

## Course 703 – Basics of Line Sweeping

### Scope

This one-day seminar builds competence to perform effective swept-frequency and TDR testing of transmission lines used in wireless systems with currently popular test equipment. Beyond operational skills to obtain valid measurements, it also provides knowledge of transmission line principles necessary to interpret line sweeps and recognize problem causes and necessary corrective actions.



### Target Audience

Wireless system operations and engineering personnel.

### Course Presentation Setting and Methods

Presented in classroom setting with computer projection with student workbooks.

### Topical Outline

- **Testing Communications Feedlines and Antennas**
  - **Feedline characteristics: Impedance, Attenuation, physical details**
  - **Forward and Reflected Energy**
  - **Swept Return Loss and Distance-To-Fault Measurements**
- **Introducing Commercial Sweeping Equipment**
  - **Operating Modes, Frequency/Distance, Amplitude, Sweep**
  - **Calibration and Measurement Exercises**
  - **Accessories and Calibration Methods**
- **Advanced Topics**
  - **Line Failure Mechanisms and Scenarios**
  - **PIM Passive Intermodulation Testing**
- **Exercises and Individual Examination**
  - **Automatic and Manual Calibration Techniques**
  - **Finding real shorts, opens, line damage; distance to fault**

**Prerequisites** None

**Course Documentation and Materials** Student guide, Misc. Supplies.  
A certification card is provided upon successful exercise completion.

### Facilities and Hardware Requirements

Classroom suitable for student note-taking and a screen or other projection surface