Experiment 3: Standing Waves

Introduction: The purpose of this experiment is to explore the phenomenon of standing waves

Theory: I = I0/R^2

Experimental Method:

The Transmitter and Receiver were arranged on the Goniometer as shown in Figure 1.1 with the Transmitter attached to the fixed arm. The intensity dial on the Transmitter was then set to 10x.

The Transmitter and Receiver were then separated by a distance of 40cm whilst the intensity and variable sensitivity dials on the Receiver were adjusted so that the meter read 1.0. The meter reading was then taken multiple times with distance R varied from 40 to 100 in 10cm increments.

The distance R was then set to 80cm and slowly decreased whilst recording the change of the meter deflection as the distance decreases.

The distance R was then set to 70cm whilst a Reflector with it's plane parallel to the axis of the microwave beam was moved toward and away from the beam axis. The meter readings were observed.

The Receiver was then rotated by 180 degrees as shown in Figure 1.2. Meter readings were observed throughout a full 360 degree rotation of the horn.