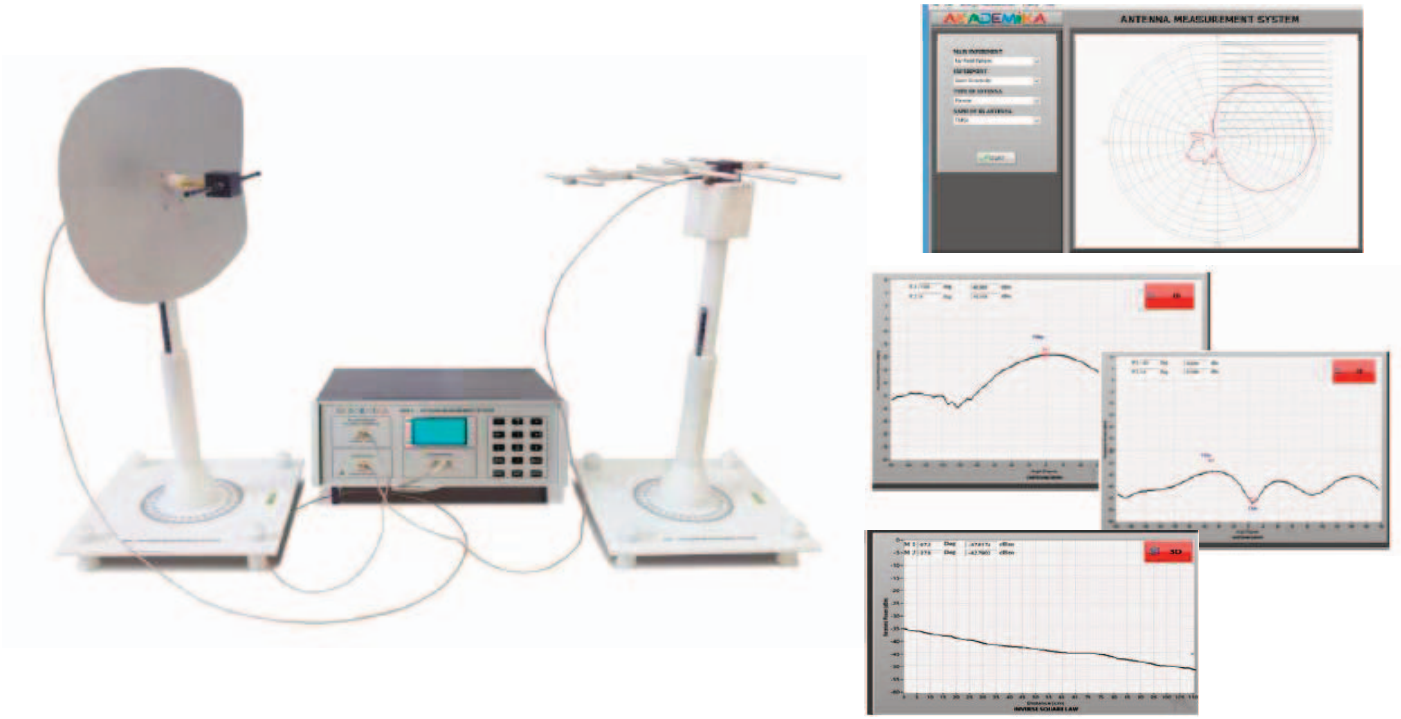
ANTENNA DESIGN AND ANALYSIS TRAINER

EA-818 Antenna trainer



The Antenna Trainer **EA-818** is a comprehensive education system designed for teaching, demonstrating and practising all types of antenna measurements. It covers UHF, L, S and ISM bands. It includes a software-controlled PLL synthesized Source and Receiver operating up to 4 GHz with a high dynamic range of power transmission. A graphic LCD display with a numeric keypad is used for acquisition and navigation during the experiments.

Experiments:

- ✓ **Field strength variation measurement / inverse square law**
- ✓ **Antenna reciprocity theorem**
- ✓ **Radiation diagram of wire antennas**
- ✓ **Radiation diagram of horn antennas**
- ✓ **Radiation diagram of reflector antennas**
- ✓ **Radiation diagram of antennas – networks**
- ✓ **Radiation diagram of planar antennas (micros trip)**
- ✓ **Measurement of co-polarization, cross-polarization**
- ✓ **Measurement of circularly polarized antennas**
- ✓ **Measurement of front-to-back ratio (F/B) of Yagi antenna**
- ✓ **Measurement of 3 dB beamwidth of horn antenna**
- ✓ **Measurement of the level of the side lobes**
- ✓ **Comparative study of different types of antennas and their radiation pattern**

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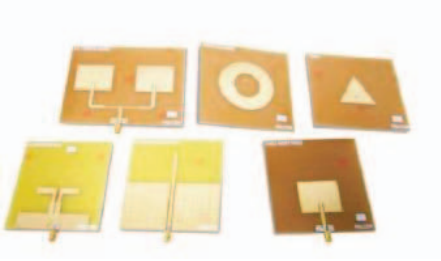
ANTENNAS:

✓ Wire antennas

Wire antennas are also called linear or curved antennas. These antennas are very simple, inexpensive and are used in a wide range of UHF and VHF applications.

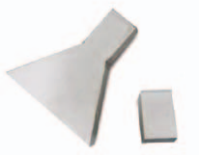
✓ Planar Antennas

Planar antennas include microstrip antennas and printed circuit board antennas. Antenna "patches" can be square, triangular or circular. They can be very small, making them ideal for wireless applications.



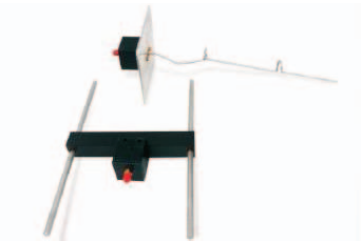
✓ Horn Antenna

Horn antennas are the main type of directional antennas used at microwave and higher frequencies.



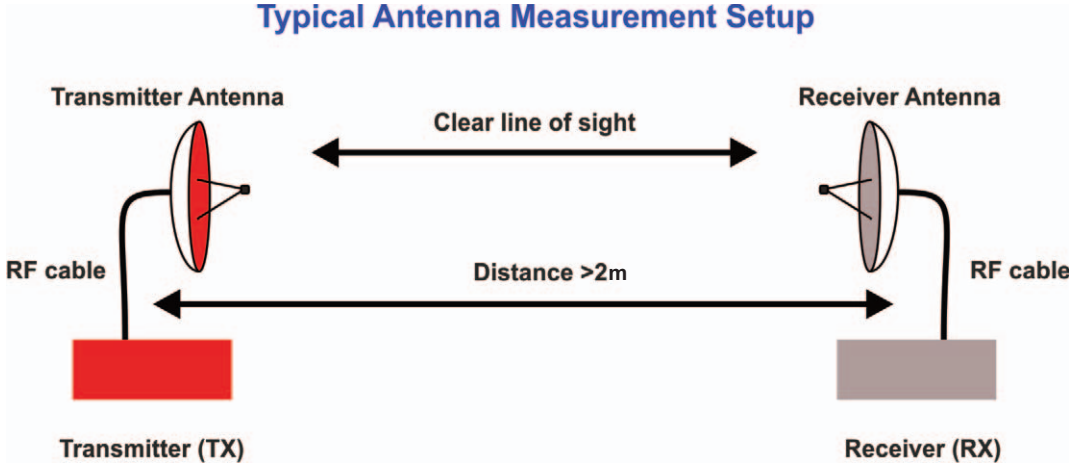
✓ Antenna Array

The antenna array must provide directivity and gain by using two or more antenna elements in such a the way that their fields combine and interact to focus the signal in one direction or in a limited number of directions.



The typical antenna parameters are gain, radiation pattern, beamwidth, polarization and impedance.

Typical Antenna Measurement Setup



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SPECIFICATIONS	EA-818 ANTENNA DESIGN AND ANALYSYS TRAINER
RF Transmitter	
Source type	Synthesize PLL with built-in VCO
Frequency range	100 MHz, 4 GHz
Power Transmitted	- 50 dBm to + 50 dBm
Output impedance	50 Ω SMA connector
RF Receiver	
Detector type	Logarithmic detector
Frequency range	100 MHz to 8 GHz
Resolution	0.1 dB
Dynamic Range	65 dB (±3 dB)
Noise level	- 90 dBm
Impedance	50 Ω SMA connector
Stepper motor driver	1.8º and 5.4º resolution
ACCESSORIES	Set of 22 Antennas, transmitting and receiving antennas, “classic”, microstrip, horn… Antenna mounting kit (feet, bases for transmitter and receiver, accessories) Supplied with accessories (software, experiment manual, cables, etc.)

PROMAX TEST & MEASUREMENT
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