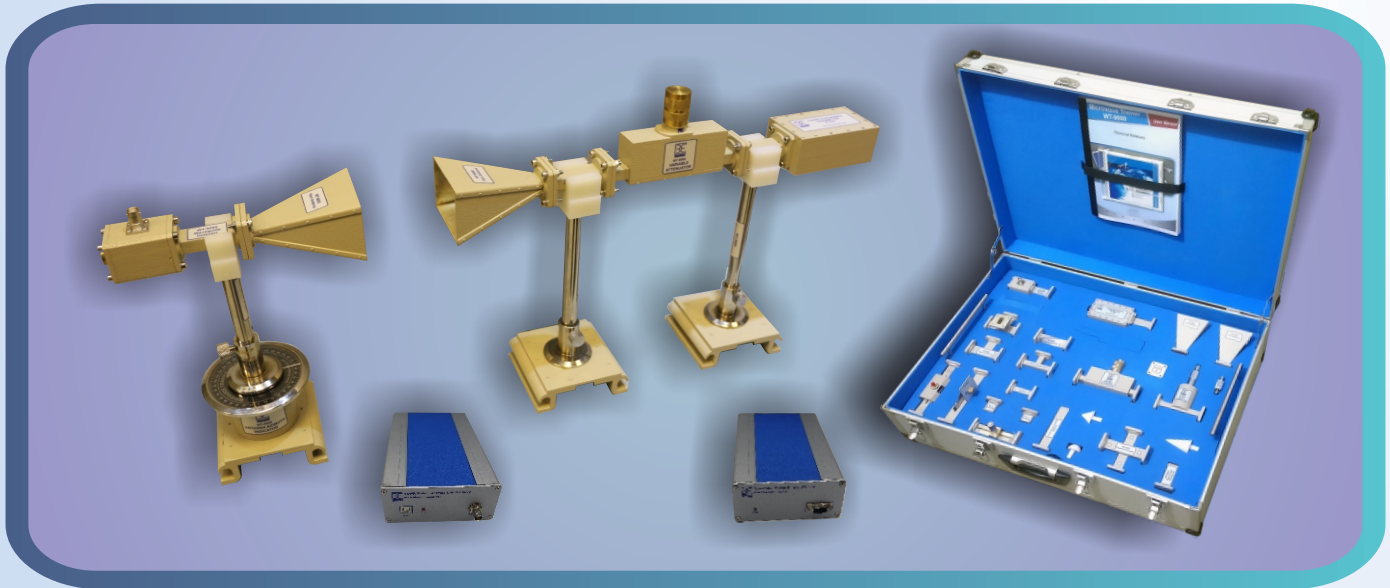


Microwave Training System

GUI Based with PC Interface

**TECHNICAL
Bulletin**

WT-9000



Microwave (Waveguide) Trainer WT-9000 is a low cost high performance training system. It is designed to be used in two distinct ways; for teaching and demonstrating common waveguide 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.

This training system allows the user to investigate the principles of microwave transmission systems, such as those used in radar and communications links. It is a precision-made system, which uses waveguide components to illustrate the essential elements within this field of study. We use rectangular copper waveguide WR75. The inside of the waveguide is silver plated to make it more conductive. A standard flange is use to connect the components of the trainer with

Features

- Stand alone, Low cost system
- 11GHz Synthesized Frquency Source
- Gunn Oscillator Source (Optional)
- GUI Based control and monitoring
- Bench-top operation
- Simple, robust stands mount
- WR-75 based Copper tube and Brass flange with silver plating
- Conveniently packed for inventory control
- More Microwave Accessories can be added on the users course requirement
- Safe low power output
- USB computer Interface
- VSWR Meter cum power meter
- Conveniently packed for inventory control



List of Experiments

- Introduction of a microwave waveguide bench and measurement of source frequency and wavelength
- Measurement of Voltage and Standing Wave Ratio (VSWR)
- Measurement of dielectric constant of solid material using waveguide method.
- Measurement of unknown impedance and impedance matching
- Horn , Dielectric Lens Antenna Investigation
- Use of a directional coupler in forward and reflected power transmission measurements
- Series, Shunt and Hybrid T junctions
- Waveguide to coaxial transition
- Microwave Radio link Investigations

Accessories

- X-Band Synthesized Source
- Waveguide Detector
- Variable Attenuator
- Fix Attenuator
- Slotted Line
- Cavity Resonator
- Stub Tuner
- Hybrid/ Magic Tee
- Series E Plane Tee
- Shunt H Plane Tee
- Matched Termination
- Waveguide short
- Inductive/Capacitive Irises
- Waveguide to Coax Adapters (2pcs)
- Pyramidal Horn Antennas (2pcs)
- Waveguide Directional Coupler
- Waveguide Transition
- Dielectric Samples
- Mounting stands
- SMA Coaxial cable
- VSWR Meter
- Software CD with Manual

Specifications

X- Band Synthesized Source

Center Frequency: 11 GHz \pm 200 MHz
 Output Power: 10 mW Typical
 Pulse Mode

Power / VSWR Meter

Frequency: 11 GHz
 Band width: 10-13 GHz
 USB Interface with GUI
 Dynamic range: 50dB

Match Load

S11: >25 dB
 Band Width: 11-13 GHz
 WR-75 Interface
 SWR: 1.1

Precision Attenuator

Insertion Loss: 1-2 dB
 Band Width: 11-13GHz
 Return Loss > 20dB

Directional Coupler

Directivity: 15dB
 Coupling: 20dB
 Type: Cross Coupled

WG to Coax Adapter

Return Loss >20 dB
 Insertion Loss: 1dB
 Connector: SMA

WG to Coax Adapter

Return Loss >20 dB
 Insertion Loss: 1dB
 Connector: SMA

Hybrid Magic Tee

S11:> 10 dB
 Isolation: 20 dB
 Band Width: 11-13 Ghz

Rectangular Waveguide

S11:> 20dB
 S12: < 1 dB
 Band Width: 11-13 GHz

Phase Shifter

S11: > 15 dB
 S12: > 15 dB
 Calibration: 11GHz

Series E Plane Tee

S11, S22, S33: > 20 dB
 S12, S13: 3.5 dB
 Band Width: 11-13GHz

Shunt H Plane Tee

S11, S22, S33:> 20 dB
 S12, S13: 3.5 dB
 Phase: 0°
 Band Width: 11-13GHz

Slotted Line

S11: > 20 dB
 Insertion Loss< 0.5dB
 Resolution: 0.5 mm
 Detector Mountable

Variable Attenuator

Return Loss > 20 dB
 S12: 1-20 dB
 Resolution: 1 dB
 Accuracy: \pm 1.5 dB

Horn Antenna

Gain: 16 dB
 S11: 20 dB
 Beamwidth: 30°
 Type: Pyramidal

Dielectric Lens Antenna

Material: PTFE
 Long & Short Triangle
 Half circle

Dielectric Samples

Material: PTFE & Fr4
 Thickness: 6mm