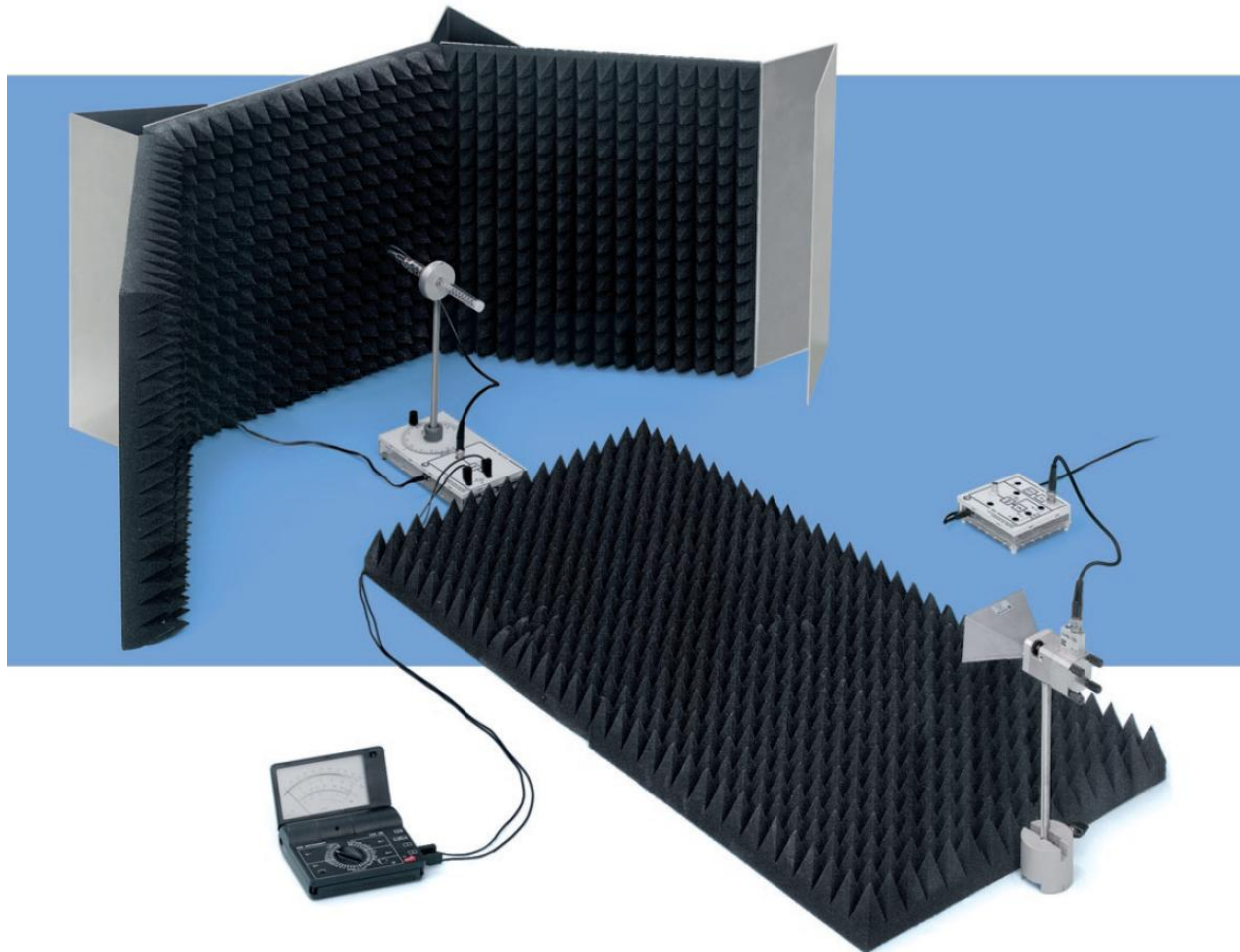


T 7.6.4 Student Experiments with Antennas



Our student system for antenna technology operates with a hand-operated rotating platform. The antennas measured here are of limited gain:

- Dipoles
- Yagis
- Helical antennas

Recording and evaluation are done in the classic manner – with pencil, paper and calculator.

Topics

- Principle characteristics of dipole and yagi antennas
- Polarization of wire antennas
- Disturbances caused by reflections
- Optimizing the lab room for free-space experiments

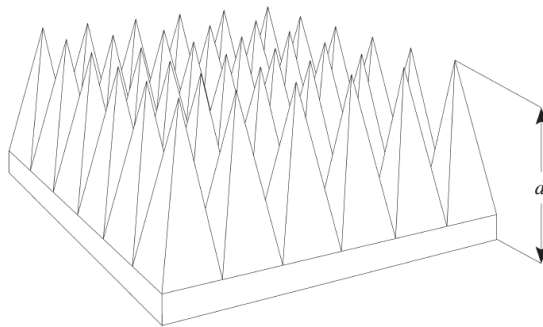
T 7.6.4 Student Experiments with Antennas

Experiments in free space

The experiment setup shows the microwave absorbers (from cat. no. 737 390) used to create an anechoic chamber. The use of absorbers is recommended for all antenna experiments as well as for free-space experiments with microwaves. They suppress both stationary reflections (e.g. reinforced concrete, furnishings) as well as moving reflections (e.g. wind in swinging blinds, fans, moving laboratory personnel). Here again, the small operating wavelength is helpful. This is because effective attenuation requires absorbers having a thickness d that roughly corresponds to the wavelength λ_0 .

$$d \sim \lambda_0$$

Adhering to this constraint would quickly become too expensive with increasing wavelengths.



Microwave absorber

Especially for low gain antennas (dipoles) anechoic chambers are indispensable

EQUIPMENT LIST T 7.6.4

Student Experiments with Antennas

Quantity	Cat. No.	Description
1	737 01	Gunn Oscillator
1	737 020	Gunn Power Supply with Amplifier
1	737 03	Coax Detector
1	737 21	Large Horn Antenna
1	737 390	Set of Microwave Absorbers
1	737 407	Antenna Stand with Amplifier
1	737 415	Set of Wire Antennas
1	737 440	Helical Antenna Kit
1	568 712	Book: Student Experiments in Antenna Technology

An actual material list including accessories is available on request.

