

4. Radio Noise Emission Measurement Procedures/Results

4.1 Radiation Hazard Measurement

A 700 ml water load was placed in the center of the oven.

The power setting was set to maximum power.

While the oven was operating, the Microwave Survey Meter probe was moved slowly around the door seams to check for leakage.



Fig. 1 Test Setup for Radiation Hazard Measurement

The results of this test are as follows.

Probe Location	Maximum Leakage [mW/Cm2]	Limit [mW/Cm2]
1	0.18	1.0
2	0.17	1.0
9	0.14	1.0
All others	0.10	1.0

4.2 Input Power Measurement

Input power and current were measured using a Power Analyzer.

A 700 ml water load was placed in the center of the oven and the oven set to maximum power. A 700 ml water load was chosen for its compatibility.

Manufacturers to determine their input ratings commonly use this procedure.



Fig. 2 Test Setup for Input power

The results of this test are as follows.

Input Voltage [Vac]	Input Current [amps]	Measured Input power [watts]	EUT Spec. Input current [amps]
120	13.12	1 549	13

Based on the measured input power, the EUT was found to be operating within the intended specifications.

4.3 RF Output Power Measurement

The Caloric Method was used to determine maximum output power. The initial temperature of a 1 000 ml water load was measured. The water load was placed in the center of the oven. The oven was operated at maximum output power. Then the temperature of the water was 20 °C, the test was finished.



Fig.3 Test Setup for RF output power

Quantity of water [ml]	Starting Temperature [centigrade]	Final Temperature [centigrade]	Heating Time [seconds]	RF Power [watts]
1 000	10	20.0	42	963.3
1 000	10	19.9	42	957.7
1 000	10	20.0	42	964.8
Average RF Power of 3 Trials				961.9

$$\text{Power [W]} = \frac{(4.187) * L_w * (T_f - T_i) + 0.55 * B_i * (T_f - T_r)}{t}$$

Magnetron type: OM-75P

L_w : Mass of the water, in grams

B_i : Mass of the container, in grams

T_f : Final temperature of the water, in °C

T_i : Initial temperature of the water, in °C

T_r : Ambient temperature, in °C

t : Heating time in seconds, excluding the magnetron filament heat-up time.

The measured output was found to be **ABOVE 500 Watts**. Therefore, in accordance with section 18.305 of Subpart C, the measured out-of-band emissions were compared to the $25 \times \text{SQRT}(\text{power}/500) [\mu\text{V}/\text{m}]$ @ 300 m limit.