	48.6	DP	11.9	-24.8	35.7	12	325	Hori.	43.5	7.8
140.233	44.5	DP	11.9	-24.8	31.6	20	110	Vert.	43.5	11.9
163.700	37.8	DP	13.5	-24.6	26.7	20	365	Hori.	43.5	16.8
163.700	37.3	DP	13.5	-24.6	26.2	155	100	Vert.	43.5	17.3
164.218	44.6	DP	13.6	-24.6	33.6	25	250	Hori.	43.5	9.9
164.218	39.3	DP	13.6	-24.6	28.3	355	116	Vert.	43.5	15.2
292.389	40.5	DP	17.6	-23.3	34.8	25	330	Hori.	46.0	11.2
292.389	30.5	DP	17.6	-23.3	24.8	355	105	Vert.	46.0	21.2

DP: Dipole

LINE CONDUCTION

		Test condition of instrument	
Model Name	: Dot Matrix Printer	Date	: 1999/10/21
model No.	: KX-P3196	Temperature	: 24deg
Serial No.	: 9FMFGFB02256	Humidity	: 68%
Operator	: H.SUGIYAMA	EUT Warm-up Time	: 30minutes
Points	: 12	Test Mode	: Serial Mode
Detector	: QP	Comment	: AC 120V 60Hz
RBW	: 10KHz		

Limit: [FCC Part15] Class B

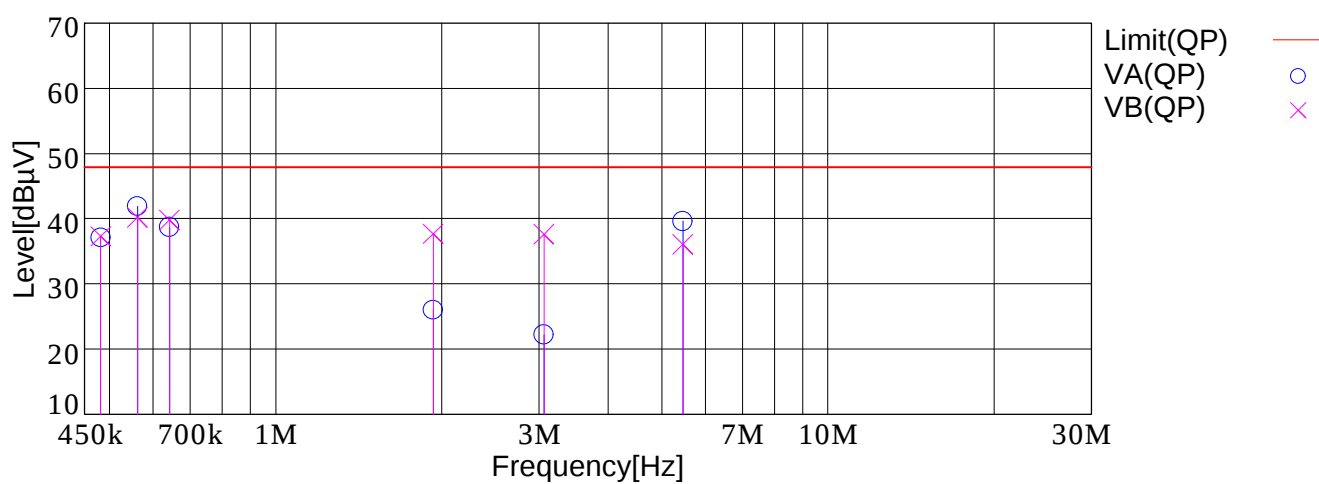


Frequency[MHz]	Meter Reading (QP)[dBμV]	Factor[dB]	Level(QP) [dBμV]	Line	Limit[dBμV]	Margin[dB]
0.4820	32.2	0.1	32.3	VA	47.9	15.6
0.4820	36.9	0.1	37.0	VB	47.9	10.9
0.5620	40.9	0.1	41.0	VA	47.9	6.9
0.5620	39.0	0.1	39.1	VB	47.9	8.8
0.6420	38.5	0.1	38.6	VA	47.9	9.3
0.6420	39.4	0.1	39.5	VB	47.9	8.4
1.9280	25.8	0.2	26.0	VA	47.9	21.9
1.9280	37.5	0.2	37.7	VB	47.9	10.2
3.0600	24.8	0.2	25.0	VA	47.9	22.9
3.0600	34.4	0.2	34.6	VB	47.9	13.3
5.5000	39.4	0.2	39.6	VA	47.9	8.3
5.5000	36.7	0.2	36.9	VB	47.9	11.0

LINE CONDUCTION

		Test condition of instrument	
Model Name	: Dot Matrix Printer	Date	: 1999/10/21
model No.	: KX-P3196	Temperature	: 24deg
Serial No.	: 9FMFGFB02256	Humidity	: 68%
Operator	: H.SUGIYAMA	EUT Warm-up Time	: 30minutes
Points	: 12	Test Mode	: ParallelMode
Detector	: QP	Comment	: AC 120V 60Hz
RBW	: 10KHz		

Limit: [FCC Part15] Class B



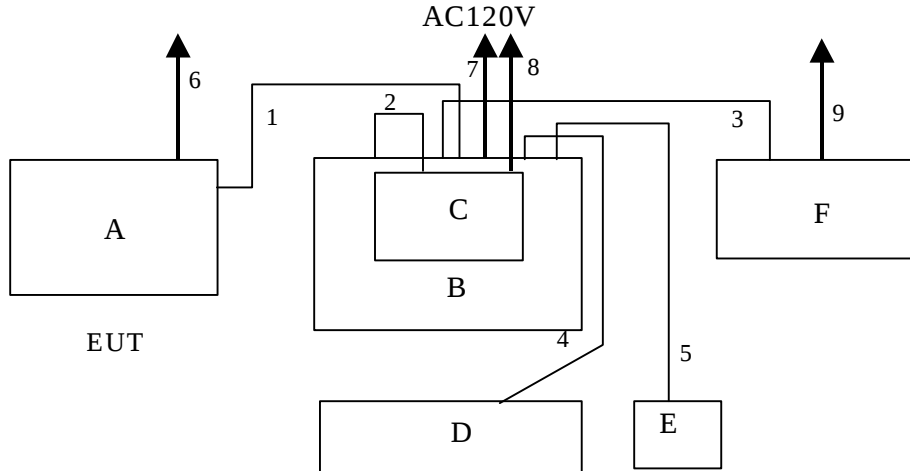
Frequency[MHz]	Meter Reading (QP)[dBμV]	Factor[dB]	Level(QP) [dBμV]	Line	Limit[dBμV]	Margin[dB]
0.4820	37.0	0.1	37.1	VA	47.9	10.8
0.4820	37.2	0.1	37.3	VB	47.9	10.6
0.5620	41.8	0.1	41.9	VA	47.9	6.0
0.5620	40.1	0.1	40.2	VB	47.9	7.7
0.6420	38.6	0.1	38.7	VA	47.9	9.2
0.6420	39.7	0.1	39.8	VB	47.9	8.1
1.9280	25.8	0.2	26.0	VA	47.9	21.9
1.9280	37.5	0.2	37.7	VB	47.9	10.2
3.0600	22.0	0.2	22.2	VA	47.9	25.7
3.0600	37.4	0.2	37.6	VB	47.9	10.3
5.4600	39.4	0.2	39.6	VA	47.9	8.3
5.4600	35.9	0.2	36.1	VB	47.9	11.8

SECTION 4. DESCRIPTION OF TEST EQUIPMENT

4.1 CONSTRUCTION OF EQUIPMENT

The Construction of EUT during the test as follows.

System configuration



Symbols or number assigned to equipment or cables on this diagram is used on tables in section 4.2 to 4.3.

4.2 EUT AND SUPPORT EQUIPMENT USED

The EUT was supported by the following equipment during the test. Indication in the following left side column corresponds to section 4.1

	Item	Model No. [Manufacturer]	Serial No.	FCC I/D
A	Dot Matrix Printer [EUT]	KX-P3196 [Kyushu Matsushita Electric Co., Ltd]	9FMFGB02256	ACJ5Z6KX-P3196
B	Personal Computer	Type 9576 [IBM Australia Ltd]	900A7089576	AN09576
C	Display	C1381i [Matsushita Electric Ind, Co., Ltd]	KH22333114	ACJ928KMX-F413
D	Keyboard	1391401 [IBM by Lexmark Int'l.inc.]	-----	AN09576
E	Mouse	33G5430 [IBM]	-----	DZ33G5430
F	Dot Matrix Printer	KX-P3200 [Kyushu Matsushita Electric Co., Ltd]	5LMDMA01050	ACJ5Z6KX-P3200

4.3 CABLE(s) USED

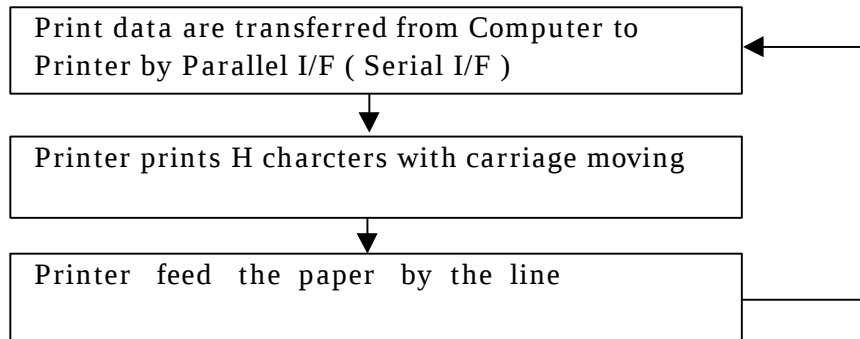
The following cable(s) was used for the test.

Indication number in the following left side column corresponds to Section 4.1.

Number	Name	Length	Shield	Con- nector	Ferrite core
1	Dot Matrix Printer [EUT]	2.0m	Yes	MetaIic	None
2	Display	1.8m	Yes	MetaIic	None
3	Printer	2.0m	Yes	MetaIic	None
4	Keyboard	2.6m	Yes	MetaIic	None
5	Mouse	2.7m	Yes	MetaIic	None
6	Power cord for EUT	1.7m	None	Plastic	None
7	Power cord for PC	2.0m	None	Plastic	None
8	Power cord for Display	1.8m	None	Plastic	None
9	Power cord for Printer	1.7m	None	Plastic	None

4.4 OPERATING CONDITIONS

The EUT was operated under the following conditions during the test.



4.5 Any deviations from, additons to or excusions from the test method

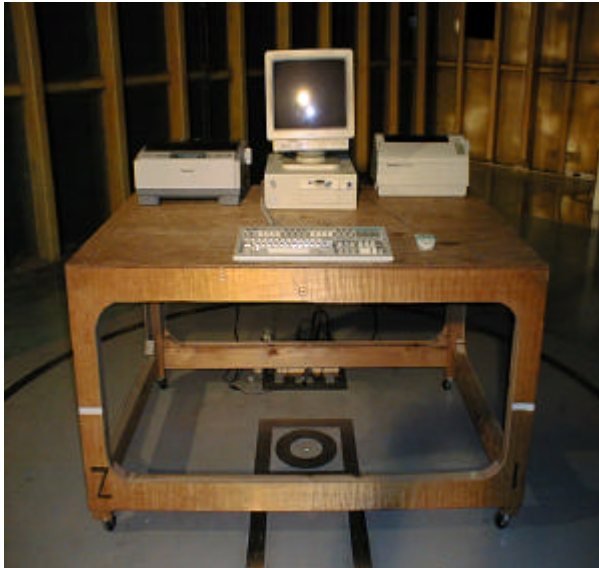
No deviation.

SECTION 5. PHOTOGRAPHS OF MAXIMUM EMISSION SET-UP

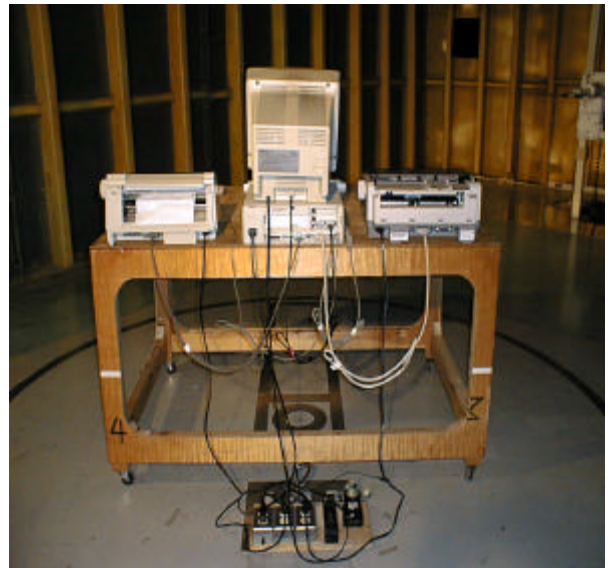
Radiated Emission Test

TEST REPORT

Test setup in accordance with ANSI C63.4-1992



Front view



Rear view

Conducted Emission Test

Test setup in accordance with ANSI C63.4-1992



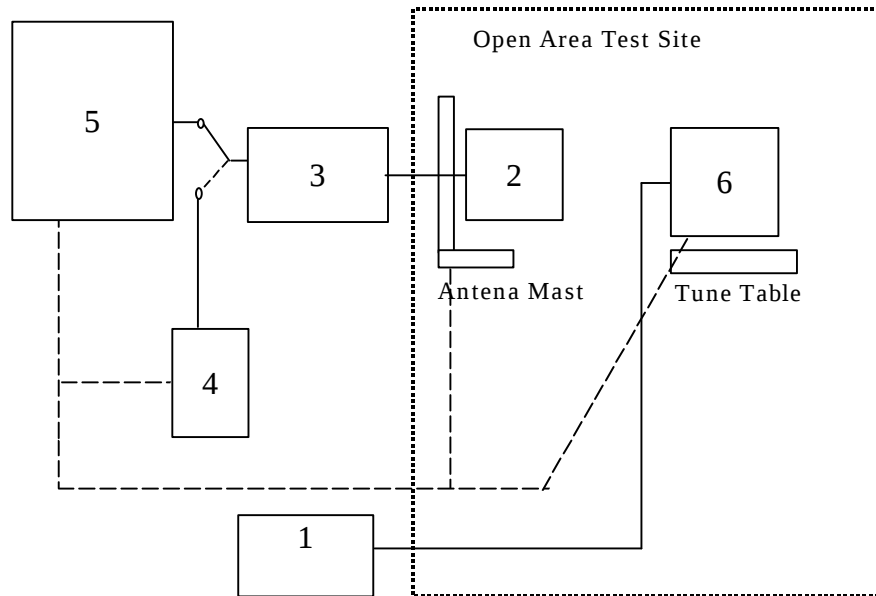
Front view



Side view

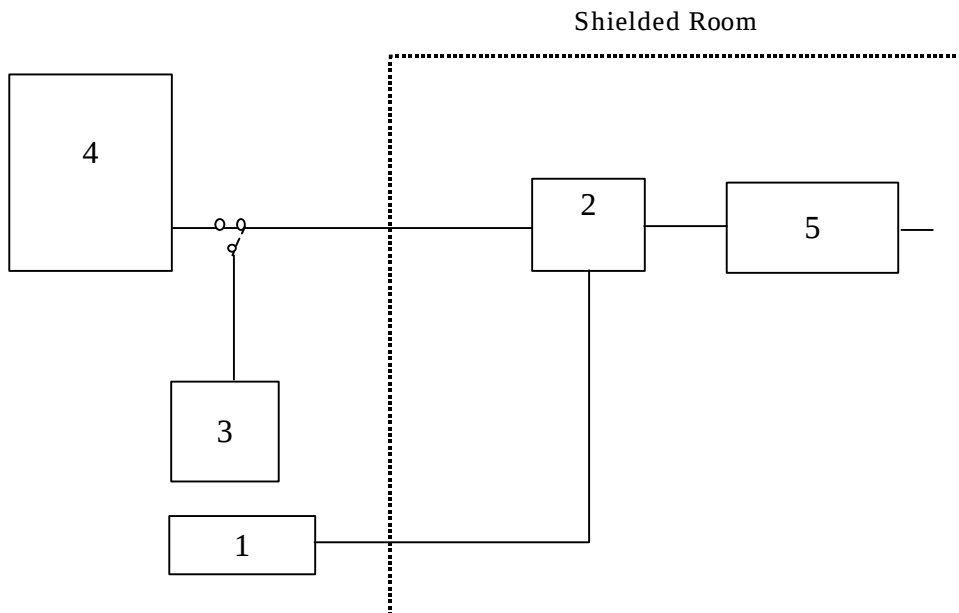
SECTION 6. TEST ARRANGEMENT AND LIST OF INSTRUMENTS

6.1 TEST EQUIPMENTS OF RADIATED EMISSION MEASUREMENTS



	Apparatus	Model No. (Manufacture)	Spec.	Calibration Untill	Serial No.
1	3 or 1 phase AC SUPPLY	ACF-N F-Class (YAHATA DENKI)	50Hz/60Hz MAX 1 Phase 264 V	---	---
2	Antenna	KBA-511A (KYORITSU) KBA-611 (KYORITSU)	30-500MHz(Dipole) 500-1000MHz(Dipole)	Jan.2000 Jan.2000	--- ---
3	Pre-Amplifier	8447D (hp)	0.1-1300MHz	Jan.2000	2443A04523
4	Spectrum Analyzer	TR4135 (Advantest)	0.01 - 3600MHz	Feb.2000	51730129
5	EMI Receiver	ESVS10 (R & S)	20-1300MHz	Feb.2000	844106/014
6	Main Unit EUT	KX-P3196 (ACJ5Z6KX-P3196)	---	---	---

6.2 TEST EQUIPMENTS OF RADIATED EMISSION MEASUREMENTS



	Apparatus	Model No. (Manufacture)	Spec.	Calibration Untill	Serial No.
1	3 or 1 phase AC SUPPLY	FUK-23749-2 (NF)	50Hz/60Hz MAX 1 phase 264 V	---	---
2	LISN	KNW-407	1 phase 250 V 15A	Feb.2000	---
3	Spectrum Analyzer	TR4135 (Advantest)	10KHz - 3.6GHz	Jan.2001	67800024
4	EMI Receiver	ESVS10 (R & S)	9KHz - 30MHz	May.2000	SER842053/001
5	Main Unit EUT	KX-P3196 (ACJ5Z6KX-P3196)	---	---	---

