



DEGEM
SYSTEMS

Com & Telecom

Modern Communication

Fiber Optic Communication

Antennas

Radar

Cellular Communication

Global Position Systems

Satellite Communication

Microwaves

Telecommunication Networks

MDC-3271

Microstrip Training System

Degem's MDC-3271 Microstrip training system is an ideal training equipment to teach the important fundamentals of modern microstrip components and their application in microwave communication systems.

The training system is a self contained training system that includes all the necessary instruments and accessories for studying the characteristics of any MIC component over the frequency range 2.2 to 3GHz. The characteristics of all the microstrip components provided over the frequency range 2.2 to 3GHz by measuring the transmission loss and reflection loss with the provided equipment.

The student manual explains essential theoretical concepts and provides a detailed experiment procedure for each type of device.

- Self contained training system
- Microwave generator (2.2-3GHz) with integral frequency counter
- VSWR meter simplifies SWR measurements
- Microwave IC components
- Gold plated components
- Gold plated connectors
- PC to PC data communication



Specifications

TECHNICAL CHARACTERISTICS

The MDC-3271 training system comprises:

- Microwave integrated circuit components
- Accessories
- VSWR meter
- Microwave generator
- Student manual

MIC components

- 50Ω Microstrip Line
- Band stop filter
- Parallel line directional coupler (15dB)
- Wilkinson power divider (3dB)
- Branch line directional coupler (3dB)
- Low pass filter
- Band pass filter
- Ring resonator
- Rat-race hybrid ring coupler (3dB)

Accessories

- Matched loads (5)
- Short
- Coaxial detector
- Microstrip directional coupler (10dB)
- SMA to SMA adapters (both male & female)
- SMA (male) connector fitted cables
- Attenuator (3dB)

Microwave generator

- Frequency range (2.2-3GHz continuously variable)
- Display (4 Digit LCD)
- Display accuracy (40MHz)
- Impedance (50Ω)
- Min RF level (5mW)
- Output level variation (10-20dB)
- Operating modes (Sweep, CW, Int. AM, Int. FM, Ext. AM)
- PC communication
- Modulating frequency (100Hz, 5KHz AM square wave)
- FM triangular wave
- Power supply (220V ±10%, 50Hz, 115V 60Hz on request)
- Power consumption (5VA approximately)
- Dimension (mm) – W 225 × D 320 × H 125

VSWR meter

- Sensitivity (0.1μV at 200Ω input impedance for full scale deflection)
- Noise level (Less than 0.02 μV)
- Range (0- 60dB in 10dB steps)
- Input (unbiased low and high impedance crystal biased)
- Crystal (200 and 200K)
- Meter scale (SWR 1-4, SWR 3-10, 0-10 dB, expand SWR 1-1.3, 0-2 dB)
- Gain control (adjusts the reference level, variable range 0-10 dB approx.)
- Input connector (BNC (F))
- Input frequency (1000 Hz ±10%)
- Power supply (220V ±10%, 50Hz /60Hz on request)
- Power consumption (2VA approx.)
- Dimension (mm) – W 262 × D 316 × H 130

EXPERIMENTS

- Measure transmission loss and reflection loss (SWR)
- Measure dielectric constant of substrate with ring resonator
- Power divider: isolation and return loss
- Branchline coupler characteristics
- Parallel line directional coupler: coupling & directivity
- Rat-race hybrid ring coupler characteristics
- Low pass filter characteristics
- Band pass filter characteristics
- Band stop filter characteristics
- Measure MIC amplifier gain

REQUIRED ACCESSORIES

Personal computer with MS Windows

INSTRUCTIONAL MATERIALS

The experiment manual was written by pedagogical experts in modern microstrip technology. The essential theory to understand and perform the experiments is provided. The procedure for each experiment is clearly written to allow the students to easily complete each experiment.