Characterization and troubleshooting of fiber optic paths (OTDR, CD, PMD) using MTS-xxx optical handheld devices. Splicing and cleaning

Lab Session

Optical fibers have become an established medium for network connections. The wide range of applications for this technology means that more and more personnel are involved with it. Fiber parameters such as chromatic dispersion (CD) and polarization mode dispersion (PMD) are of increasing importance in high-speed networks. What is the significance of this for test technicians and how are these parameters measured?

In this practical measurement course, participants will learn how to troubleshoot fiber optic networks and the characterization of optical fiber paths. The measurement procedures will be explained and the correct use of measuring equipment discussed with the participants.

The OTDR is given particular attention due to its versatility. How this equipment works and information and tips on how to set it up for fast and efficient work will be discussed with the participants. The learning process is intensified by means of practical measurements on various fibers and the evaluation of examples. Participants can bring their own measurement results with them for interpretation.

Other types of measuring equipment are also used. Standard-compliant measurement of optical attenuation, optical power level, CD and PMD is explained and demonstrated practically. Correct configuration of the test equipment to avoid measurement errors and the various measurement methods are discussed and practiced. Some important side issues are also covered: How to clean and inspect optical connectors properly, and how to make a splice.

Contents

- How an OTDR works, and the effects of the measurement parameters
- Settings for processing data for rapid and reliable interpretation of measurement results
- Measurements on demonstration devices
- Evaluation of example measurement traces
- Discussion of results brought along by participants
- Optical attenuation and power level measurement. Bidirectional attenuation measurement
- Splicing fibers and pigtails
- Cleaning optical connectors
- Inspecting optical plugs and sockets using a video microscope
- Measuring chromatic dispersion and polarization mode dispersion
- Measurements with a WDM analyzer (optical spectrum analyzer)
- Documentation of measurement results

Equipment discussed

- OTDR, CD, PMD, optical spectrum analyzer (OSA) for WDM, optical handheld devices

Note

Participants are asked to bring an OTDR and – if available – recorded results with them. The number of participants is limited to 10.

There is a separate practical course for users of FiberTrace and FiberCable (OFS-100, OFS-200) evaluation software.

Course objectives

After this practical course, participants can perform professional measurements to characterize or troubleshoot optical fiber paths, recognize errors, and interpret the measurement results.

Target group

The seminar is intended for everyone who uses optical measuring equipment, particularly an OTDR. It specially targets test technicians who carry out characterization measurements or troubleshoot optical fiber paths, as well as planners and installers who need to appraise the measurement results.

Prerequisites

Basic knowledge of fiber optics corresponding to the contents of the seminar “Optical fiber technology – Fundamentals of optical communications and measurement”.

Related seminars

- WDM – Terabits by Fiber Optic Cable
- FiberTrace and FiberCable Practical

Seminar info

- Duration
  3 days, from 9.00 to 16.30 h
- Date, location and price on request or see under www.viavisolutions.com

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