Fiber Optic Testing w/the Acterna MTS-5100

Course Number	Delivery Method	Course Length	Language of Instruction
TT-MTS5100	Instructor-Led at Customer Site	2 Days	English
TT-MTS5100-VC	Instructor-Led via Virtual Classroom	5 two-hour sessions no hands on	English

Synopsis

This course is designed to give a detailed overview of fiber optic troubleshooting techniques using the MTS-5100. After an understanding of the technology is established, participants learn to test single wavelength Fiber Optic systems using the MTS-5100.

Prerequisites

A basic understanding of telecommunications transmission principles.

Who Should Attend

Technicians, engineers, and technical support personnel who are directly or indirectly responsible for installing and troubleshooting fiber optic systems.

Course Goals

Upon completion of this course, participants will be able to:

- Describe the Fundamental Operation of an OTDR
- Detail the various fiber types and connectors types
- Identify the causes of loss in a fiber optic systems
- Detail common fiber optic tests
- Demonstrate the proper use of the MTS-5100 Optical Time Domain Reflectometer to perform cable analysis
- Define typical event analysis using the MTS-5100 Optical Time Domain Reflectometer
- Define Rayleigh Backscatter
- Describe how Index of Refraction can affect the OTDR's measurement accuracy

Course Outline

Overview of the MTS-5100 (VC Session 1)

- Orientation and Course Goals
- MTS-5100 Overview and Controls
- Measurements and Results Overview
- File Management
- Remote Control

Fiber Optic Basics (VC Session 2)

- Fiber Optic Uses
- Optical Systems
- Fiber Optic Advantages
- Principles of Light
- Fiber Construction
- Fiber Types
- Fiber Connections and Splices
- Fiber Losses
- Light Sources
- Optical Detectors Types
- Fiber Cables Types & Design

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Fiber Handling (VC session 3)
- Safety Care & Cleaning

Fiber Cleaning Resources
- Manual fiber cleaners
- Compressed dry air
- Lint-free wipes
- Ferrule swabs
- Isopropyl alcohol
- Anti-static work surfaces
- Inspection microscopes
- Digital inspection probes

Fiber Care
- Technical Specifications
- Proper fiber handling
- Fiber cleaning techniques
- Fiber inspection techniques
- Analyzing endfaces
- Labs (On-Site Only)

Fiber Measurements (VC Session 4)
- Length of fiber
- Locating Fusion Splices, Mechanical Splicing and Optical Cross-Connects
- Locate Splice Gains
- Bidirectional Testing

Locate Fiber Anomalies
- Fiber Breaks
- End of Fiber
- Micro/Macro Bends

Measure Insertion Loss Caused By
- Patch Panels
- Fusion Splices

MTS-5100 Testing Apps
- DWDM Measurements
  - Channel Wavelength, Frequency, Spacing and Power
  - Optical Signal to Noise Ratio
- Polarization Mode Dispersion (PMD)
- Chromatic Dispersion (CD)
- Optical Spectrum Analyzer (OSA)

Principles and Use of an OTDR (VC Session 5)
- Single Wavelength Systems
- OTDR Event Definition
- OTDR Trace Information
- Fiber End Location

Define Typical OTDR Terms
- Event Dead Zone
- Dynamic Range
- Pulse Width and How It Affects Dynamic Range
- Launch Cable

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Virtual Classroom session breakouts are approximate.

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