

ANTENNA TRAINER AT-5000

TECHNICAL
Bulletin

1 Year
Warranty

Description:

Antenna Trainer AT-5000 is a low cost high performance antenna training system. It is designed to be used in two distinct ways; for teaching and demonstrating common antenna configurations at all levels of study, and as a design tool by those engaged in research and development of projects in communication.

Antenna Trainer AT-5000 has been designed to act as basic tool for carrying out experiment in the field of antenna for Technical Colleges and Engineering Universities undergraduate and graduate courses. AT5000 comprises of C-Band microwave transmitter, microwave receiver with Digital Voltmeter Display, turn table and set of eight different type of antennas. The transmitter and receiver units have been built in power supplies and hence each is powered from 220 VAC 50Hz supply. Various antennas are mounted directly on the receiver for pattern measurement.

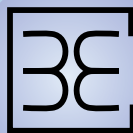
AT-5000 is stand alone, versatile table top system that provides hands on experimentation, understanding, working of Antennas, and plot their polar plots without any high frequency equipment.

Training system includes modular mechanical units construction forming various antennas, transmitting unit and detector unit. Emphasis is placed on the basic design of microwave antennas, pattern in principal planes, polarization and beam width calculation.



Features:

- Stand alone, Low cost system
- Modulated 5.15GHz DRO source
- No ancillary equipment required
- Bench-top operation
- Safe low power output
- Simple, robust stands for antenna mount
- Conveniently packed for inventory control
- More antennas can be added on the users course requirement



List of Experiments

- Familiarization with Antenna Trainer
- Study of Antenna Polarization, Axial Ratio and Tilt Angle of a circularly polarized antenna.
- Study of Dipole antenna and its radiation pattern
- Study of Horn antenna and its radiation pattern
- Measurement of the Gain of Horn Antenna
- Study of Yagi antenna and its radiation pattern
- Study of Helical antenna and its radiation pattern
- Study of Microstrip Antenna and its radiation pattern
- Study of Paraboloidal Reflector Antenna and its radiation pattern
- Study of Four Element Rectangular Patch Array Antenna
- Study of Double Dipole Array Antenna
- Study of slotted line and measurement of Wavelength and Frequency
- Measurement of VSWR using Slotted line
- Measurement of Unknown Impedance

Accessories

- C-Band Transmitter
- C-Band Receiver with turn table
- Slotted Line
- Dipole Antenna
- Double Dipole Array Antenna
- Pyramidal Horn Antenna
- Yagi-Uda Antenna
- Helical Antenna
- Microstrip Antenna
- Paraboloidal Reflector Antenna
- 4 Element Microstrip Array Antenna
- Cables SMA (m) to SMA (m)
- 30 dB Attenuator
- SMA-SMA Adapter

Specifications

C Band Transmitter

Center Frequency: 5150MHz
Output Power: 10 dBm
RF source: Dielectric Resonator Oscillator

C Band Receiver

Center Frequency: 5150MHz
Band width: 50MHz
Sensitivity: -30dBi
Turn table: 0° to 180° with 1° step

Pyramidal Horn Antenna

Gain: 7.42dBi
HP Beam width: 62°
Polarization: Linear

Yagi-Uda Antenna

Driven elements: Four element array
Polarization: Linear

Microstrip Patch Antenna

Gain: 6dBi
Effective Angle: 125°

Microstrip Array Antenna

Gain: 12dBi
Patch Elements: 4

Parabolic Reflector Antenna

Aperture efficiency: 50 %
Diameter: 31 cm
Directivity: 21.5dBi
Feed: Dipole disk feed

Helical Antenna

AR: 1.1
Directivity: 14.6
HPBW: 37.5°
FNBW: 83°

Di-pole Antenna

Directivity: 1.64
Impedance: 50 Ohm
Pattern: Omni directional
Polarization: Linear

Double Di-pole Array Antenna

Directivity: 7.5 dBi
Impedance: 50 Ohm
Polarization: Linear

ATC-5000 consists of AT-5000 + Motorized unit. It is completely computerized antenna trainer that performs PC based automated rotation of Receiving antennas at predefine angles and plots 2D radiation pattern.