



# RF Measurement Basics

## Course Overview

Course Numbers:

Agilent Training Center: H7216A #101

Onsite Training: H7216B #101

## Lab-intensive course for test technicians and test engineers new to RF

### Course Overview

This course, presented by Agilent Technologies, 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 hands-on experience with connector care, power measurement, vector network analyzer measurements, and spectrum analyzer measurements.

### What you will learn

- RF fundamentals
- Communications concepts
- Power measurements
- Network measurements
- Spectrum measurements
- Operation of test equipment
- Noise
- Modulation

### Specifications

#### Course Type

Application/User Training

### Audience

Test technicians and test engineers new to the area of RF and microwave.

### Prerequisites

The following knowledge or experience is required:

- A basic understanding of algebra and trigonometry
- A general understanding of basic electronics, basic physics, and general science, especially force, charge, current, voltage and power (basic vocational electronics training is desirable)

### Course Length

4 days

### Course Format

50% Lecture and 50% Lab

### 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

#### RF Fundamentals

- AC/DC fundamentals
- Measurement resolution & accuracy
- DeciBels
- Understanding the frequency domain
- RF devices
- Transmission lines
- Impedance matching
- RF connector types and use

#### Communication Fundamentals

- History
- Concepts
- Transceiver measurements

#### Power Measurements

- Average/peak
- Units of power
- Detectors:  
Types/applications/range
- Accuracy/uncertainty
- Lab



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### Network Analysis

- Linear vs. non-linear analysis
- Network principles/applications
- Operation/Use
- Sources of error
- Error correction/Calibration
- Lab

### Noise

- Noise processes
- KTB
- Noise figure/Phase noise

### More RF Concepts

- RF sources
- Modulation
- AM, FM, PM, Digital
- Distortion

### Spectrum Analysis

- Time domain vs. frequency domain
- Applications
- Types of spectrum analyzers
- Analyzers block diagram
- Heterodyne concepts
- Understanding the SA

For the latest information on class schedules and locations visit our website:  
**[www.agilent.com/find/education](http://www.agilent.com/find/education)**

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