

Diffraction and polarization of microwaves 4.5.06-00



- What you can learn about ...**
- Diffraction
 - Focal point
 - Linearity
 - Circularly and elliptically polarized waves
 - Transverse waves
 - Polarizer and Analyzer
 - Constructive and destructive interference

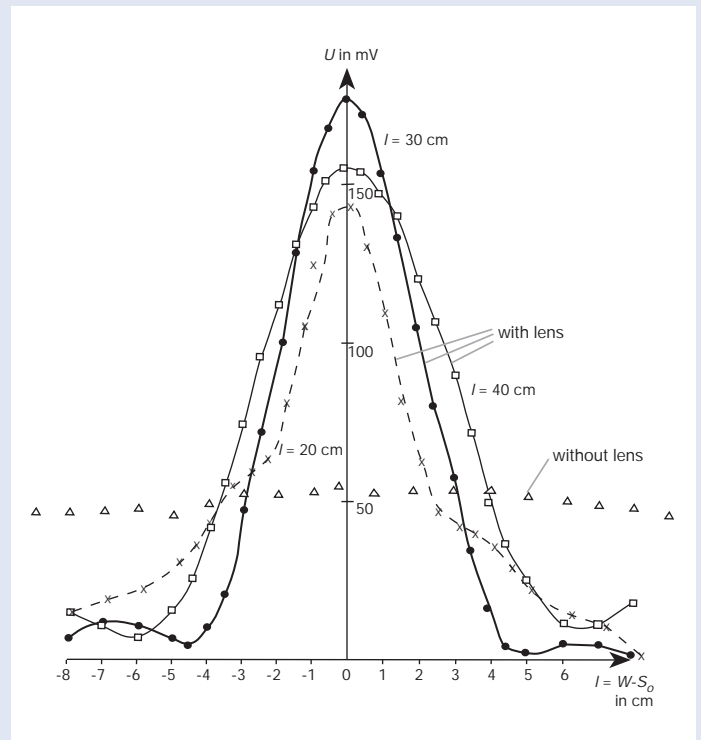
Principle:

The equivalence between visible light and microwaves as special cases of the total spectrum of electromagnetic waves can be demonstrated using diffraction and polarization of microwaves as an example. The focusing of microwaves through a plane convex convergent lens is observed and the focal distance of the lens is determined. After that, polarizability of microwaves is demonstrated by means of a metallic grating.

What you need:

Microwave transmitter with clystron	11740.01	1
Microwave receiving dipole	11740.03	1
Microwave power supply, 220 VAC	11740.93	1
Universal measuring amplifier	13626.93	1
Polarisation grid	06866.00	1
Convergent lens, synthetic resin	06872.00	1
Protractor scale with pointer	08218.00	1
Voltmeter 0.3...300 V-, 10...300 V~	07035.00	1
Screened cable, BNC, $l = 1500$ mm	07542.12	1
Connecting cable, 4 mm plug, 32 A, red, $l = 50$ cm	07361.01	1
Connecting cable, 4 mm plug, 32 A, blue, $l = 50$ cm	07361.04	1
Connecting cable, 4 mm plug, 32 A, red, $l = 200$ cm	07365.01	1
Connecting cable, 4 mm plug, 32 A, blue, $l = 200$ cm	07365.04	1
Adapter BNC socket/4 mm plug pair	07542.27	1
Tripod base -PASS-	02002.55	1
Barrel base -PASS-	02006.55	1
H-base -PASS-	02009.55	1
Bench clamp -PASS-	02010.00	2
Support rod -PASS-, square, $l = 250$ mm	02025.55	1
Support rod -PASS-, square, $l = 630$ mm	02027.55	4
Right angle clamp -PASS-	02040.55	4
Stand tube	02060.00	1
Meter Scale, $l = 1000 \times 27$ mm	03001.00	1

Complete Equipment Set, Manual on CD-ROM included
Diffraction and polarization of microwaves P2450600



Profile of the intensity of radiation.

Tasks:

1. Measuring the irradiance of the microwave field behind a converging lens
 - along the optical axis
 - transversally to the optical axis.
 Determination of the focal length of a synthetic resin converging lens and comparison of the results with the distribution of irradiance when no lens is used.
2. Measurement of the irradiance transmitted through a metal grating as a function of the angle between the direction of polarization and the grating bars.