

# Keysight Technologies

## Cable and Connector Care

### Course Overview

Course Numbers:

Keysight Training Center: H7215A #160

Onsite Training: H7215B #160

### Gain a better understanding of RF Microwave test equipment

#### Course Overview

This 1/2 day course presented by Keysight Technologies, Inc. trains users of RF & Microwave test equipment on the proper use of cables and connectors.

Upon completion of this course the student will have fundamental knowledge about the proper use of cables and connectors, the types of connectors, basic construction of a coaxial cable, principles of connector care and the connector specifications. Students will be able to use Network Analyzers to make some measurements that will teach the importance of connector care.

#### What you will learn

- Measurement errors
- Fundamentals of connectors
- Commonly used connectors
- Typical connector cross-section
- Principles of connector care
- Initial preparation before a connection is made
- Connector specifications

#### Specifications

#### Course Type

User Training

#### Audience

All Technicians and Engineers in the RF and Microwave industry whose job involves handling cables and connectors.

#### Prerequisites

None

#### Course Length

1/2 day

#### Course Format

Lecture and Lab

#### Delivery Method

*Scheduled* at Keysight locations, or

*Dedicated* at a customer site.

To save you time and travel, many Keysight courses can be delivered at your site.

Keysight can provide required equipment, or you can save money by furnishing your own.

#### Detailed Course Agenda

#### Measurement Errors:

- Look at the three basic sources of measurement error: systematic, random and drift

#### Fundamentals of Connectors:

- Review some basic fundamentals of connector use and design.
- Understand why connectors are considered consumables.
- Good connection techniques
- Making a good connection

#### Commonly used connectors:

- Type N, BNC, SMA and other types of connectors
- Why are so many connectors necessary?

#### Typical connector cross-section:

- Outer conductor
- Centre conductor
- Slotted female centre conductor
- Pin depth

#### Principles of connector care:

- Handling and storage
- Electro-static discharge
- Visual inspection
- Connector damage
- Cleaning connectors
- Using torque wrench
- Mechanical inspection
- Gauging connectors

## Initial preparation before a connection is made:

- Test port extension cables
- Preparation for use
- Cable requirements

## Coaxial cables:

- Centre conductor
- Outer conductor
- Cable bends and its effects on measurements
- Characteristics impedance
- Frequency coverage
- Different connector grades such as metrology grade, instrument grade and production grade.

## Connector specifications:

- Connector survey
- Interface specification
- Connector pin-depth specification
- Measurement uncertainty at higher frequencies
- Using adapters as connector savers
- Connecting sliding loads
- Qualify good connections
- Making repeatable connections

## Hands-on Lab:

The fundamental goal of this hands-on lab will be to have the students check connection techniques/repeatability using a Vector Network Analyzer. Instructors can run the lab as a competition between the attendees as to who could make the most repeatable connections.

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