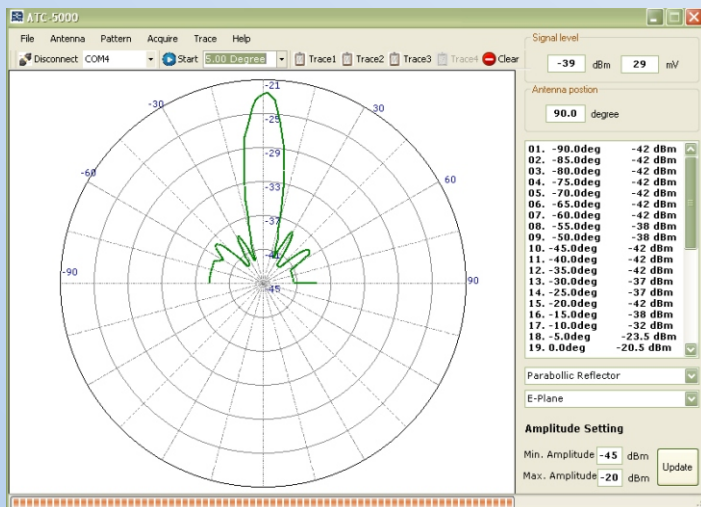


Description

Antenna Trainer ATC-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 especially for Technical Colleges and Engineering Universities for undergraduate and graduate courses., It is also used as a design tool for those engaged in research and development of projects in communication.

ATC-5000 is completely computerized antenna trainer that performs PC based automated rotation of receiving antennas at predefined angles and GUI-based polar plots of radiation patterns of each antenna. ATC-5000 comprises of C-Band microwave transmitter, receiver and set of eight different type of antennas.

ATC-5000 software provides signal level at receiver for each rotational step, azimuthal angle, polar plot of radiation pattern and beam width of each antenna.



Features

- Stand alone, Low cost system
- 5.15GHz Synthesized Frequency Source
- No ancillary equipment required
- Bench-top operation
- Simple, robust stands for antenna mount
- Motorized antenna rotation 180° / 360°
- GUI-based Antenna Pattern measurement by USB Interface
- Conveniently packed for inventory control
- More antennas can be added on the users course requirement
- Safe low power output
- Does not require an anechoic chamber



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
- Study of Double Stub Tuner

Accessories

- C-Band Transmitter
- C-Band Receiver
- 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
- USB Interface with software CD

Specifications

C Band Transmitter

Center Frequency: 5150MHz
Output Power: 10 dBm
RF Source: Integrated VCO based PLL source

C Band Receiver

Center Frequency: 5150MHz
Band width: 50MHz
Sensitivity: -30dBm
Motor rotation: 0° to 180° / 360° 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°

Dipole Antenna

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

Double Dipole Array Antenna

Directivity: 7.5 dBi
Impedance: 50 Ohm
Polarization: Linear

Double Stub Tuner (Optional)

Length: 7cm



Attenuator

Attenuation: 30dB
Tolerance: ± 0.5dB
Peak Power: 2 watts

Slotted Line:

Convenient for two minmas and maximas