

**Course Name:** Fundamentals of Copper Testing

**Course Overview:**

New and existing technicians will benefit from the Fundamentals of Copper Testing course to learn or update their knowledge of copper testing, changes to service offerings, and impact on high-speed data services. This course will start with fundamentals that are universal for any level of service and test equipment and expand to advanced testing topics and service specific testing parameters.

**Course Length:** 2 days

**Who should attend?**

- Field Service Technicians
- Field Engineers
- Managers/ Field Supervisors
- Design Engineers
- Electricians
- Managers or Supervisors

**You will learn:**

- Copper-based network fundamentals and terminology
- Electrical characteristics of copper
- DC testing and AC testing fundamentals and test equipment
- Faults and Impairments of copper
- Time Domain Reflectometer (TDR) and test equipment
- Service specific testing requirements and parameters

**Prerequisites:** None

**Course Fees:**

- 2 day course at a TESSCO Location \$950 per person
- 2 day course at your location \$6,000 for up to 10 attendees

**Customizable Course:** Yes

**Course Content:**

Overview of Copper Plant

- Network layout
- Cable types
- Gauges
- Color codes
- Equipment
  - Load coils

- Build-out capacitors
- Repeaters
- Amplifiers
- Telephones
- Modems
- Distance
- Frequencies
- Service offerings

#### DC Testing

- Electrical characteristics
- DVOM
- Resistance measurements
- Voltage
- Current

#### AC Testing

- Capacitance
- Inductance
- Balance
- Noise
- Power influence
- Cable length
- Impediments

#### Faults

- Shorts
- Opens
- Grounds
- Length
- Gauge changes
- Splices
- High-resistive faults
- Water
- Noise
- Imbalance

#### Time Domain Reflectometer (TDR)

- Setting up test
- Velocity of propagation
- Interpreting test results
- Measuring distance to faults

#### Resistive Fault Locating (RFL)

## Service Specific Testing

- POTS
- ADSLx
- HDSLx
- DDS
- T1