

**Course Name:** Fiber Optics Testing and Troubleshooting

**Course Overview:**

A review of fiber optic field test solutions emphasizing hands-on practical training with attenuation test sets and the Optical Time Domain Reflectometer (OTDR).

**Course Length:** 8 Hours

**Education Credits:** Seven (7) BICSI Credit Hours – RCDD and Installers.

**Who should attend?**

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

**Recommended Prerequisites:**

AFL Telecommunications' "Fundamentals of Fiber Optics" or equivalent education and experience with fiber optic passive components.

**Customizable Course:** Yes

**Course Content:**

Fiber Optic Testing Overview

- Basic Field Tests
- Field Test Equipment: Use and Application

Attenuation testing

- Explain the basic system configuration for attenuation testing.
- Explain the use of jumpers during attenuation testing.
- Develop an attenuation budget.
- Explain the proper application of the 1, 2, and 3 jumper reference.
- Explain the proper application of the mandrel wrap for MM testing with a LED light source.

Attenuation Test Set Fundamentals

- Explain the keys and functions on the Noyes OPM 5-2C power meter and OLS power sources
- Mathematically evaluate jumper performance with the attenuation test set
- Use the reference key to evaluate jumper performance with the attenuation test set

OTDR Fundamentals

- Applications for OTDR testing



- Explain the basic principle of operation for an OTDR
- Explain each parameter in the Noyes M600 set-up menu

#### Basic Trace Interpretation

- Identify the following events in an OTDR trace

#### Advanced Trace Interpretation

- Identify and explain the occurrence of a ghost reflection
- Identify and explain the occurrence of a gainer
- Identify and explain the occurrence of an exaggerated loss
- Explain the proper technique for splice loss estimation with an OTDR
- Explain the difference between optical distance and cable sheath distance
- Explain techniques for reconciling cable sheath distance and optical distance
- Explain anomalies resulting from an optical distance in excess of OTDR range

#### OTDR Practicals

- Check set-up parameters
- Determine jumper length
- Determine system length
- Perform a 2-pt loss estimation on a mated connector pair
- Perform a 2-pt loss estimation on a fusion splice
- Perform a LSA loss estimation and reflection estimation on a connector pair
- Perform a LSA loss estimation on a fusion splice

Demonstration of procedures for identifying and troubleshooting a cross-splice.

Demonstration of procedures for isolating a fault and reconciling optical/sheath distance in links with various cable types and constructions