RF Measurement Basics

Course Overview

Course Numbers:
Agilent Training Center: H7216A #101
Onsite Training Center: H7216B #101

An introductory course for engineers new to RF test

Course Overview

This course covers all aspects of basic high-frequency measurements. Upon completion, the student should be familiar with radio frequency (RF) measurements including measurement resolution and accuracy, transmission line theory, impedance matching, RF devices, noise, RF, sources, modulation, distortion. The student will gain experience with power measurements, vector network analyzer measurements, and spectrum analyzer measurements.

What you will learn

- Understand the fundamentals of RF measurement technology
- Understand RF measurement techniques
- Measurement uncertainty calculations
- Acquire the prerequisites for the effective use of measurement instrumentation

Specifications

Course Type
User/Application Training

Audience
The course has been designed for engineers working in wireless communication R&D, manufacturing or installation and maintenance and who are new to RF test.

Prerequisites
A general understanding of electronic and measurement principles.

Course Length
2 days

Course Format
This course is presented classroom style. All presentation materials are contained in the student workbook, which the student may keep for future reference.

Delivery Method
Scheduled at Agilent locations, or *Dedicated* at a customer site.
To save you time and travel, many Agilent courses can be delivered at your site. Agilent can provide required equipment, or you can save money by furnishing your own.

Detailed Course Agenda

Transmission Lines
- Transmission line theory
- Characteristic impedance
- Impedance matching
- VSWR, Return Loss
- Slotted line
- Connector types

Network Analysis Basics
- Linear vs. non-linear analysis
- Network principles/applications
- Sources of error
- Error models/calibration
- Instrument Demonstration

Power Measurements Basics
- Average/peak
- Units of power
- Detectors: types/applications/range
- Accuracy/uncertainty
- Instrument demonstration

Noise Figure Basics
- Noise basics
- Definition of Noise Figure
- Noise Sources

Spectrum Analysis Overview
- What is spectrum analysis
- What measurements can be performed?

Theory of operation

- Spectrum Analyzer Block diagram
- Front Panel Operation
- Instrument Demonstration

Understanding the SA specifications – which are important and why?

- Frequency range
- Resolution
- Sweeptime
- Accuracy
- Distortion
- Noise floor
- Video filtering/averaging
- Optimum dynamic range

For the latest information on class schedules and locations visit our website:
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