Advanced Antenna and Radiating System Lab (MODROB Sponsored by (AICTE)

Introduction

Advanced antenna and radiating system lab (MODROB Sponsored by AICTE) is established in Electronics & Communication Engineering department of Chandigarh Engineering College, Landran, Mohali. The Antenna system is an inevitable component of wireless system. This lab equipped with high frequency instruments and tools to explore the RF and applied electromagnetic field. HFSS software, Prototype machine and VNA provide an integrated environment designed specifically for engineers and scientists. New measurement applications of VNAs have emerged, extending their use to the ultra-wide-bandwidth and/or millimeter wave for 5G applications.

Objectives

➢Awareness of the value and importance of effective and efficient communication by antenna.
➢Simulation of different microwave components using ANSYS Designer and HFSS.
➢Simulation of different types of basic Antennas using ANSYS HFSS (Wire and Planar)
➢Circuit layout Design and optimization using ANSYS Designer.
➢Physical insight to measurement of antennas using Vector Network Analyzer

Project Details

Title of Project	**Development of Communication System for Next Generation Wireless Networks**
Granting Agency	**All India Council of technical education (AICTE)**
Duration of Grant	**2 years**
Sanction amount	**Rs.1548334/-**
Project Coordinator	**Dr. Vinay Bhatia**
Project Co-Coordinator	**Dr. Sukhdeep Kaur**

Software & Equipment's List

Printed circuit Board (PCB)

➢Working area: 320×230×50 mm^3
➢Maximum travel speed: 60 mm/sec
➢Maximum working speed: 30 mm/sec
➢ Power Consumption: AC 110-220 V
➢ Machine weight: 58.5Kg

ANSYS HFSS

➢Ansys HFSS is a 3D electromagnetic (EM) simulation software for designing and simulating high-frequency electronic products such as antennas, antenna arrays, RF or microwave components, high-speed interconnects, filters, connectors,

Vector Network Analyzer (VNA)

➢300 kHz to 20 GHz, two port device
➢Automatic fixture removal Option Accurately removing the effects of the fixture is required to get a good measurement of the device under test (DUT).
➢ Measure the Return loss, VSWR, Smith Chart and Time delay.
➢Time Domain measurements like Reflection and transmission response
➢VNA should have the capability of combining the signals from internal generators; Combined signal should be calibrated over the entire frequency range.

PCB Machine

VNA

Dr. Sukhdeep Kaur
Lab Incharge MODROB Lab
sukhdeep.ece@cgc.edu.in