

Basics of WDM Systems and Technologies for New Optical High-Speed Networks with Bit Rates of 10/40/100 Gbps

Multi-channel transmission, based on WDM (Wavelength Division Multiplex), increases the bandwidth of optical transmission systems dramatically – in combination with latest optical high-speed technology up to 100 Gbit/s and beyond.

Part I of this seminar gives an insight into the very different requirements for Metro (CWDM) and Long-haul (DWDM) networks; it discusses structures and used WDM components and main functionalities as well as corresponding international standards. Unwelcome non-linear effects of different optical fibers and their dispersion characteristics (CD and PMD) are explained for deeper understanding of relevant physical processes. Additionally, All Optical Network (AON) and Soliton technology are covered.

Part II summarizes worldwide success stories of new optical high-speed networks – thus covering actual deployment, implementation and application of latest technologies: new types of modules, interfaces and modulation will be presented in detail – including essential tests and recommended measurement tasks.

An overview of worldwide manufacturers, operators and international cooperation groups shows actual and future market trends.

The glossary “40G/100G – ETH – OTN – SDH – Optics” puts into practice the numerous abbreviations of this complex terminology.

Contents

- ▶ Part I: WDM – DWDM – CWDM
 - Structure and function of WDM systems
 - International standards and norms
 - Special active and passive components
 - Measuring parameters of WDM systems
 - Non-linear effects in optical fibers
 - Dispersion: CD and PMD
 - Q-factor measurement
 - All Optical Networks (AON)
- ▶ Part II: 10G/40G/100G
 - Motivation and worldwide success stories
 - New high-speed technologies
 - International standards and norms
 - Deployment and main application
 - Standardized modules and interfaces
 - New types of modulation
 - Market trends, manufacturers, operators and groups
 - Interoperability tests
 - Essential measurement tasks

Equipment discussed

- ▶ High optical power level (WDM)
- ▶ Optical spectrum analysis (OSA)
- ▶ Dispersion and compensation (CD and PMD)
- ▶ High Speed testing: 10G/40G/100G

Trainer

- ▶ Sylvester Rademaker

Course objectives

The participants learn

- How WDM works
- Measurements on WDM systems
- Technologies of new high-speed networks
- New modules, interfaces and modulations
- International standards.

Target group

Engineers and technicians in charge of WDM systems and optical high-speed networks (40G/100G).

Prerequisites

In-depth knowledge of optical transmission techniques or the contents of “Fiber Optics” seminars.

Related seminars

- ▶ “OTN-G.709-plus Sup43”
- ▶ “MTS-xxx with optical and transport modules”

Seminar info

- ▶ Duration
3 days, from 9.00 to 16.30 h
- ▶ Date, location and price on request or see under www.viavisolutions.com
- ▶ On-site or customized seminars and E-Learning on request

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