

# Microwaves

## 1

The experiment uses a Gunn oscillator to produce microwaves. Waveguide connects a source to an attenuator, a “wavemeter”, a slotted line, and a termination.

The “wavemeter” is a resonant cavity which is used to measure the frequency of the microwaves. The slotted line is used to measure the wavelength, and the standing wave ratio.

Study external references to understand how these devices work. Then measure frequency and wavelength. You will find that:

$$guide\ wavelength_{not} = c / frequency$$

Explain why this is true. Find an expression which predicts the guide wavelength, and compare with your data.

Repeat the above with the “other” source.

References: (1) Text (Melissinos.) (2) Microwaves, by A. J. Bader Fuller, Pergamon Press(1979)