

Microwave set

Futures

Experiment topics:

Straight-line propagation of microwaves

Reflection, absorption and transmission

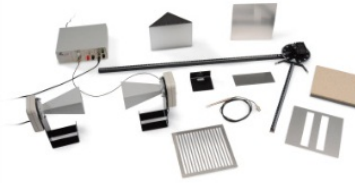
Shielding from microwaves

Experiments on polarisation

Experiments on diffraction

Experiments on refraction and interference

Transmission of information



A transmitter with a horn antenna radiates a narrow beam of linearly polarised electromagnetic waves with a wavelength of about 3 cm. The direction of polarisation can be altered by rotating the antenna around the axis of propagation. To detect the waves, a horn antenna receiver and a microwave sensor are provided. A control unit converts the intensity of the signal received into a proportionally large output voltage that can be measured using a voltmeter. It is also possible to switch on an acoustic signal with a volume that is proportional to the intensity of the signal.

Oscillator frequency: 9.4 GHz (U8493600-230)

Power of transmitter: 10 – 25 mW

Internal modulator frequency: 3 kHz approx.

Acoustic signal: Switchable

External modulation: 100 Hz – 20 kHz, 1 V max.

Output voltage: 10 V max.

Receiver with horn antenna: Silicon diode with resonator

Microwave sensor: Silicon diode with resonator

Dimensions of basic apparatus: approx. 170x200x75 mm³

The experiment consists of:

1 Control unit

1 Transmitter with horn antenna

1 Receiver with horn antenna

1 Microwave probe

1 Microwave bench, 800 mm

1 Microwave bench, 400 mm with plate holder

1 Reflection plate 180x180 mm²

1 Polarisation grating, 180x180 mm²

1 Absorption plate, fibreboard, 180x180 mm²

1 Paraffin prism

1 Stand for prism

1 Plate with double slit

1 Cover plate for double slit