

## REPORT OF MEASUREMENTS (MICROWAVE OVEN TEST DATA)

FCC ID : AEZM904 MODEL : EM-Z9011N DATE : February 6, 2002  
 NOMINAL FREQUENCY : 2,450 MHz TESTED BY : M. KANESHIRO

*M. Kaneshiro*

DESCRIPTION : (Unit Dimension : cm)

Cabinet Dimension : 76.0 by 35.7 by 43.2 Door Dimension : 57.7 by 33.3

Oven Cavity Dimension : 48.9 by 34.5 by 25.5 Door Viewing area : 44.0 by 20.8

Feed Type and Location : Waveguide, located top side Stirrer: rotating tray

(incl. Rotating tray)

Door seal Type : Choke Seal Magnetron Type : Toshiba, 2M-253H (M) -N

Others : N/A

## TEST EQUIPMENT USED :

## 1. Antenna (Horn Antenna)

	<u>Frequency Range</u>	<u>Correction Factor</u>
AILTECH 91888-2	1.0 - 2.0 G Hz	21.5 - 22 dB
AILTECH 91889-2	2.0 - 3.6 G Hz	20.5 - 21 dB
AILTECH 94613-1	3.6 - 7.6 G Hz	37 dB
AILTECH 91891-2	7.3 - 10.0 G Hz	39.8 dB

Other Correction Factor

## (a) Cable loss

<u>Frequency (M Hz)</u>	<u>Cable loss (dB)</u>
2,400	1.1
2,500	1.1
4,900	1.6
7,350	2.2
9,800	2.7

## (b) Loss of Band Rejection Filter

<u>Frequency Range (G Hz)</u>	<u>Filter loss (dB)</u>
2.0 - 3.6	3.0

## 2. Field Strength Meter

AILTECH NM-67 (SER 0241-03088)

Last calibrated date : December 14, 2001

Setting : Bandwidth ----- 1 MHz

Function ----- Field Intensity (average value detector)

## 3. When measuring sidebands close to the fundamental, band reject filter Model 6N45-2450/60 (SER FK837-1) was employed.

REPORT OF MEASUREMENT (MICROWAVE OVEN TEST DATA SHEET B)

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DATA SUMMERY (FCC MEASUREMENT PROCEDURE MP-5)

CALCULATION :  $E_{300m} = K \cdot 10^{-(A+B+C+D+E)/20}$

SAFETY CHECK (at 5 cm) Load : 275 ml/center  
 FUNDAMENTAL Load : 1,000 ml/center

mW/sq.cm 0.20  
 MHz 2,450

LIMIT =  $25 \cdot \sqrt{\text{power}/500}$  : 34.5  $\mu\text{V}/\text{m}$

\* Note : Location of load for the oven provided with the rotating tray is :  
 Contiguous with the shelf circumference.

RADIATION FIELD STRENGTH ( $\mu\text{V}/\text{m}$  at 300 m)

	Load (ml)	Location of Load	Emission Frequency (MHz)	Meter Reading (dB $\mu\text{V}$ )	Antenna Factor (dB)	Cable Loss (dB)	Filter Loss (dB)	Calcu. Factor (dB)	The Value of K ( $E_{300m} = K \cdot E_{3m} >>$ )	Max. Field Strength ( $\mu\text{V}/\text{m}$ at 300m)	Limit ( $\mu\text{V}/\text{m}$ at 300m)
2nd Harmonic	300	Center	4,916	12.0	37.0	1.6	—	5	0.0100	6.0	34.5
2nd Harmonic	300	* Right/Front Corner	4,900	10.0	37.0	1.6	—	5	0.0100	4.8	34.5
2nd Harmonic	700	Center	4,920	15.0	37.0	1.6	—	5	0.0100	8.5	34.5
2nd Harmonic	700	* Right/Front Corner	4,918	9.0	37.0	1.6	—	5	0.0100	4.3	34.5
3rd Harmonic	300	Center	8,295	11.0	39.8	2.2	—	5	0.0100	7.9	34.5
3rd Harmonic	300	* Right/Front Corner	8,220	11.0	39.8	2.2	—	5	0.0100	7.9	34.5
3rd Harmonic	700	Center	8,288	11.0	39.8	2.2	—	5	0.0100	7.9	34.5
3rd Harmonic	700	* Right/Front Corner	8,288	11.0	39.8	2.2	—	5	0.0100	7.9	34.5
4th Harmonic	700	Center	9,791	13.0	39.8	2.7	—	5	0.0100	10.6	34.5
Spurious	700	Center	2,386	22.0	20.8	1.1	3	5	0.0061	2.4	34.5
Emission Sideband 2,400 MHz	700	Center	2,400	17.0	20.8	1.1	3	5	0.0061	1.3	34.5
Emission Sideband 2,500 MHz	700	Center	2,500	13.0	20.8	1.1	3	5	0.0064	0.9	34.5

Maximum Frequency Variation 1,000 ml load 2,443 to 2,447 MHz.  
 Total Power Input to Oven 1,500 Watts  
 Power Development in dummy load (Thermal Method) 950 Watts (IEC705 Test Procedure)  
 Supply Voltage AC 120 V 60 Hz

1830 MHz - 2745 MHz  $2.6230 \cdot 10^{(-3)}$  \* frequency : GHz) -0.0002  
 2745 MHz - 3660 MHz  $2.1858 \cdot 10^{(-3)}$  \* frequency : GHz) +0.0010  
 3660 MHz - 4575 MHz  $1.0929 \cdot 10^{(-3)}$  \* frequency : GHz) +0.0050  
 4575 MHz and above 0.0100

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Note : In order to convert the measured field strength at 3meters to the field at 300 meters, comply with FCC/OST MP-5 Appendix C "4.6.1 Computations to determine compliance". A calculation factor of 5 dB, this figure is fixed by SANYO, is introduced for adjusting a tolerance in measurement.  
 A calculation factor of 5 dB should be added to "METER READING" as shown in SAMPLE CALCULATION below.

#### SAMPLE CALUCULATION

(1) 2<sup>nd</sup> Harmonic with 300 mI/Center load

$$\begin{aligned} \text{Field Strength at 300 m} &= 0.0100 \times 10^{(12.0 + 37 + 1.6 + 5) / 20} \\ &= 6.0 \quad \text{uV/m} \end{aligned}$$

(2) Emission sideband 2,400 M Hz., 700 mI/Center load

$$\begin{aligned} \text{Field Strength at 300 m} &= 0.0061 \times 10^{(17.0 + 29.8 + 1.1 + 3 + 5) / 20} \\ &= 1.3 \quad \text{uV/m} \end{aligned}$$

**REPORT OF MEASUREMENT (MICROWAVE OVEN TEST DATA)**

- Measurement of Frequency VS Line Voltage Stability -

FCC ID : AEZM904 Model : EM-Z9011N Date : Feb. 6.2002Nominal Frequency : 2,450 MHz Tested by : M.KANESHIRO*M. Kaneshiro*

Line Voltage Variation [Volt]	Frequency [GHz]	Deviation for ISM Frequency [MHz]	Limit [MHz]
96 (- 20%)	2.442	-8	± 50
120 (± 0%)	2.443	-7	± 50
150 (+ 25%)	2.446	-4	± 50

**[ Environment ]**Temperature : 16.0 °CHumidity : 58.0 %**[ Sample Calculation ]**Frequency : 2.442 GHz

Deviation for ISM Frequencies Calculated as follows,

$$\underline{2.442} - 2.4500 = \underline{-0.008} \text{ [GHz]} = \underline{-8} \text{ [MHz]}$$

**[ Summary of Test Results ]**

Above data shows that the test device do/ do not complies with the requirements.