Course Name: TESSCO Line Sweep Certification

Course Overview:
The course covers theory and the practical Return Loss testing used in installation, maintenance and operation of antenna systems. The class will include extensive hands-on exercises testing cable, connectors and antennas along with interpreting the results.

The class is centered on four popular test sets (Agilent, Anritsu, Tektronix and Bird).

Certification testing is available for students attending this class.

Course Length: 2 days

Who should attend?

- Field Service Technicians
- Switch Technicians
- Design Engineers
- Managers/Field Supervisors
- Field Engineers
- Installers

You will learn:

- Understand the basics of cable and connectors
- Set up, operate and interpret results on standard Line Sweeping test equipment
- Efficiently install and test cables, connectors and antennas
- Troubleshoot common problems affecting RF transmission
- Reading and interpreting Line Sweeping traces and results
- Measuring effective and center frequencies of antennas
- Saving and storing test results

Prerequisites: None

Customizable Course: Yes

Course Content:

Introduction to Antennas

- Maxwell & Waves
- Why antennas work
  - Gain
  - Beamwidth
  - Bandwidth

- Antenna network components
- Transmission lines
- Connectors
- Terminations
- Testing Standards

Impedance and Reflections
- Impedance
- Bad connectors
- Crushed cable
- Damaged cable
- Other problems

Basics of Line Sweeping
- What are you testing
- Various types of test equipment
- TDR v/s FDR

Antenna Test Equipment
- Test Heads
  - Coaxial
  - Waveguides
- Phase Stable Cables
- Scalar analyzers – displays
- Equipment set-up
- Initial calibration
- Environmental considerations

Supporting Documentation
- Standard reporting
- Saving results
- Printing results

Test Interpretation
- Testing Standards - defined
- Return Loss
- Distance-to-Fault
- VSWR – Return Loss
- Software tools
- Saving and printing plots

Practical Applications
- When to test
  - Spools

    - Turn-up
    - Damage
    - Scheduled
- Testing Special cables
- Testing Waveguides
- Sectionalizing
- Testing Tower Amplifiers

Frequency Verification of Antennas