

Panasonic

Panasonic Industrial Company
Division of Matsushita Electric
Corporation of America

1707 N. Randall Road
E-Zip: 1F-2
Elgin, IL 60123-7847

Diversified Technologies Group
Magnetron Tube Department
TEL : (847) 468-5744
Fax: (847) 468-5773

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ELECTROMAGNETIC RADIATION TEST OF MICROWAVE OVEN

Report No. CALR-FCC-095

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This is to certify that the MICROWAVE OVEN from which the following data have been derived through the required measurements in Panasonic's test facility that have been filed with FCC file No. 31010/EQU 4-3-0A.

Oven Model : A3R410CUK
Magnetron Model : 2M167

1. Power Density Safety Check

Condition	Load - Water 275cc center
Equipment	Narda 8110B
Power density	0.08 (mW/cm ²)

2. Input Power

Line Volt (V)	Input I (A)	Input Power (W)	Load Condition
120	15.8	1775	1500cc / 20C

3. Output Power

Condition	Water load : 750cc×2 / 20C, Tim : 120sec		
Temp 1 (C)	Temp 2 (C)	T2 - T1 (C)	Output Power(W)
19.45	46.65	27.20	954
19.45	46.75	27.30	

4. Harmonics

Harmonics	Frequency (MHz)	Load Condition	FIS (uV/m) @300m
2nd	4942	450cc center	26.3
3rd	7395	450cc center	4.90
4th	9887	1050cc center	1.72

Note : 2nd and 3rd Harmonics are measured with load 450cc and 1050cc in the center or right front position.

5. Permissible

Formula	$SQR(954/500) \times 25 \mu V/m @300m$
Permissible	34.5

6. Side Band

<i>Frequency (MHz)</i>	<i>FIS (uV/m) @30</i>	<i>Load Condition</i>
2400	0.23	1050cc center
2500	0.32	1050cc center

7. Frequency Run

(1) Frequency VS Line Voltage Variation Test

Test Results (Room Temperature : 20 C

<i>Line Voltage Variation (V)</i>	<i>Frequency (MHz)</i>	<i>Deviation for ISM Frequency (MHz)</i>
150 (125%)	2466	16
135 (112.5%)	2466	16
120 (Nominal)	2470	20
108 (90%)	2467	17
96 (80%)	2467	17

Load : 750 cc water in 800 cc glass beaker ×C

(2) Frequency VS Load Variation Test

Test Results (Room Temperature : 20 C

<i>Volume of water (cc)</i>	<i>Frequency (MHz)</i>	<i>Deviation for ISM Frequency (MHz)</i>
1500	2470	20
1200	2471	21
900	2459	9
600	2457	7
300	2447	-3

Load : 750 cc water in 800 cc glass beaker ×C

8. Fundamental Level

<i>Frequency (MHz)</i>	<i>FIS (dBuV/m) @3m</i>	<i>Load condition</i>
2469	108	1050cc center

9. Spurious any emission < 2400MHz & > 2500MHz excluding Harmonics

<i>Frequency (MHz)</i>	<i>FIS (dBuV/m) @3m</i>	<i>Load condition</i>
2533	33.2	1050cc center

Tested By

M. Okazaki
 Applications Manager of Magnetron
 Panasonic Industrial Company
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Description of Instrumentation and calculation

(1) Measurement equipment

a. Field Strength Meter : Electro-Metrics Model EMC-50

Bandwidth Setting : 1 MHz

Detector Function : Linear Average Detection

b. Receiving Antenna : Electro-Metrics Model RGA-180

Frequency Range : 1 - 18 GHz

c. Microwave Survey Meter : Narda Model 8110B

(2) Test Condition

a. Antenna Height Variation : 1.0 - 1.5 m

b. Distance of Antenna to Test unit : 3.0 m

c. Test Unit Height : 1.0 m

(3) Calculation Formula

Field Strength at 3 m (dBuV/m)

$$= \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Loss}$$

$$(\text{dBuV}) \quad (\text{dB/m}) \quad (\text{dB})$$

Field Strength at 300 m (dBuV/m)

$$= K * 10^{\frac{\text{Field Strength at 3 m (dBuV/m)}}{20}}$$

K : Conversion Factor for 3 m to 300 m

<i>Frequency</i>	<i>Antenna Factor</i>	<i>Cable Loss</i>	<i>Conv. Factor</i>
<i>(MHz)</i>	<i>(dB/m)</i>	<i>(dB)</i>	<i>K</i>
2400	29.0	0.7	0.0061
<i>Fundamental</i>	29.3	0.7	0.0062
2500	29.5	0.7	0.0063
4900	33.4	0.9	0.01
7350	36.5	1.2	0.01
9800	38.2	1.4	0.01

Example : 2nd Harmonics

Receiver Reading = 20 dB @ 3 m

$$\text{FIS} = 0.01 * 10^{\frac{20 + 33.4 + 0.9}{20}} = 5.19 \text{ (uV/m)}$$

@300 m

Fig. 1 Physical Description of Test Site

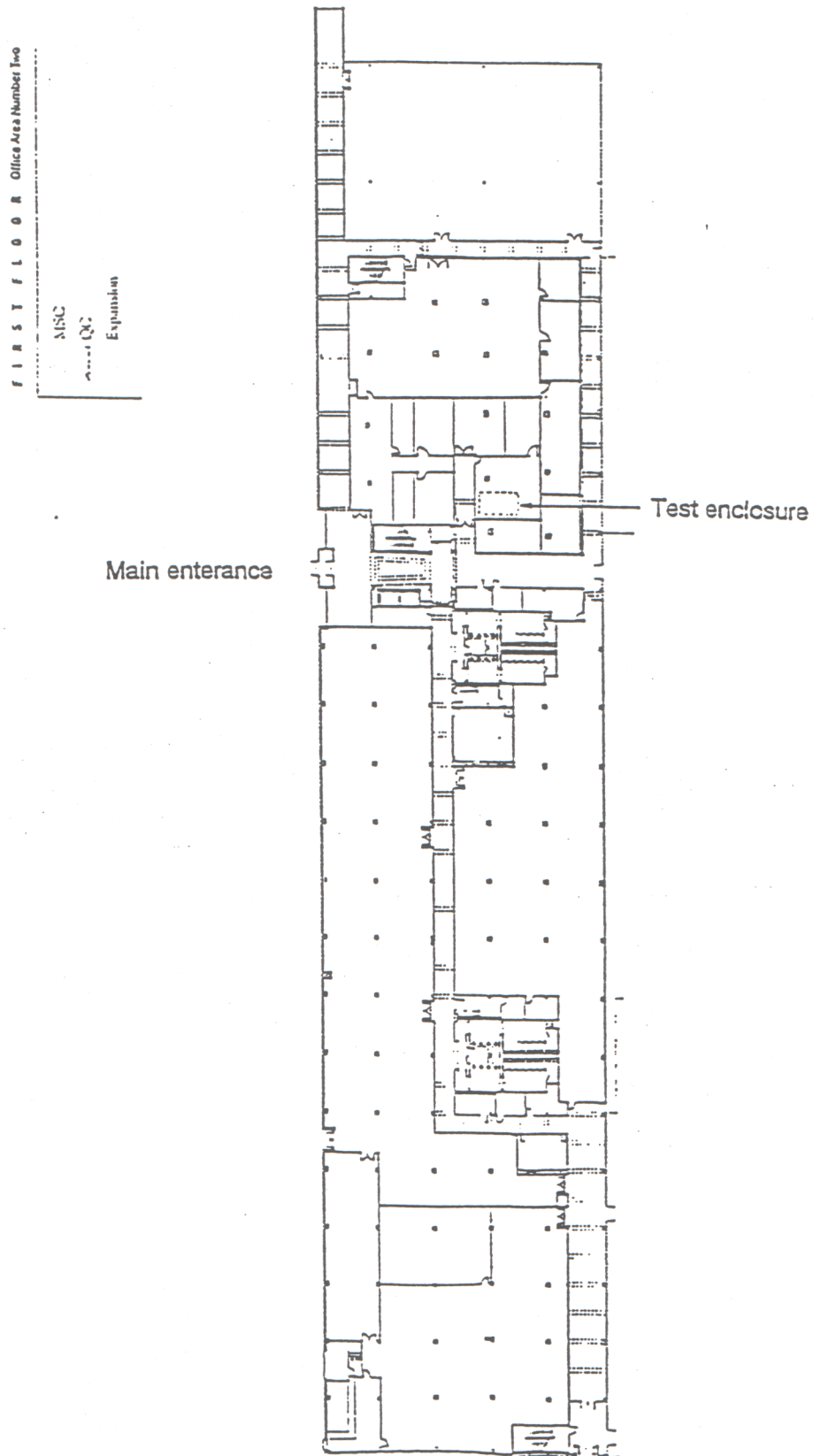


Fig. 2 Physical Dimensions of Test Site (Unit mm)

