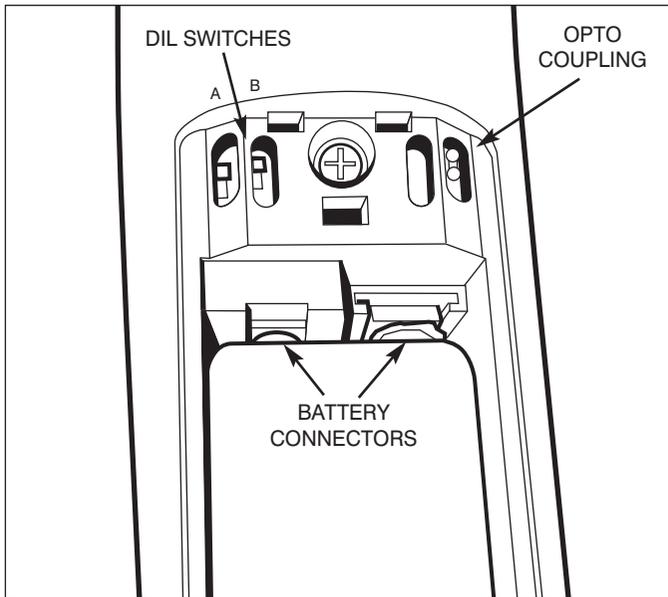


8230 Kit

- 1 – 8230 Microwave Monitor
- 1 – Rigid carry case with foam inserts
- 1 – Spirit thermometer
- 2 – 500 ml plastic beakers
- 1 – PP3 Battery
- 1 – Full User Instructions
- 1 – Calibration Certificate

Calibration System layout



Warning:

The above diagram is provided for use by calibration engineers only. The switches should not be touched by the user.

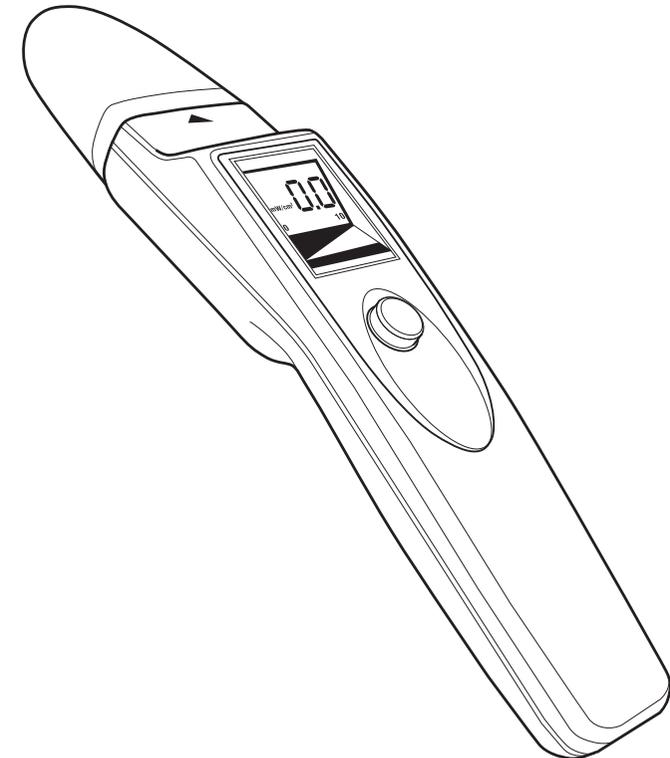
Incorrect use of these switches may have a detrimental effect upon the stored calibration information leading to inaccurate results.



Microwave Oven Survey System

8230 MICROWAVE MONITOR

USER MANUAL



Narda Microwave East,
435 Moreland Road, Hauppauge,
NY 11788 USA

www.narda-sts.us

8230 Microwave Monitor

The 8230 microwave monitor is a compact, robust, single range RF power measurement instrument designed to operate in the 2.45GHz frequency range. Its primary function is the detection of RF microwave leakage from heating equipment such as commercial and domestic microwave ovens and industrial heating equipment etc. All instruments will be provided with a calibration certificate, traceable to National Standards.

Physical Characteristics

| | |
|-------------------------------|-------|
| Dimensions: | |
| Length | 23cm |
| Depth (greatest) | 4.2cm |
| Width | 4.4cm |
| Weight (Battery not included) | 80gms |

Electrical Characteristics

| | |
|-----------------------------|--|
| Power Source | 9V pp3 Battery |
| Nominal Current | 10mA |
| Nominal Operating Frequency | 2.45GHz |
| Calibration Accuracy | +/-1dB in plane waves of all polarisations |
| Response to step input | <1 sec |
| RF Power Range | 0 to 10mW/cm ² |
| Display | 2-1/2 Digit LCD 10 Point Linear Display |
| Resolution | 0.1 mW/cm ² |
| Sensor – Source spacer | 5cm |

Features

Temperature compensation
Auto Zero
Low battery indication
1mW/cm² level Audible Warning
Micro-controller operation (Fully Screened)
EEPROM retained calibration data
Fibre optic calibration system
(Simplified calibration procedure)

Using the instrument

Prior to performing the RF leakage test, fill one of the two beakers with 275 cc +/-15cc of water and place it in the microwave oven to act as a load for the magnetron.

Face the instrument away from the potential RF source and depress the power button to turn on the instrument. The auto zero function will set the LCD display to show zero mW/cm².

Turn the microwave oven to full power and switch on.

Once on, the instrument button must remain depressed during the test and the tip of the instrument cone brought into contact with the potential source. During the test, the instrument should be moved at an approximate rate of 5cm per second. Areas around the door seals, hinges, door seams, windows, welds and rivets should be given particular attention.

Leakage should not exceed 5mW/cm² at a distance of 5cm (the distance given by the spacer) from the source. However, many manufacturers accept much lower emission levels from their ovens and you should consult the relevant manufacturers data for details.

Note down the highest reading displayed during the test and record it on a suitable label, which should then be affixed to the oven. Having completed the test, release the button and the instrument will power down.

Low Battery: If, when the user button is depressed, the “Lobat” sign is showing, it indicates that the 9 volt battery is down to 6 volts and the results given may be compromised.

1 mW/cm² Threshold: If a signal great than 1 mW/cm² is present during the test, a low volume sounder will be initiated and remain on until the signal level falls below the threshold.

Overload: In the event that a signal received by the instrument is greater than the rated 10 mW/cm², an “Overload” condition will be indicated by the display showing the letters “OL”.

Linear display: In the event that the signal is a high value, rapidly varying value, it may be useful to refer to the 10 point linear display to give an indication of the average rather than the rapidly changing alpha numeric display.

ABBREVIATED MICROWAVE OVEN POWER OUTPUT MEASUREMENT FOR FIELD SERVICE ENGINEERS

Note: Use the test appropriate to each oven.

Equipment required: 2 – 500ml Plastic Beakers
1 – Accurate thermometers
1 – Flat Stirrer

Test type: A (For J.I.S rated ovens. i.e. those manufactured up until 1990)

1. Fill each beaker with 500ml of water at 20 C° +/- 5 degrees C°
2. Check and note as the starting temperatures. Add the two values together and divide the result by two to give the average starting temperature.
3. Place the beakers in the center of the cooking area, set the oven to full power and turn on. After a two-seconds magnetron warm-up time, allow the oven to run for a further 60 seconds then switch off.
4. Remove the beakers and quickly stir each before taking the temperature of both. Add the two temperatures and divide the result by two to give the final average temperature.
5. Subtract the average start temperature from the average final temperature to give the average temperature rise.
6. Multiply the average temperature rise by 70. This calculation will indicate the oven output in Watts J.I.S.

Example:

Start temperature:(19.3 + 19.9)/ 2 = 19.6 C°
Final temperature:(27.1 + 30.5)/2 = 28.8 C°
Average temperature rise: 28.8 – 19.6 = 9.2 C°
Oven power in Watts (J.I.S.): 9.2 x 70 = 644 Watts J.I.S.

Test type: B For ovens labeled IEC705 (manufactured after 1990)

1. With starting water temperature at 10 C° +/- 2C°, proceed as for test A up to paragraph 6.
2. In this test, multiply the average temperature rise by 80.5 to give the oven power in Watts IEC705.
3. Note: IEC705 wattage cannot be found by manipulating J.I.S. Wattage.

It is advisable to carry out this test in a controlled laboratory environment

The results of these tests will be inaccurate unless the following points are observed

1. Mains supply must remain within 2% of nominal during the test
2. Water must be stirred at each measurement
3. Temperature should be measured to the nearest tenth of a degree
4. Ovens designed to be used with trays must have them in place during the test
5. An accurate instrument must be used for timing; not the oven timer.