

ELECTROMAGNETIC EMISSIONS
TEST REPORT

FCC CLASS B COMPLIANCE
(CONSUMER EQUIPMENT)

KIND OF EQUIPMENT : Self ballasted fluorescent lamp

MODEL :

EFT23E28D :

FCC ID : ACJ4PKFFT23D

Matsushita EMC Center

Matsushita Electric Industrial Co., Ltd.

Yashiro, Sasayama-cho
Taki-gun, Hyogo 669-2356
JAPAN

TEL 0795-52-5681
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This test report with appendix consists of 15 pages.

The test results only responds to the tested sample.

It is not allowed to copy this report even partly without the allowance of the test laboratory.

Katsuo Ishihara
Chief Engineer of
Matsushita EMC Center

Katsuo Ishihara

CERTIFYING ENGINEER

- 5. Date of Measurement : November 28, 1998
- 4. Measurement Site : Matsushita EMC Center
Matsushita Electric Industrial Co., Ltd.
- 3. Measurement Procedures Used : FCC Method of Measurement of Radio Noise
Emissions from ISM Devices, MP-5.
 - a. Application Type : Certification
 - b. Model No. : EFT23E28D
 - c. Serial No. : _____
 - d. Date of Manufacture : November, 1998
 - e. Oscillating Frequency : 60±10kHz
 - f. RF Power Output : 21W
 - g. Power Supply : AC 120V, 60Hz
 - h. EUT Conditions : Production (Client samples)
- 3. Description of Device : Self ballasted fluorescent lamp "Panasonic".
 - 1. Applicant : Matsushita Electric Industrial Co., Ltd
Address : 1006 Oaza Kadoma, Kadoma-city
Osaka-Pref., 571-8501, Japan
 - 2. Factory : Matsushita Electronics Corporation
Address : 1-1 Saiwai-cho, Takatsuki-city
Osaka-Pref., 569-1193, Japan

This is to certify that the Self ballasted fluorescent lamp from which the following data have been derived through the required measurements, properly complies with the requirements of FCC Rules and Regulations Part 18 Subpart C & FCC/SOT MP-5 as of date of measurements were made.

ENGINEERING TEST REPORT

Certification of Measurement Results

I hereby certify that this Self ballasted fluorescent lamp passed and give margins of more than 9.9 dB μ V/m at the Radiated Emissions and more than 4.7 dB μ V at the Conducted Emissions with respect to the limits to which it was tested.

These test results are traceable to the National and International Standards.

Measurement Uncertainty, at time of test, and at least 95% confidence, was estimated to be as follows:

Radiated Emission Measurement : 2.6 dB
Conducted Emission Measurement : 3.1 dB

Certifying Engineer : Matsushita EMC Center

Katsuo Ishihara
Katsuo Ishihara
Chief Engineer of
Matsushita EMC Center

Date : December 8, 1998

Description of Measurement Facility

NAME OF TEST SITE : Matsushita EMC Center
ADDRESS : Yasiro, Sasayama-cho, Taki-gun,
Hyogo 669-2356, JAPAN

APPROVAL : This site has been filed with FCC
FEDERAL COMMUNICATIONS COMMISSION
FCC File No. 31040/SIT-1300F2
(Refild date: August 28, 1997)

Accredited by NVLAP
National Institute of Standards and Technology
National Voluntary Laboratory Accreditation Program
NVLAP Lab Cord: 100428-0
(Effective through: December 31, 1998)

1. Field strength limits. (§ 18.305(C))

a. Measurement Methods and Test Procedure

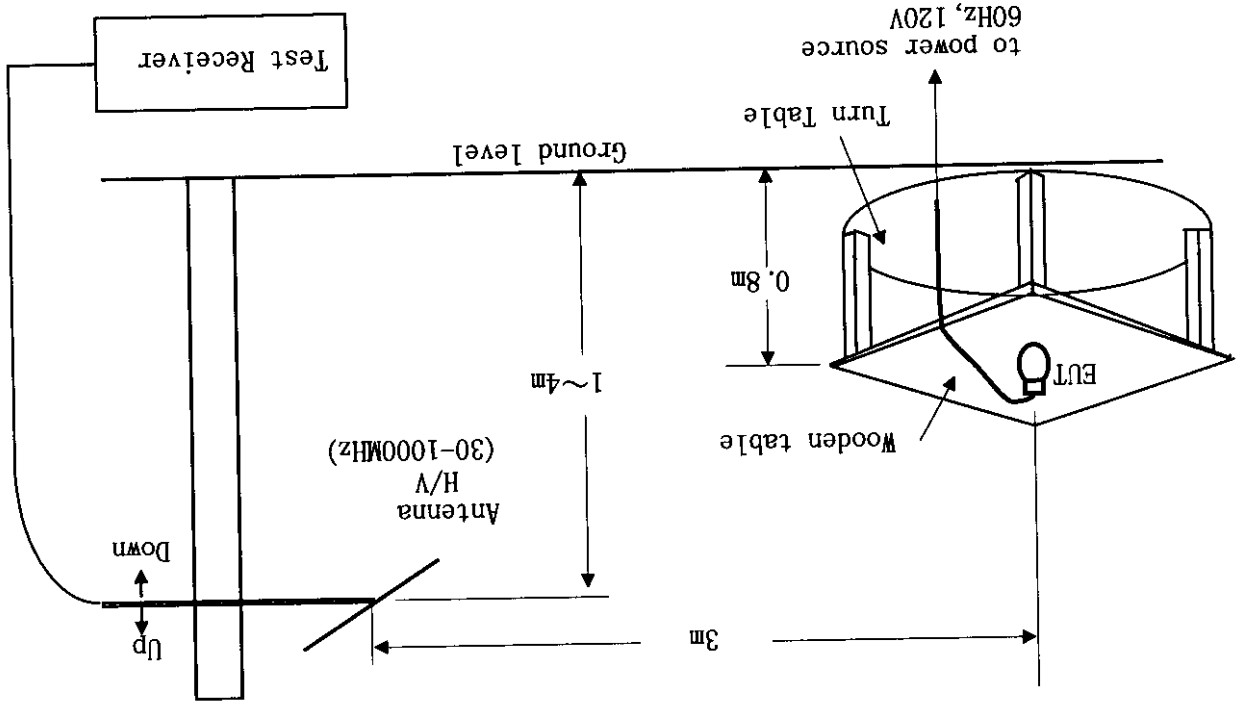
Methods of Measurements of Radio Noise Emissions from ISM

Equipment FCC/OST MP-5 (1985)

b. Test Arrangement

Above 30MHz, I used broad band antenna

Test Equipment Operation Mode: Quasi-Peak



* Factor = Antenna Factor + Cable loss - AMP. Gain

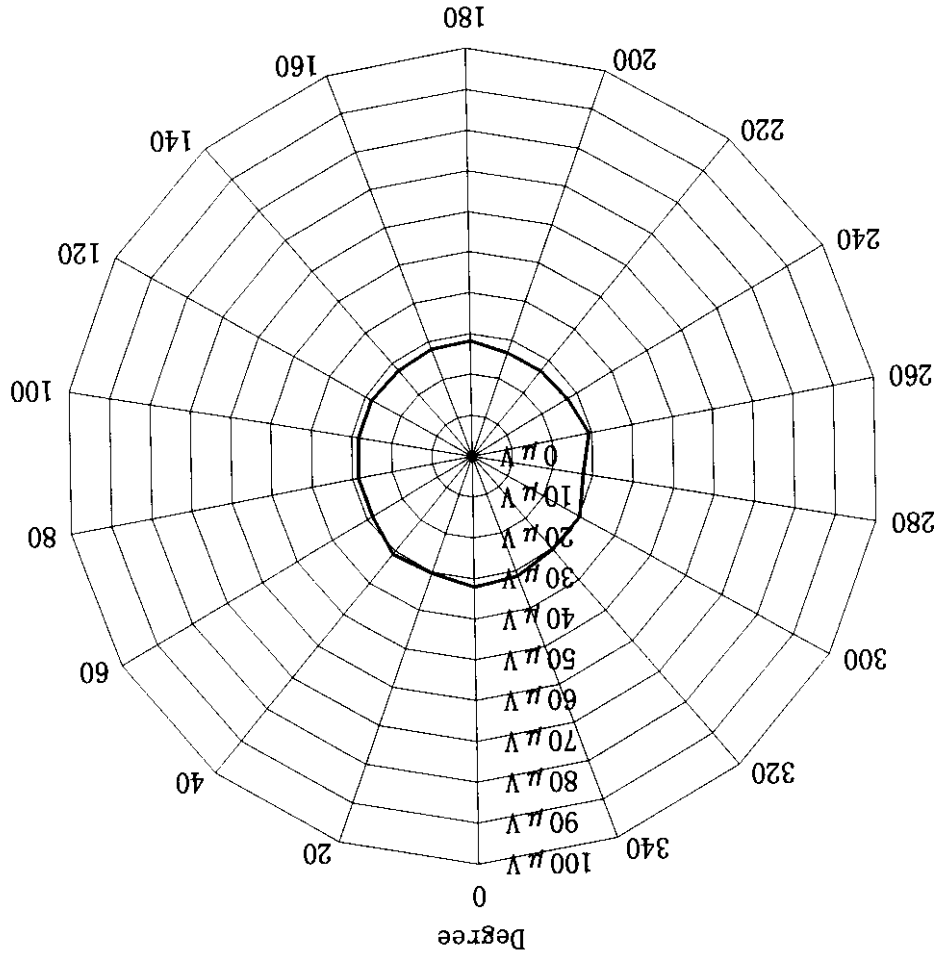
NOTE : Reporting frequency is the point measured more than 20dB from the limits in the emission level measurement from 30MHz to 1000MHz.

FCC LIMITS Class B (§ 18.305(C)) (Consumer equipment)
 FREQUENCY (MHz) 30 88 216 1000
 - - - -
 LIMITS (µV): at 3m 100 150 200

Frequency (MHz)	Factor (dB)		Meter Reading at 3m (dB µV/m)		Limits at 3m (µV/m)	
	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
35.117	---	-8.6	---	35.8	100	---
37.236	---	-9.3	---	29.3	100	---
38.139	---	-9.6	---	30.9	100	---
44.249	---	-11.7	---	41.5	100	---
44.493	---	-11.8	---	41.9	100	---
46.609	---	-12.5	---	36.2	100	---
51.625	---	-14.2	---	37.0	100	---
97.247	---	-15.4	---	42.0	100	---
22.9	---	---	---	---	---	22.9
10.0	---	---	---	---	---	10.0
11.6	---	---	---	---	---	11.6
30.9	---	---	---	---	---	30.9
32.0	---	---	---	---	---	32.0
15.3	---	---	---	---	---	15.3
13.8	---	---	---	---	---	13.8
21.4	---	---	---	---	---	21.4

DESCRIPTION OF DEVICE : EFT23E28D
 FCC ID : ACJ4PKFFT23D
 Classification of EUT : Class B (Consumer equipment)
 RADIATED RADIO NOISE MEASUREMENT
 TEST CONDITION OF INSTRUMENT
 (1) Resolution Bandwidth : 120K
 (2) Detector Function : GP
 DATE : November 28, 1998
 Temp. : 12°C
 Humi. : 63%
 EUT Warm-up Time : 30 minutes

NOTE: "0" Degree is the direction of FCC ID label on the EUT.



RADIATION PATTERN
(Top View)
(f=44.493 MHz , Distance=3m)

* Factor = Antenna Factor + Cable loss - AMP. Gain

FCC LIMITS Class B (§18.305(C)) (Consumer equipment)
 FREQUENCY (MHz) 30 - 88 216 - 88 216 - 1000
 LIMITS (µV): at 3m 100 150 200

Measurement Frequency (MHz)	Orientation (Degree)	Meter Reading (dB µV/m)	Factor (dB)	Field Strength (µV/m)
44.493	0	41.9	-11.8	32.0
	20	41.4	-11.8	30.2
	40	41.6	-11.8	30.9
	60	40.9	-11.8	28.5
	80	40.9	-11.8	28.5
	100	40.8	-11.8	28.2
	120	40.8	-11.8	28.2
	140	40.6	-11.8	27.5
	160	40.7	-11.8	27.9
	180	40.8	-11.8	28.2
	200	40.3	-11.8	26.6
	220	40.3	-11.8	26.6
	240	40.5	-11.8	27.2
	260	41.1	-11.8	29.2
	280	40.6	-11.8	27.5
	300	41.4	-11.8	30.2
	320	41.4	-11.8	30.2
	340	41.7	-11.8	31.3

DESCRIPTION OF DEVICE : EFT23E28D
 FCC ID : ACJ4PKFFT23D
 Classification of EUT : Class B (Consumer equipment)
 Test Result (Radiation Pattern)
 DATE : November 28, 1998
 Temp. : 12°C
 Humi. : 63%
 EUT Warm-up Time : 30 minutes

1. Conduction Limits. (§ 18.307 (C))

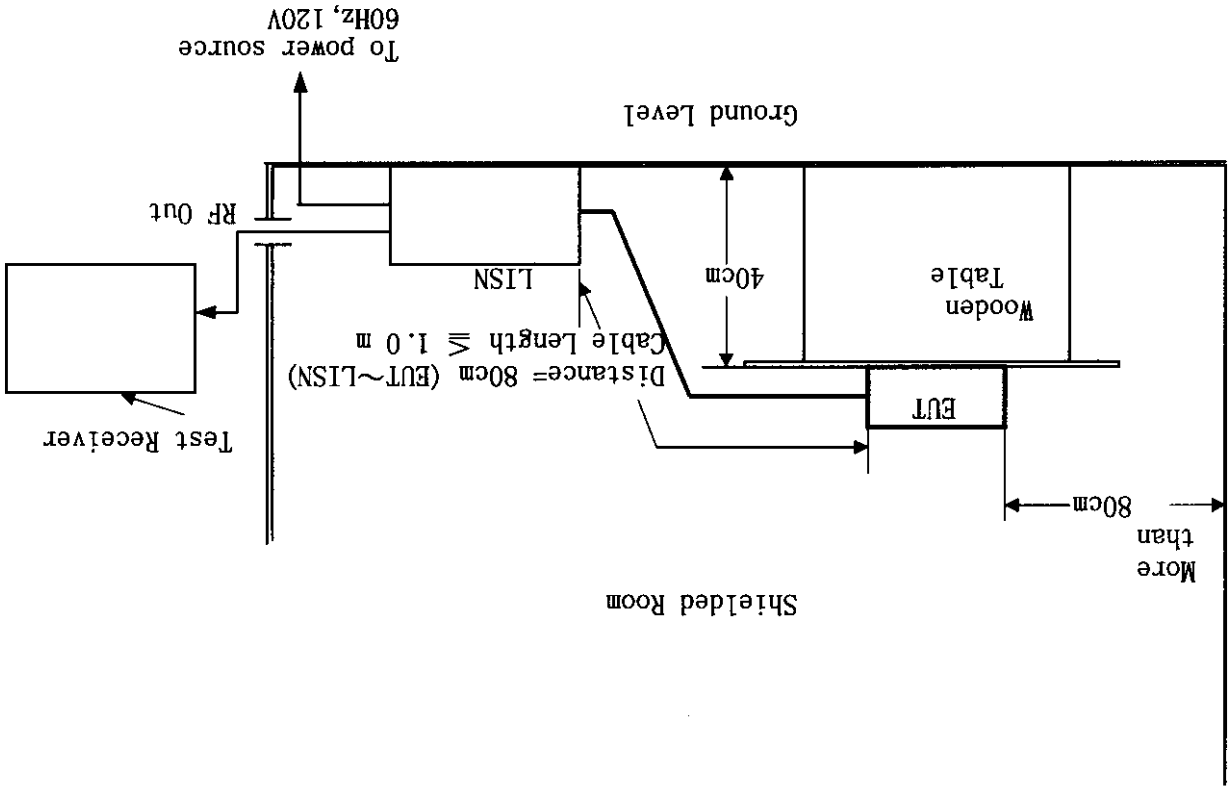
a. Measurement Methods and Test Procedure

Methods of Measurements of Radio Noise Emissions from ISM

Equipment FCC/OST MP-5 (1985)

b. Test Arrangement

Test Equipment Operation Mode: Quasi-Peak



DESCRIPTION OF DEVICE
 Type of EUT : EFT23E28D
 FCC ID : ACJ4PKFT23D
 Classification of EUT : FCC CLASS B
 (Consumer equipment)

LINE CONDUCTED RF VOLTAGE MEASUREMENT
 TEST CONDITION OF INSTRUMENT
 (1) Resolution Bandwidth : 9kHz
 (2) Detector Function : QP
 EUT Warm-up Time : 30 minutes
 DATE : November 28, 1998
 Temp. : 20°C
 Humi. : 64%

Frequency (MHz)	LISN Factor (dB)	Meter Reading (dB μ V)		Limits (μ V)	Emission Level (μ V)	
		Other end-Ground	Other end-Ground		Other end-Ground	Other end-Ground
0.501	0.2	43.1	_____	250	146.2	_____
0.646	0.2	41.1	_____	250	116.1	_____
0.800	0.2	39.0	_____	250	91.2	_____
0.950	0.3	38.0	_____	250	82.2	_____
1.100	0.3	35.8	_____	250	63.8	_____
1.230	0.3	35.8	_____	250	63.8	_____

FREQUENCY (MHz) 0.45 ~ 30
 LIMITS (μ V) 250

NOTE : Reporting frequency is the point measured more than 20dB from the limits in the emission level measurement from 0.45MHz to 30MHz.

DESCRIPTION OF DEVICE
 Type of EUT : EFT23E28D
 FCC ID : ACJ4PKFFT23D
 Classification of EUT : FCC CLASS B
 (Consumer equipment)

LINE CONDUCTED RF VOLTAGE MEASUREMENT
 TEST CONDITION OF INSTRUMENT
 (1) Resolution Bandwidth : 9kHz
 (2) Detector Function : QP
 EUT Warm-up Time : 30 minutes
 DATE : November 28, 1998
 Temp. : 20°C
 Humi. : 64%

Frequency (MHz)	LISN Factor (dB)	Meter Reading (dB μ V)		Limits (μ V)	Emission Level (μ V)	
		Other end-Ground	Other end-Ground		Other end-Ground	Other end-Ground
0.513	0.2	—	43.1	250	—	146.2
0.621	0.2	—	39.6	250	—	97.7
0.779	0.2	—	38.6	250	—	87.1
0.901	0.3	—	37.5	250	—	77.6
1.098	0.3	—	35.5	250	—	61.7
1.230	0.3	—	34.5	250	—	55.0

FREQUENCY (MHz) 0.45 ~ 30
 LIMITS (μ V) 250

NOTE : Reporting frequency is the point measured more than 20dB from the limits in the emission level measurement from 0.45MHz to 30MHz.