

PC Based Manual Antenna Trainer has been designed to provide useful tools for hands on experimentation and teaching of various commonly used antennas in VHF-UHF-Microwave band in the laboratory for students of all levels. It can be used in stand-alone mode as well as be interfaced with a computer via USB interface. In this Receiving antenna is rotated manually from 0 to 360 degrees and accordingly receiving antennas signal strength can be monitored on the Receiver. The system consists of a set of two tripods one for mounting the transmitting antenna and another for mounting the receiving antenna, 22 Antennas, RF Transmitter/ Receiver, Antenna Plotting Software and relevant accessories/ cables.

Network Analyser: RF Transmitter & Receiver:

Frequency : 86 - 860 MHz PLL synthesized
 Step Size : 0.05, 0.1, 0.25, 0.5, 1, 10, 100 MHz
 Accuracy : 0.01%
 Display : 16X2 Backlit LCD
 Functions : Menu, Enter, Escape, Up & Down
 Memory Location : 1000 individual frequencies and level can be stored/recalled
 Output Impedance : 50 Ohms
 RF Level : 90 dBuV Typical
 Measurement : RF level in dBuV with 0.1dB resolution
 Dynamic Range : 60 dB Log
 Manual Mode : Data logging for antenna gain & polar/cartesian plot
 USB interface : Easy connectivity to PC using polar pattern plotting software
 Power Supply : 230V @ 50 Hz



Experiments:

- Variation of field strength with distance
- Plot radiation pattern of omni directional antenna
- Plot radiation pattern of directional antenna
- Polarization of vertical and horizontal antenna
- Study resonant and non resonant antenna and estimate VSWR and impedance
- Demonstrate reciprocity theorem of antennas
- Study current distribution along the element of antenna
- Study different antennas polar plots, radiation patterns, gain, beam width, front back ratio
- Comparison of different antennas

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Antennas Other Accessories

- | | |
|-----------------------------------|---|
| 01. Microstrip Rectangular Patch | a. RF Transmitter Tripod & Receiver Tripod |
| 02. Microstrip Circular patch | b. Stepper In/ Trigger BNC Cable with push button |
| 03. Microstrip Ring | c. Experimental Manual |
| 04. Microstrip Triangular patch | d. USB Connecting Lead |
| 05. Crossed Dipole RHCP | e. Antenna Plotting Software CD |
| 06. Microstrip Slot | |
| 07. Microstrip Co-Linear | |
| 08. Microstrip Semicircular patch | |
| 09. Log Periodic | |
| 10. Dipole L/2 | |
| 11. Axial Mode Helix RHCP | |
| 12. Endfire Array L/2 | |
| 13. Phase Array L/4 | |
| 14. Broadside Array L/2 | |
| 15. Dipole L/4 | |
| 16. Yagi Uda (4E) | |
| 17. Yagi Uda (3E) | |
| 18. Folded Dipole | |
| 19. Monopole | |
| 20. Sleeve | |
| 21. Axial Mode Helix LHCP | |
| 22. Square Loop | |

Note: Specifications are subject to change.

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