SIEMENS

Training Institute

TRAINING CATALOGUE

2006-2007

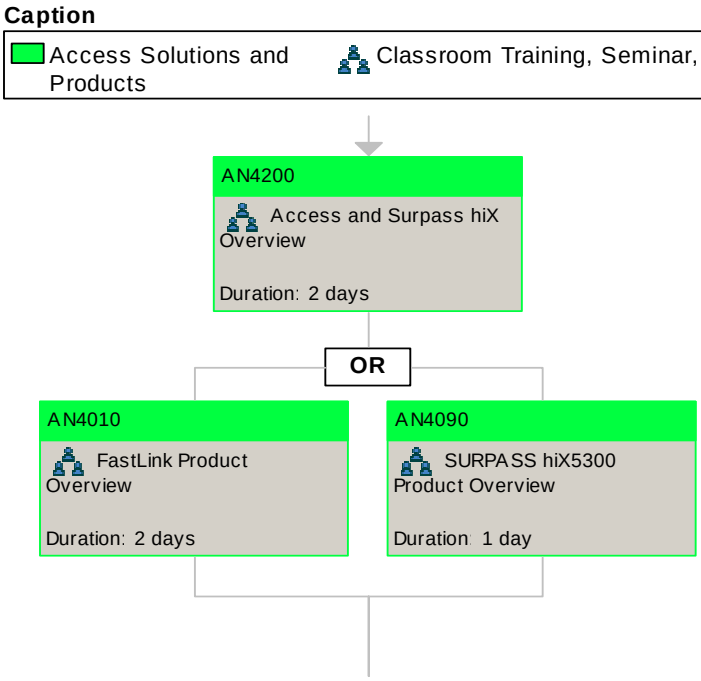
This offer is issued for you by:

Regional Training Institute Tunisia
Phone: +216 (71) 108 108
Fax: +216 (71) 964 570
E-Mail: training.tn@siemens.com
Internet: http://www.siemens.com.tn

Contents

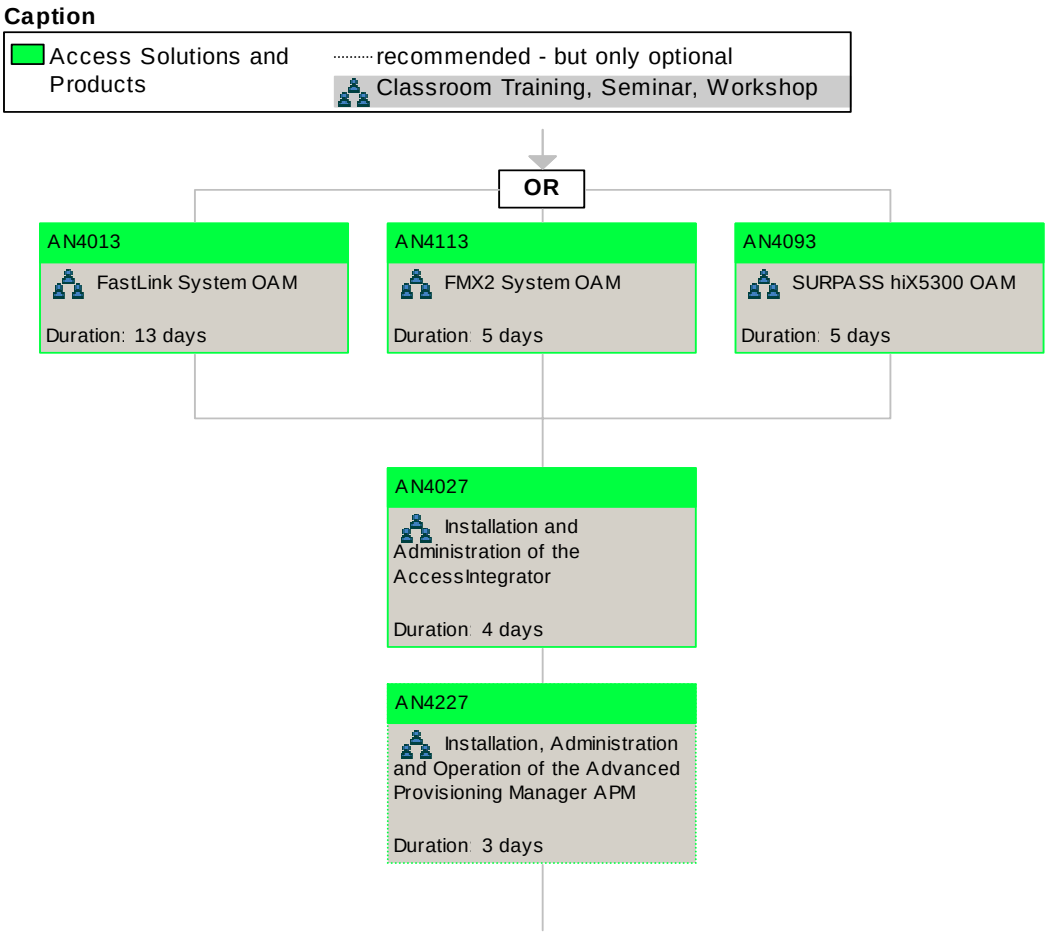
Course Description of the Courses

Training Option Access Solutions and Products



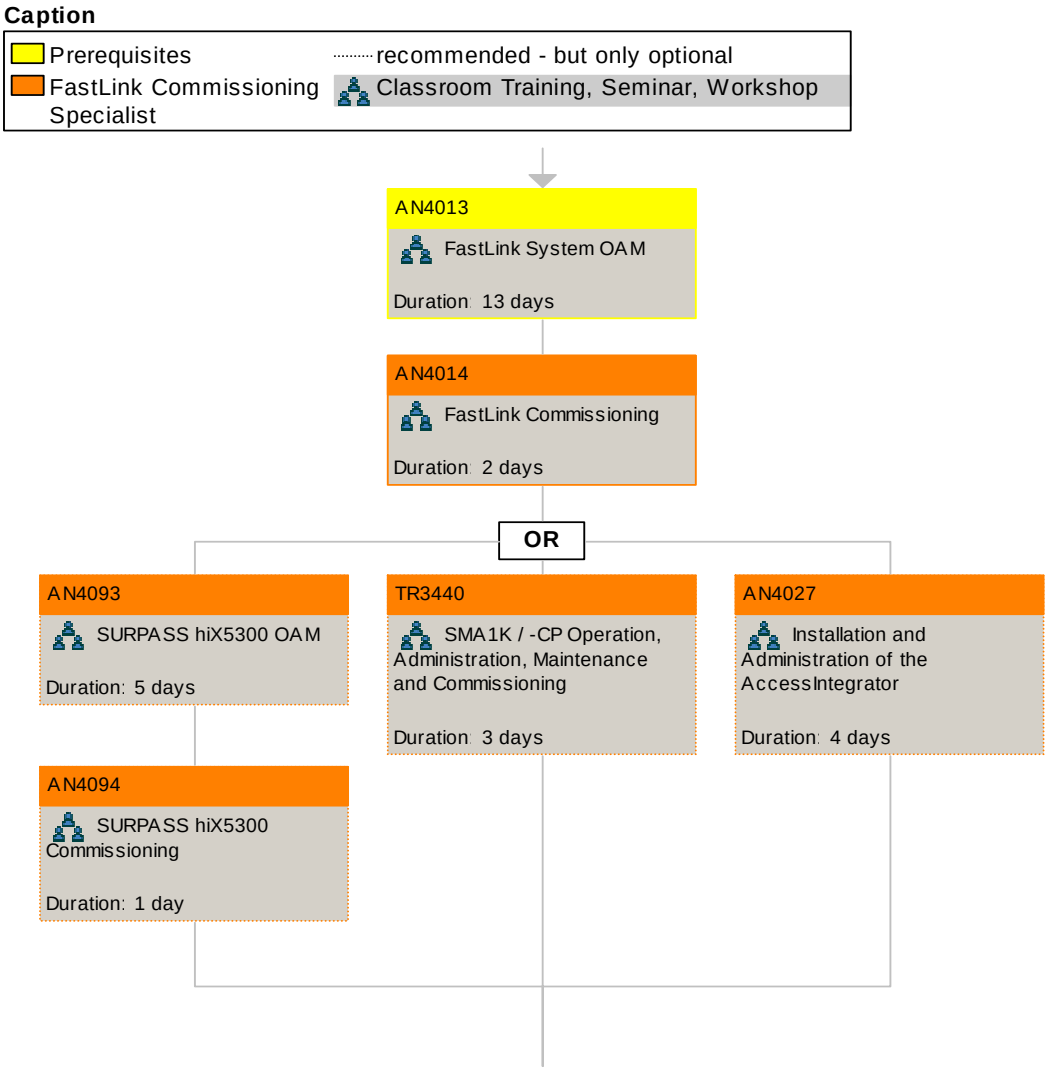
Target Group	Manager
Aim	The manager trained in the seminar listed and described below is not directly involved in the management of the system, the network elements or the network. His job however requires, that he has got a basic understanding of the installed system, the network and the network elements including services and features.
Prerequisites	Participants should have a basic understanding of telecommunications
Training option number	AN0010EU01AN

Training Option AccessIntegrator System Administrator



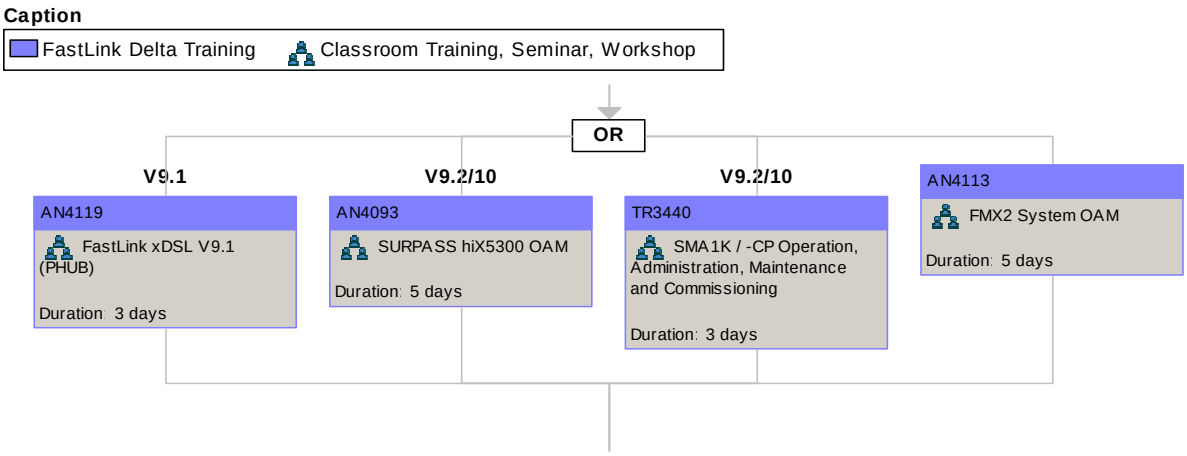
Target Group	System Administrator
Aim	The system administrator for the TMN system AccessIntegrator administers both, the system and the applications including the database. He configures a fault free system, performs corrections if necessary and maintains this system. The administration of the applications include the application specific database and database backup.
Prerequisites	Qualified technician with a basic understanding of PC software administration and LAN technology. Additionally, participation in OAM training courses of at least 1 access network product (e.g. FastLink, XpressLink) prior to the start of this training.
Training option number	AN0007EU01AN

Training Option FastLink Commissioning Specialist



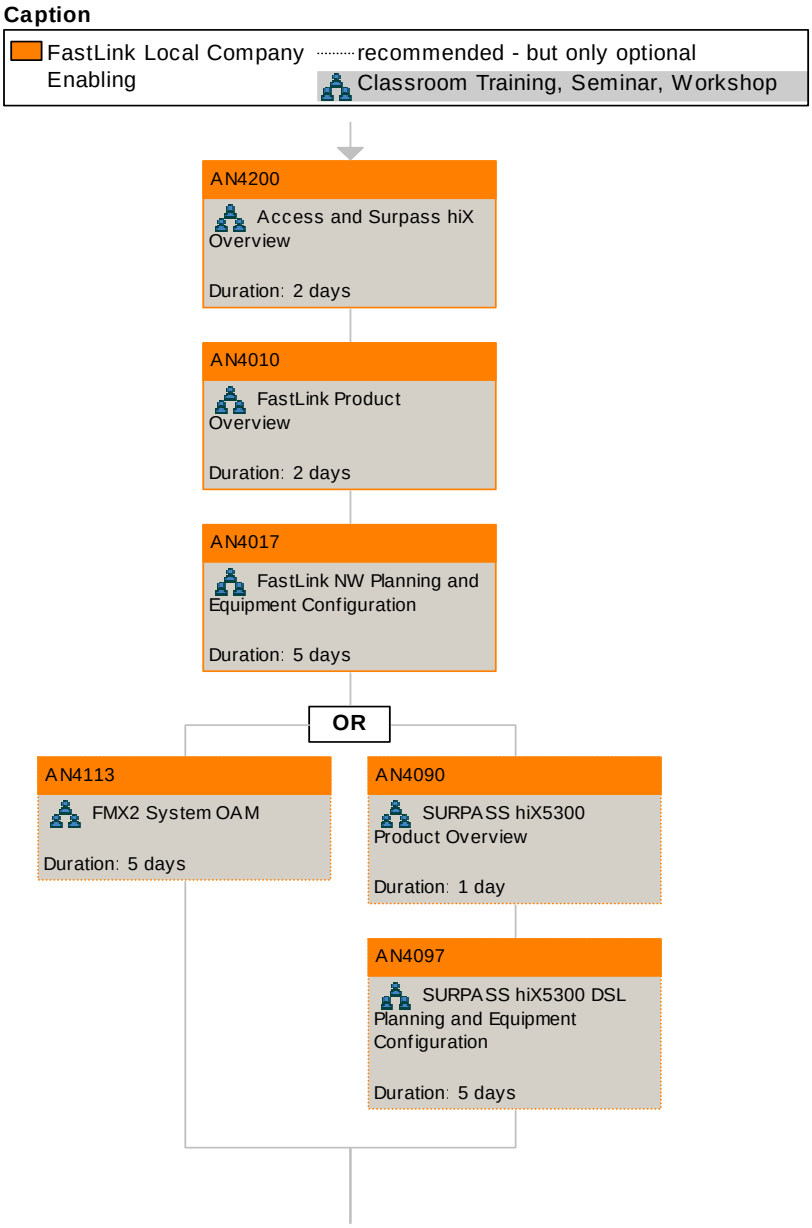
Target Group	Commissioning Specialist
Aim	The commissioning specialist is responsible for all the commissioning tasks including the acceptance test. He configures all units by means of the installation and test manual and carries out the appropriate tests in order to verify the correct and fault free operation. He installs the application program system APS and implements modifications as necessary. He is responsible for first configurations and troubleshooting during the commissioning procedure. All reports are collected for later verification.
Prerequisites	Qualified technician with basic knowledge of telecommunication networks and services.
Training option number	AN0004EU01AN

Training Option FastLink Delta Training



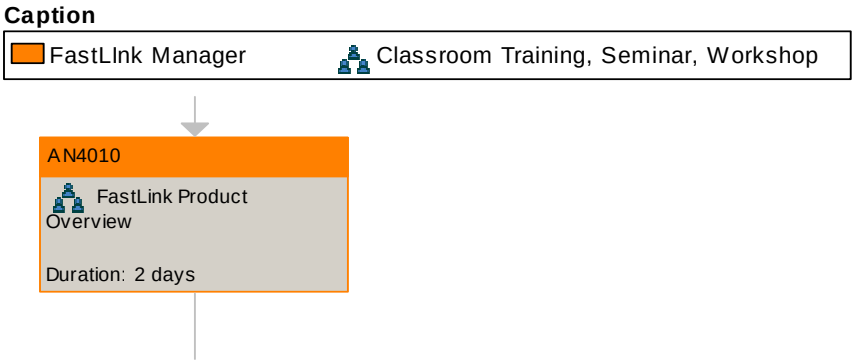
Target Group	Commissioning Specialist, OAM Specialist
Aim	Delta training is always required, when the system software in your network is upgraded from one version to another. During the delta training, the new system features and operation and maintenance practices are presented and explained. Please select the required course from the following list. Please note, that participation in an upgrade training requires, that you have the appropriate knowledge about your current system version.
Prerequisites	OAM or Commissionind Specialist Training of the last earlier version (AN@FL4OMS, AN@FL4COM)
Training option number	AN0009EU01AN

Training Option FastLink Local Company Enabling



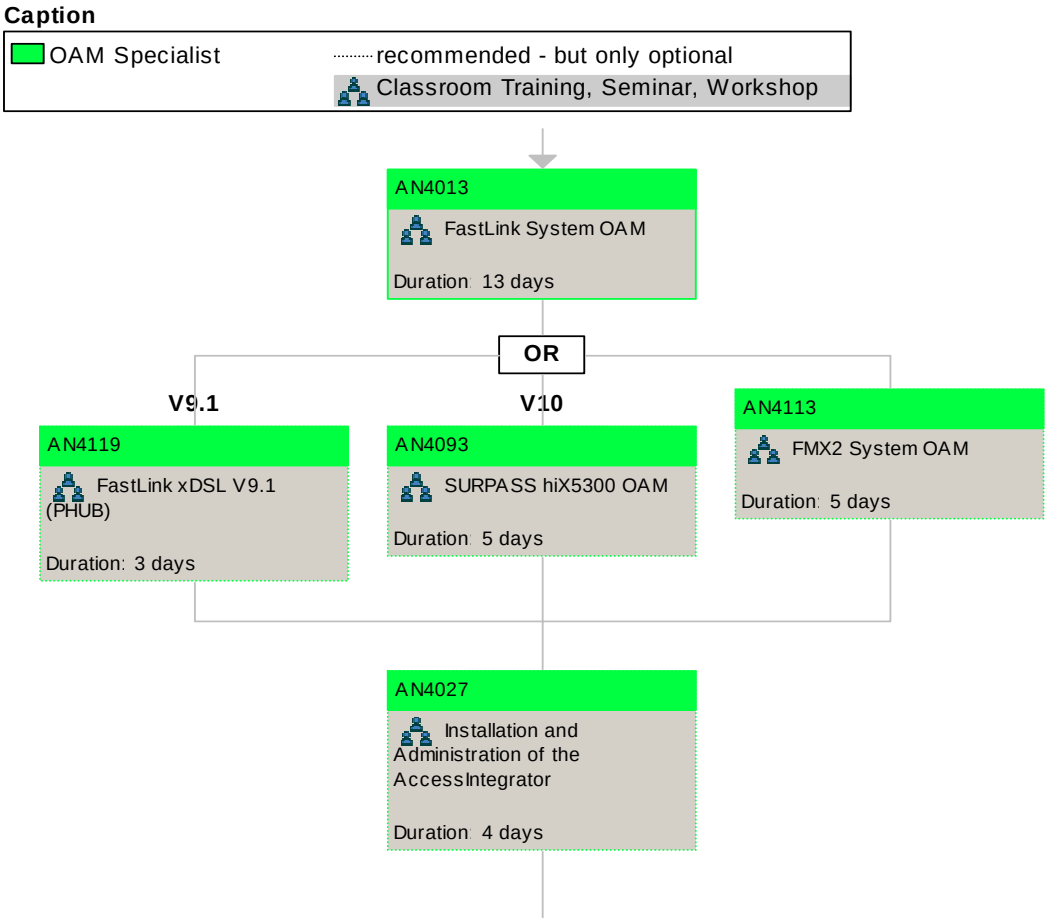
Target Group	Local Company FastLink Sales
Aim	The Local Companie sales stuff is trained to get a good knowledge of the system in the first step. In the second step they are trained for network planing and equipment configuration.
Prerequisites	Participants should have a basic understanding of telecommunications
Training option number	AN0002EU01AN

Training Option FastLink Manager



Target Group	Manager
Aim	The manager trained in the seminar listed and described below is not directly involved in the management of the system, the network elements or the network. His job however requires, that he has got a basic understanding of the installed system, the network and the network elements including services and features.
Prerequisites	Participants should have a basic understanding of telecommunications
Training option number	AN0001EU01AN

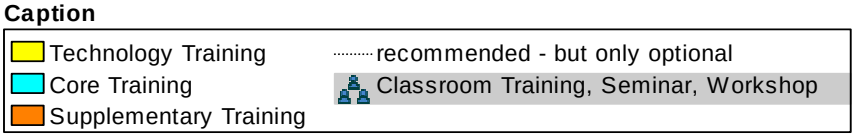
Training Option FastLink OAM Specialist

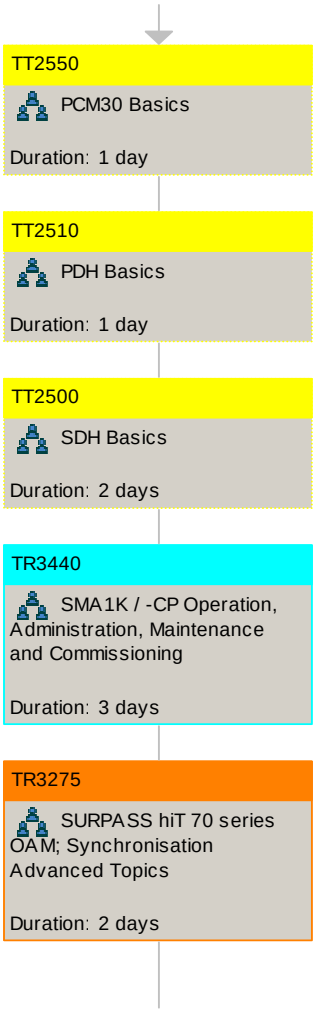


Target Group	OAM Specialist
Aim	The OAM Specialist for FastLink is responsible for all operation and maintenance tasks. He uses the operation manual for all administration and operation tasks e.g. equipment configuration and database administration. The detection of faults and its elimination by replacement of faulty units is performed using the maintenance manual. Furthermore, he advises the maintenance technician and provides supports where necessary. Problems which cannot be eliminated will be reported to the Faul Management Expert TAC for further analysis.
Prerequisites	Participants should have a basic knowledge of telecommunication networks and services
Training option number	AN0003EU01AN

Training Option SDH Equipment SMA 1k Series 3 - Standard Training for Service

Caption





Training option number TR0005EU01TR

Access and Surpass hiX Overview

Target Group

Customer and Service OAM Staff
Service Specialist Staff
Project Managers
Engineers and Planners
Technical Sales

Aim

The participant is able to
- Give an overview of the access network solutions
- Describe the traditional solution in the Central Office
- Describe the solution for unbundling the local loop (Colocation)
- Describe the solution Fiber-in-the-loop (FITL) based on Attane products
- Explain the functions of the CPE products for the high bit-rate access
- Explain the Voice-over-DSL (VoDSL) solution
- Explain the basic structure of the product FastLink
- Explain the basic structureof the product Surpass hiD
- Explain the basic structure and interfaces of the product Surpass hiX 5200
- Explain the basic structure and interfaces of the product Surpass hiX 5300
- Explain the basic concept of the AccessIntegrator

Prerequisites

Course Understanding TCP/IP Networks (TI1332) or
Equivalent basic IP knowledge
Course Technology and Applications of ATM (TI2440) or
Equivalent basic ATM knowledge

Contents

Access Network Solutions
- Access Solution Overview
- Solution: Central Office
- Solution: Collocation
- Solution: Fiber-in-the-loop

xDSL and Voice-over-DSL (VoDSL): Concept and products
Access Solution Family Product Overview
- FastLink: Basic structure, interfaces and management concepts
- MSAP and AMGW

Evolution to the Next Generation Network
- Surpass hiX overview
- Surpass hix5200 - evolving voice access
- Surpass hiX5300 - DSLAM solution
- Surpass hiX5600 - The IP DSLAM

SURPASS Carrier Ethernet Solution
Customer Premises Equipment for high bit-rate access
- AccessIntegrator: Basic structure and concepts

Duration

2 days

Export control

AL-Number: N
ECCN: N

Course number

AN4200

FMX2 System OAM

Target Group

FMXII/CMXC (FMX2R3.1/FMXIIV2) Operation and Maintenance Specialist

Aim

The participant has a good knowledge of the system components, interfaces and their applications. He is able to perform trouble shooting, administer the transmission view, operate the system and perform commissioning with the TMN AccessIntegrator.

Prerequisites

Qualified technician with basic knowledge in transmission engineering, of PCM and telecommunication networks

Contents

FMXII/CMXC
- Integration of FMXII/CMXC
- Integration of LT2ME1 and STU
- Operating System

FMXII/CMXC Components
Structures and Operating Modes of FMXII
Shelf Design
- MSX19 shelf
- CMXS shelf
- SNUS shelf
- FMX2S shelf

AccessIntegrator Basic Functions
- Single- and Multiple Configuration
- Graphical User Interface (Network and Element Views)
- Local Craft Terminal

SISA Network
- Network Elements
- Transport Channels

Plug In Units
- Central Units
- Subscriber Units
- Interfaces
- Line Terminating Equipment (with new LT2ME1 and STU)
- Supervision Units
- CC64K Cross Connect
- Clock Synchronization
- Supervision, Alarm Signaling and Maintenance

Path- & Service Management
Software
- Memory Structure
- APS Stucture
- Software Download/Update
- Backup

Testing
Standards and Component Characteristics
- Used Standards
- Clock Equipment
- QD2 Protocol

Comment

SMX (FastLink SDH) is not part of that course and must be booked seperately (course AN4015 FastLink SMX System OAM)
Important hint for On-Site Courses: This course has full d-lab ability (access to remote training lab)!

Duration

5 days

Export control

AL-Number: N
ECCN: N

Course number

AN4113

FastLink Commissioning

Target Group	Commissioning Specialist
Aim	The participant has a good knowledge of the applications, functional structure of FastLink. He is able to perform commissioning of FastLink equipment.
Prerequisites	Course FastLink System OAM (AN4013)
Contents	Introduction Installation Test Manual ITMN - Scope of the ITMN - Installation Test Sequence Protective Measures Prerequisites - Hardware - Software - Documentation Procedures - Requirements/Check List - Commissioning of: - SISA GK/E - OMX16S, SMXS - ONU20 - ASMXS, UMX2S(2) and COMPS(2) - CMXII - LT2ME1+STU, NTs and Related Modules - This includes commissioning and configuration of the modules.
Duration	2 days
Export control	AL-Number: N ECCN: N
Course number	AN4014

FastLink NW Planning and Equipment Configuration

Target Group

Planning Engineer

Aim

The participant has a good knowledge of the system components and interfaces of the FastLink. He is able to perform the FastLink network and hardware planning, and he is able to calculate the power consumption of the FastLink components.

Prerequisites

Qualified engineer with a basic understanding of switching and transmission technology

Contents

Overview
Access network
- FastLink system components
- Network planning categories
- Basic FastLink planning steps

V5x Interfaces
- Open and proprietary interfaces
- V5x interfaces
- Realization of V5.1 and V5.2 interface in EWSD

System Modules
- System components
- Multiplexers and cross-connectors of FastLink Version 1-4
- Multiplexers and cross-connectors of FastLink Version 5
- PDH transport modules
- SDH transport modules

System Components
- General information
- Optical Line Termination OLT
- Optical Distant Termination ODT
- Optical Network Unit ONU
- Network termination

Traffic Theory
- Traffic units
- Traffic carried
- Caculation of the concentration factors in the V5c and V5.2 interfaces

Power Supply
- Power unit
- Power consumption

Access Integrator
- Access integrator architecture
- Hardware requirements

SISA Network
FastLink Planning
- FastLink network planning steps
- Fastlink network planning procedures
- Detailed planning
- Data survey
- Detailed design
- Material folder
- Controlling and interfaces
- Network planning documentation

NetMinisterOSP Overview
- FastLink Equipment Configuration

Duration

5 days

Export control

AL-Number: N
ECCN: N

Course number AN4017

FastLink Product Overview

Target Group	Manager
Aim	The participant will have a basic knowledge of the applications, the system structure, the mechanical design and the OAM concept of FastLink.
Prerequisites	Participants should have a basic understanding of telecommunications
Contents	General System Overview - Functions - V5.1/V5.2 interfaces - Applications - System components Network Management - AccessIntegrator - Management functions and features System Modules - System Modules variaty - Optimized telefonie - Own fastLink transport - System Modules of FastLink version 9 and 10 xDSL Integration - Evolution
Duration	2 days
Export control	AL-Number: N ECCN: N
Course number	AN4010

FastLink System OAM

Target Group

FastLink OAM Specialist
FastLink Commissioning Specialist

Aim

The participant has a good knowledge of the applications, features, and functional structure of FastLink. He is able to perform all operation and maintenance tasks and to test the connected subscribers with the TMN AccessIntegrator.

Prerequisites

Qualified technician with basic knowledge of telecommunication networks and services
PDH Basics, SDH Basics (CBT or TI2440 course)

Contents

Introduction
- Access Network
- Features and Interfaces of FastLink
- FastLink V10 overview

Management System Overview
- DCN and SISA Structure
- AccessIntegrator Basics

Signaling
- Open and Proprietary Interfaces
- V5.x Interface Basics

System Modules (Access Multiplexer, Flexible Multiplexer, Cross Connect Multiplexer, PDH and SDH Transport, Network Terminations)
- Module Description
- FL V10 modules: SUB322, LT2ME1 and STU
- SISA Structure
- Module Configuration
- V5.x Interface and Subscriber Administration

Maintenance
- PCM Supervision and Alarming
- Fault Clearance

ACI Network Management
- QD2 Transport Channels
- Network Editor and TOP
- Log-Files

Network Configuratuon Management
- Terminology and Basic Concept
- SNC
- Routing
- Log Administration

Software Management
- APS Management with ACI NCT and LCT
- Network Element Backup and Restore

Testing and Performance
- Subscriber Line Tests
- Performance Management

Comment

Contains the operation with AccessIntegrator and SDH (FL SMX).
For Broadband components (xDSL) a seperat training is necessary:
- Fastlink V9.2 and V10 (xDSL-Integration with Mini-/Micro-DLAM or P50) continue with the course AN4093 XpressLink/SURPASS hiX5300 OAM!

For SMA1K-CP usage continue with TR3440
- Important hint for On-Site Courses: This course has full d-lab ability (access to remote training lab)!

Duration

13 days

Export control	AL-Number: N ECCN: N
Course number	AN4013

FastLink xDSL V9.1 (PHUB)

Target Group

OAM Specialist
Commissioning Specialist

Aim

The participant has a good knowledge of the applications, functional structure of FastLink. He is able to perform operation and maintenance tasks, he knows the differences to the previous FastLink versions and he can apply it.

Prerequisites

Course OAM training for version V6 (course FastLink System OAM (AN4013))
Course OAM training for Xpresspass or
Equivalent knowledge

Contents

Introduction
- FastLink V9: Features and Interfaces

ATM and xDSL Basics
- Introduction into ATM
- Introduction into the DSL Technology

System Description
- Multiplexers and Crossconnectors
- SNMP Protocol
- Technical Description

Management System
- ACI Basics
- Network Editor

Operation and Configuration
- Configuration
- Scripts
- Software Download
- Maintenance
- Subscriber Administration

Evolution
- Evolution of FastLink

Duration

3 days

Export control

AL-Number: N
ECCN: N

Course number

AN4119

Installation and Administration of the AccessIntegrator

Target Group

System Administrator for AccessIntegrator (ACI & ACI-E)

Aim

The participant has a good knowledge of the functional structure and the configuration possibilities of the Access Integrator, thus he is able to administer and maintain it.

Prerequisites

FastLink System OAM (AN4013) or
SURPASS hiX5300 OAM (AN4093) or
FMX2 System OAM (AN4113) or
SURPASS hiX 5600 Operation and Maintenance (AN9093)
SURPASS hiD 6600 Operation and Maintenance (AN9013/TR9001)
Basic knowledge of Windows/SOLARIS

Contents

Introduction: ACI & ACI-E
- TMN architecure
- HW architecture of the AccessIntegrator
- DCN architecture

SW Installation
Preparations
- Windows 2003 Installation
- CORBA Infrastructure
- The Versant dB SW
- AccessIntegrator installation
- Startup sequence
- Integration of SNMP Network Elements

Operation of the Cross Domain Manager
- Network Map
- Integration of Element Manager
- Cross funktional operational tasks

User Management
- User management Windows 2003
- User administrator of AccessIntegrator
- AccessIntegrator security concept

Log Administration
- Characteristics, creation and deletion of logfiles
- Logfiles for administration procedures
- AccessIntgrator directory structure

Backup Restoration of OS Data
- Backup/restore AccessIntegrator data
- Backup/restore of versant database
- Database structure and organisation
- Versant database

Troubleshooting
- Virus protection
- Technical service
- Fault reporting
- Inventory data retrieval
- QD2 trace

Comment

This course contains no operational part! Therefore the operation is integrated in the OAM courses of the equipment (e.g. for FastLink AN4013, for hiX AN4093, AN4413, AN4415, AN9097; for hiD AN9013, TR9001).
Note: this course is valid for ACI & ACI-E!

Duration

4 days

Export control

AL-Number: N
ECCN: N

Course number AN4027

Installation, Administration and Operation of the Advanced Provisioning Manager APM

Target Group	System Administrator for APM
Aim	The participant has a good knowledge of the functional structure and the configuration possibilities of the APM, thus he is able to install and operate it.
Prerequisites	Basic knowledge of - Telekommunication Hardware - ATM and TDM structures - UNIX systems
Contents	Introduction: APM - TMN principles - Process Architecture of the APM SW Installation - Solaris Patches - JAVA Runtime Environment Installation - CORBA Interface Installation - The Versant dB - Web-Server and Web-Tool - Element Manager and APM Process Installation - Graphical User Interfaces - Startup Operation of APM - Insertion of Users, Domains, Nodes, Ports and Connections Operation of PGNM - Log-Files
Duration	3 days
Export control	AL-Number: N ECCN: N
Course number	AN4227

PCM30 Basics

Target Group	All personnel working in the PDH and SDH field, from Planning and Engineering to Management Experts and Service should attend.
Aim	The objective of this course is to give instructions on 2 Mbit/s digital frame signals assembled in a PCM30 system.
Prerequisites	Participants must have technical knowledge in telecommunications.
Contents	Introduction to PCM - Overview - Applications Fundamentals of PCM - 2 Mbit/s Frame - Signaling Pulse Frame - Baseband Transmission of Digital Signals - Block Diagram of a Primary Multiplexers - Synchronization of Primary Multiplexers - Introduction to Levels
Duration	1 Day
Export control	AL-Number: N ECCN: N
Course number	TT2550

PDH Basics

Target Group	All personnel starting a sequence of PDH or SDH training, from Planning and Engineering to Management Experts and Service should attend.
Aim	To give instructions on application, structure, and methods of PDH multiplexing, an introduction to PDH technology leading to SDH technology.
Prerequisites	Participants must have technical knowledge in telecommunications.
Contents	Plesiochronous multiplex systems - Overview - Application Time division multiplexing of digital signals - Frame structure - Digital signal hierarchies 2 till 4 - Functional description - Applied MUX/DEMUX circuits - Measurements at multiplex systems - Baseband transmission of digital signals
Duration	1 Day
Export control	AL-Number: N ECCN: N
Course number	TT2510

SDH Basics

Target Group

All personnel starting a sequence of SDH training, from Planning and Engineering to Management Experts and Service should attend.

Aim

The main objective is to introduce the many concepts used in SDH technology. It gives the students the building blocks for the courses to follow. This course is fundamental and should not be bypassed.

Prerequisites

Participants must have some technical knowledge in telecommunications, and some basic knowledge in PDH & SDH. Should completeTT2510 first.

Contents

PDH Multiplexing
- Principles of PDH Multiplexing
- ANSI/CEPT Bit Rates
- Frame Structure of a PDH Signal
- Multiplexing / Demultiplexing of PDH Signals

Principles and Characteristics of SDH
- Introduction to the Synchronous Digital Hierarchy SDH
- ITU-T and SDH, an Introduction
- ITU-T Recommendations for SDH Bit Rates
- Structure of an STM-1 Frame
- Byte by Byte Multiplexing of SDH Signals
- Synchronization of STM-1 Frames
- Line Codes used in SDH
- Codes and Interfaces of SDH

Basic Elements of STM-1
- Elements of an STM-1 Signal

Mapping
- Mapping of 140 Mbit/s Signal into the STM-1
- Mapping of a 34 Mbit/s Signal to the Container C3
- Mapping of 2 Mbit/s Signal to STM-1
- Mapping of ATM Cells into the STM-1
- Concatenation of Payloads

Pointer
- Pointer Functions
- Pointer Types
- Pointer Structure
- Pointer Addressing Scheme
- Pointer Justification

Overhead
- Overhead Functions
- Section Overhead (SOH)
- VC-3 and VC-4 Path Overhead (POH)
- VC-12 Path Overhead (POH)

Monitoring, Maintenance and Control in the SDH
- Alarm Interactions Overview
- Bit Error Monitoring
- Error Reports REI and RDI
- AIS
- Bit Error Monitoring Concept (Examples)

Duration

2 days

Export control

AL-Number: N
ECCN: N

Course number

TT2500

SMA1K / -CP Operation, Administration, Maintenance and Commissioning

Target Group

Service

Aim

The objective of this course is to give the paticipants detailed instruction on the NE to enable them to support the product in the field.

Prerequisites

Technical knowledge in telecommunications
Basic knowledge in PDH & SDH or
Courses TT2550 and TT2500

Contents

Documentation
Safety Instructions
- Important safety issues are highlighted

An Introduction to the Equipment
- Hardware Design
- Functionality
- Software and Firmware
- Operation
- Maintenance
- Inherent Maintenance Aids

Basic Prerequisites
- Tools and equipment you'll need

Hardware
Service and Operating Interfaces
- Switch settings
- Pin Assignments, how to understand them

Switch settings on the cards
- An introduction to switch settings

Installing and connecting the operating terminal
- Step by step instructions on how to load the required software packages on your PC to turn it into an LCT, and how to connect your PC as an LCT

Commissioning
- The Commissioning Process
- First power on
- Commissioning tests

Field Acceptance Test procedures
- Test descriptions
- Measuring the compliance against requirements
- House keeping issues
- Record of inventory
- Configuration data

Network Integration
- Subrack connection onto the Network
- Working using
- The customer's configuration
- Test parameters

Duration

3 days

Export control

AL-Number: N
ECCN: N

Course number

TR3440

SURPASS hiT 70 series OAM; Synchronisation Advanced Topics

Target Group

Service
Planning Engineers

Aim

The main objective of this course is to enable the paticipant to support synchronisation issues in the field. All advanced topics covered are clearly outlined in the contents. The scope of these topics is beyond the daily routine tasks.
Training equipment is prepared to simulate field conditions and is used to perform a variety of Hands-On exercises
All in all the paticipant will be able to perform all Synchronisation relevant service tasks in the network

Prerequisites

Required for Service:
- Course SURPASS hiT 7070,7050 OAM; SDH and Equipment Core Functionalities Advanced Topics (TR3272)

Required for Planning Engineers:
- Course Next Generation Optical Network (TR3200)

Contents

Introduction to Synchronization
- Synchronization Basic Principles
- Standards and Recommendations
- Demonstration of Jitter

Synchronization Network Architecture
- Clock Types
- Clock Distribution
- Reading the Network Synchronization Plan
- Setting Options of Synchronization Parameters

Synchronization Transfer...
- ...across SDH/PDH Boundaries
- ...towards PSTN and PABX
- ...via ATM networks

Handling Failures and Reconfigurations
- Automatic Reconfiguration
- Test Applications

Comment

Training is performed on the latest released SW version
Important hint for On-Site Courses: This course has d-lab ability (access to remote training lab; some few restrictions in practice remain)!

Duration

2 days

Export control

AL-Number: N
ECCN: N

Course number

TR3275

SURPASS hiX5300 Commissioning

Target Group	Commissioning Specialist
Aim	The participant has a good knowledge of the applications, functional structure of XpressLink / hiX5300. He is able to perform commissioning of XpressLink equipment.
Prerequisites	Course XpressLink / SURPASS hiX5300 OAM (AN4093)
Contents	Introduction Commissioning Installation Test Menual ITMN - Scope of the ITMN - Installation Test Sequence System Commissioning - System documentation - Commissioning procedures - Commissioning exercises
Duration	1 Day
Export control	AL-Number: N ECCN: N
Course number	AN4094

SURPASS hiX5300 DSL Planning and Equipment Configuration

Target Group

Planning Engineer

Aim

The participant has a good knowledge of the system components and interfaces of the Access Solution. He is able to perform the Access network and hardware planning, and he is able to calculate the power consumption of the Access network components.

Prerequisites

Qualified engineer with a basic understanding of switching and transmission technology

Contents

Overview
- System components (Basics)

Planning basics
- Network planning steps
- Network planning procedures and tools
- Detailed planning
- Data survey
- Detailed design
- Material folder
- Controlling and interfaces
- Network planning documentation

Interfaces
- STM-1 optical and electrical
- E3, E1
- V5.2
- ADSL, SHDSL, VDSL
- Ethernet

ATM basics
- Service categories
- Traffic shaping

System components and modules
- XpressLink / hiX
- XpressPass
- Access Media Gateway
- Integrated access devices
- Network termination
- Integration in FastLink-ONU

Provision & Interworking
- Interconnection of the components
- Cascading, Daisy chaining

Power consumption
- Calculation of connected wattage

Traffic planning
- Traffic concentration V5.2 for Voice over DSL
- Calculation of ATM-Traffic

Management System ACI
- Hardware requirements

Examples

Appendix
- Shelves, Modules, Abbreviations

Duration

5 days

Export control

AL-Number: N
ECCN: N

Course number

AN4097

SURPASS hiX5300 OAM

Target Group

XpressLink OAM Specialist

Aim

The participant knows functions and features of the system. He can perform all operation and administration tasks, and he can eliminate faults by module replacement.

Prerequisites

Qualified technician with basic knowledge of telecommunication networks and services.

Contents

System Overview
- System components
- System interfaces
- xDSL Technology Concepts
- Customer Premises Equipment

System Description
- Functions
- Mechanical design

Introduction to the Network Management System
- XpressLink Network Element Management System
- AccessIntegrator EM
- Functional Overview
- Network Management Communication

Configuration Management
- Hardware configuration
- Operational status handling
- xDSL parameter configuration
- STM-1 parameter configuration
- VP and VC cross-connection

Performance Management
- Physical Layer
- ATM Layer

Fault Management
- Fault analysis and recognition
- Fault clearing procedures
- OAM loopback cell test

Software Management
- BOOT phase
- Start-up and software download
- Recoveries strategy
- Safeguarding concept
- Loopback test

Comment

Standard Management System is the AccessIntegrator
Important hint for On-Site Courses: This course has full d-lab ability (access to remote training lab)!

Duration

5 days

Export control

AL-Number: N
ECCN: N

Course number

AN4093

SURPASS hiX5300 Product Overview

Target Group	Manager
Aim	The participant has a basic knowledge of the applications, the system structure, the mechanical design and the OAM concept of XpressLink / hiX5300.
Prerequisites	Participants should have a basic understanding of - Telecommunications and - Basic IP/ATM knowledge.
Contents	System Overview - Access Network - Functions and Applications of XpressLink / hiX5300 - Management xDSL Basics - Introduction into the xDSL Technology Evolution - Features of XpressLink / hiX5300 - Outlook
Duration	1 Day
Export control	AL-Number: N ECCN: N
Course number	AN4090